

Kirkwood  
**Kirkwood**  
Community College  
Cedar Rapids

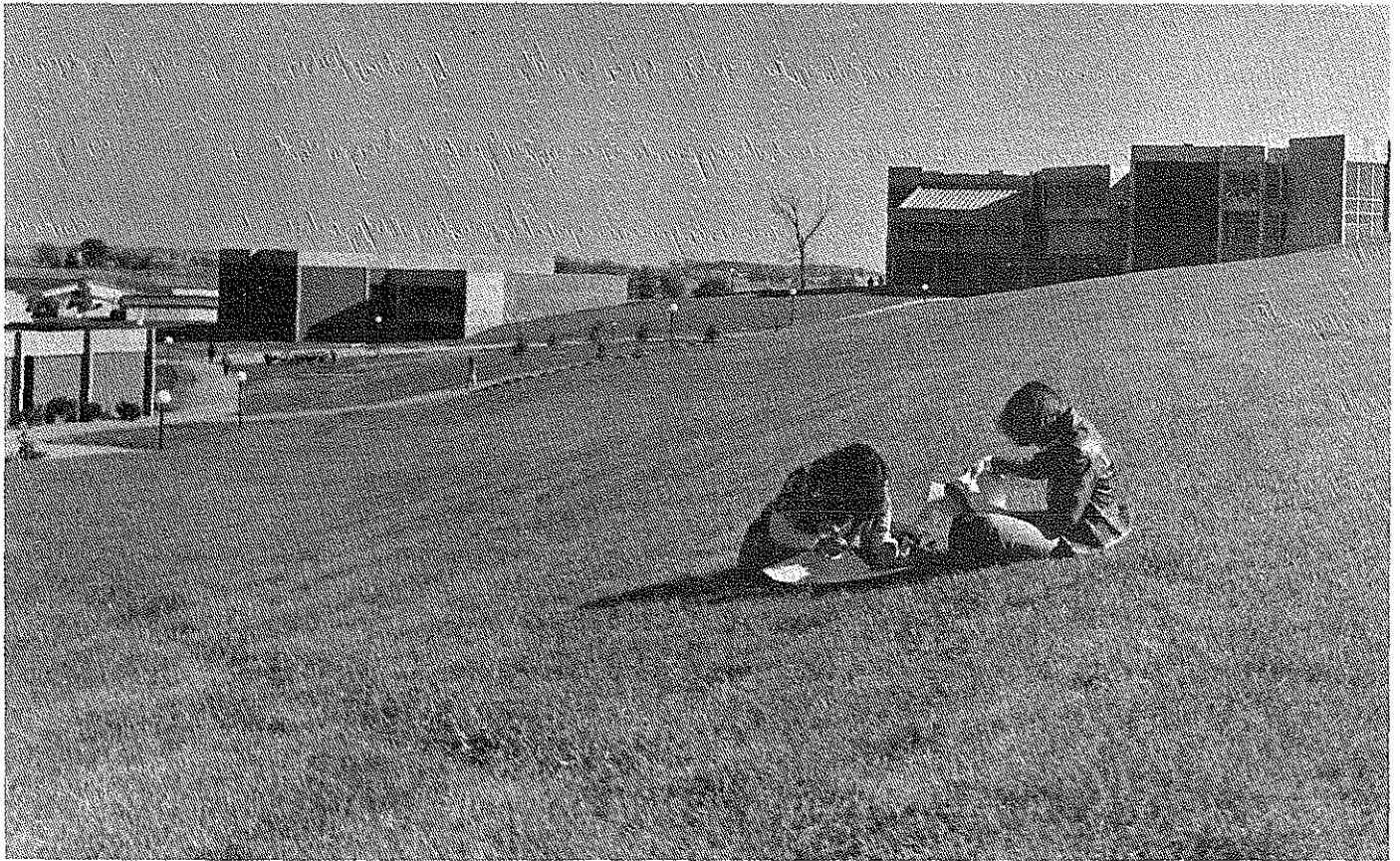
*Kathy Hoer*

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**1979-81**





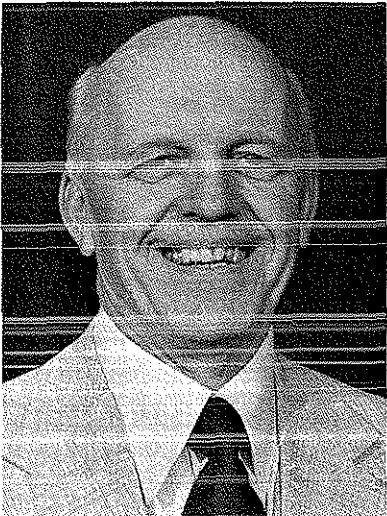


# **KIRKWOOD COMMUNITY COLLEGE**

**6301 Kirkwood Blvd. S.W.  
Cedar Rapids, Ia.**



**Dr. Selby A. Ballantyne**



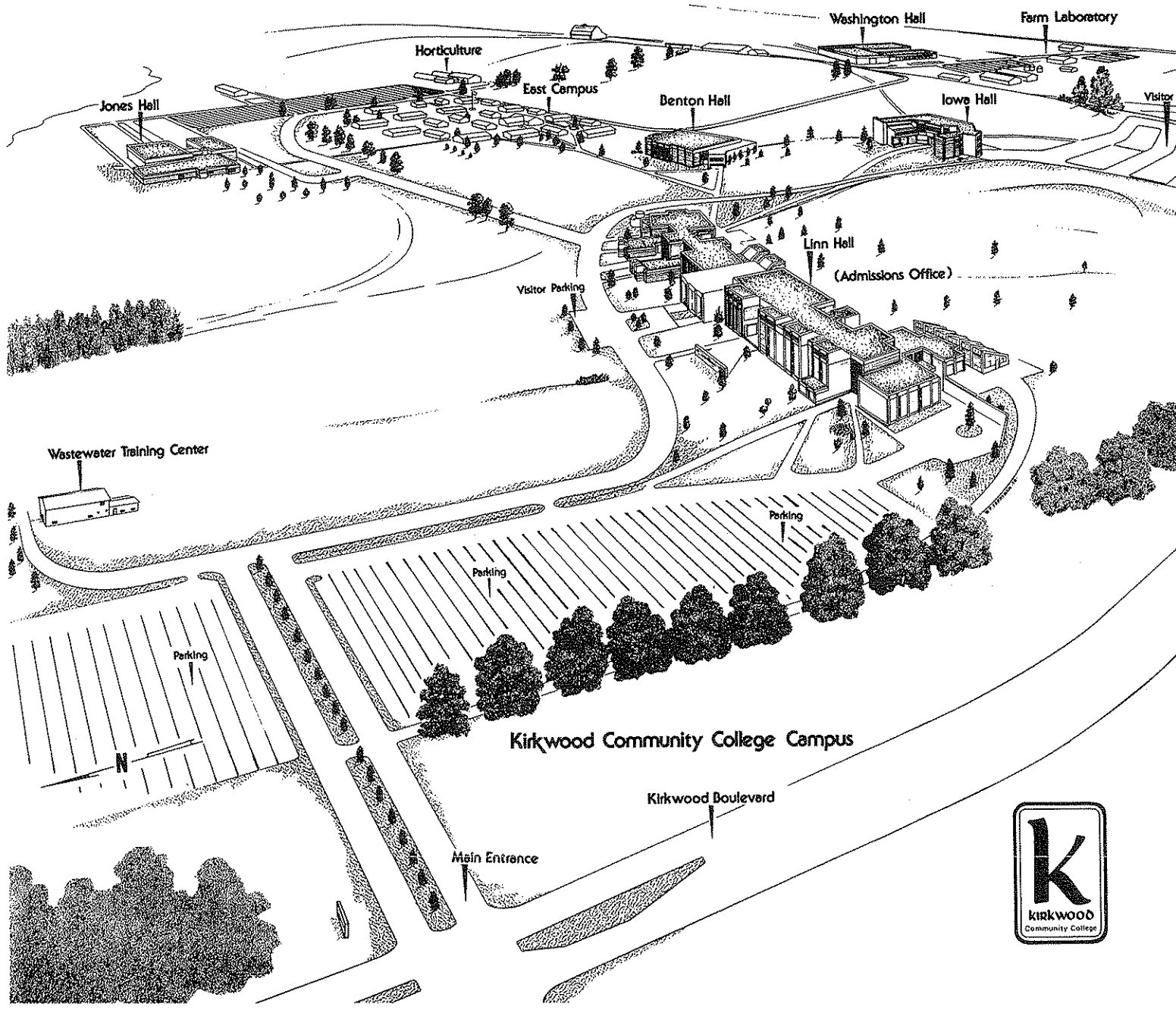
**Ira E. Larson**

## IN APPRECIATION

*BECAUSE their special understanding of the community college has contributed greatly to the development and operation of Kirkwood Community College, and*

*BECAUSE that understanding has been coupled with a high degree of leadership and a personal commitment to meeting the educational needs of the Area Ten community,*

*THIS EDITION of the Kirkwood Community College catalog is dedicated to the late Dr. Selby A. Ballantyne, former president-superintendent of Kirkwood during the college's first 11 years, and Ira E. Larson, former assistant superintendent of the college for eight years and now assistant superintendent emeritus.*





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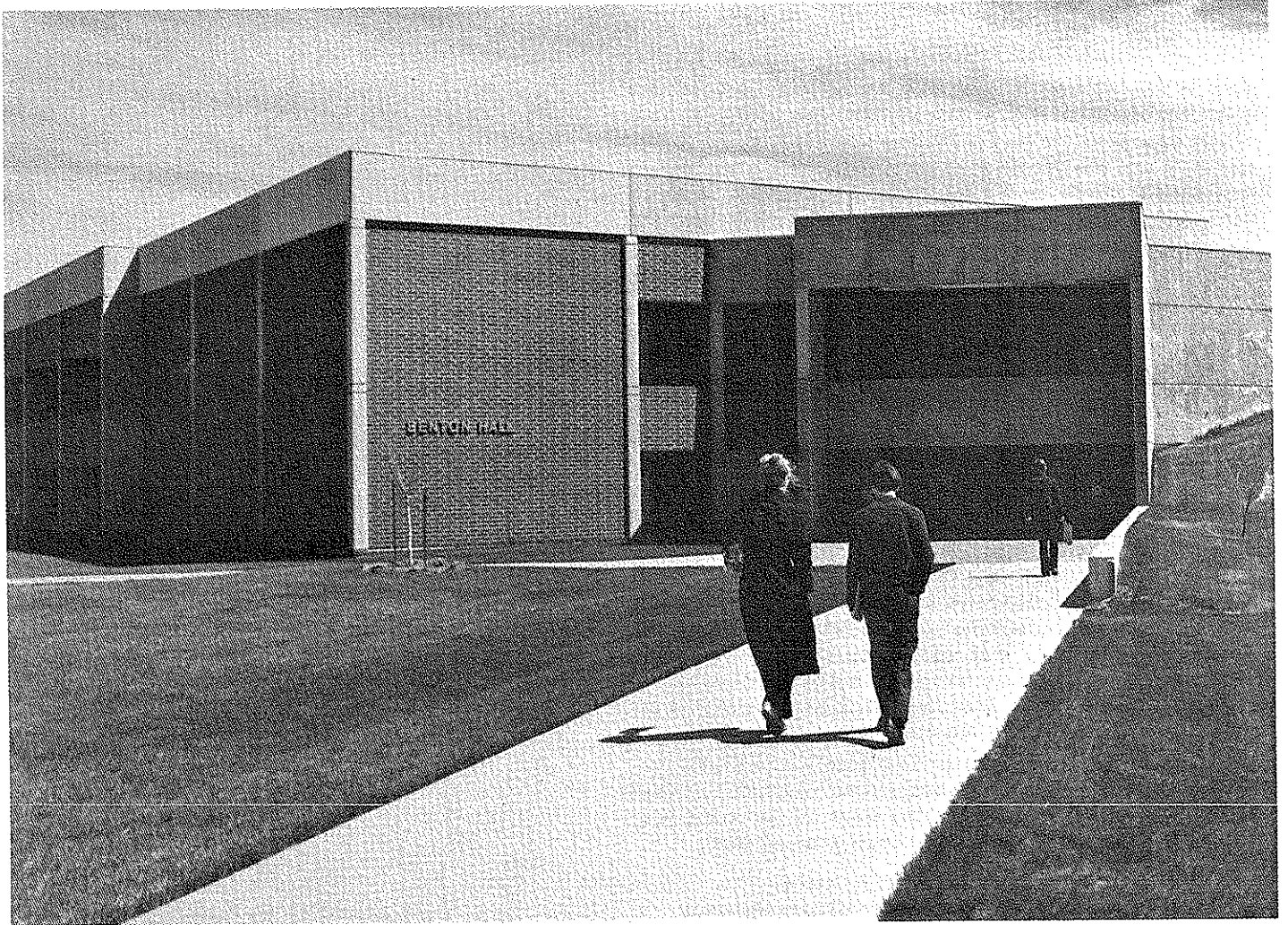
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*The information contained in this catalog is subject to cancellation or change without notice. This catalog cannot be considered as an agreement or contract between individual students and Kirkwood Community College, its faculty, staff, administrators or directors.*

*Kirkwood Community College does not discriminate on the basis of handicap, sex, race, color, religion, or national origin in its educational programs, activities, employment practices, or admission procedures.*

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# THE COLLEGE



# LOOKING AHEAD

*Even as one relatively new to this college, I can appreciate the spirit that has made it grow and flourish. This could not have happened without the help of the board of directors, the faculty and staff, and the people of eastern Iowa. It is appropriate to take special notice of the leadership provided by Dr. Selby Ballantyne, Kirkwood's first superintendent, who served the college and the public so effectively.*

*Kirkwood is a growing institution—growing not for the sake of size but for the sake of service. This growth may take the form of new facilities or new services in new locations. We cannot know everything that will happen in the coming years, but we are trying to look ahead as clearly as possible and to prepare for challenges that we know will confront us.*

*An important part of the effort to prepare for the future has been the college's master planning effort. With the help of people from all segments of the Area Ten community, we have prepared a "road map" for the coming years. That map is an excellent one, and one that we will need as the college grows.*

*Kirkwood does not exist in a vacuum; it is firmly grounded in the real world, and is dedicated to improving the lives of those in Area Ten. Some are learning new skills for better jobs; some are preparing for their first jobs; some are improving their basic learning skills or completing their high school education; and some are enriching their lives through general interest classes offered throughout the area.*

*Kirkwood wants to continue providing quality educational programs and services for these people and yourself. Consider this catalog as a guide to the many ways we can serve you, your family and your community. Let us grow together.*



**Dr. Bill F. Stewart**

**Dr. Bill F. Stewart**  
**President/Superintendent**



Kirkwood Community College is a publicly supported college serving the Iowa counties of Benton, Linn, Jones, Iowa, Johnson, Cedar and Washington as well as portions of nine adjacent counties which are part of the merged area. This represents a total population of 327,000 persons. The total land area of the seven major counties served is 4,292 square miles or 7.8 percent of the land area of the state of Iowa.

The college operates under the regulations of the Iowa State Board of Public Instruction with the board of directors of merged Area Ten as its governing board.

## AREA TEN

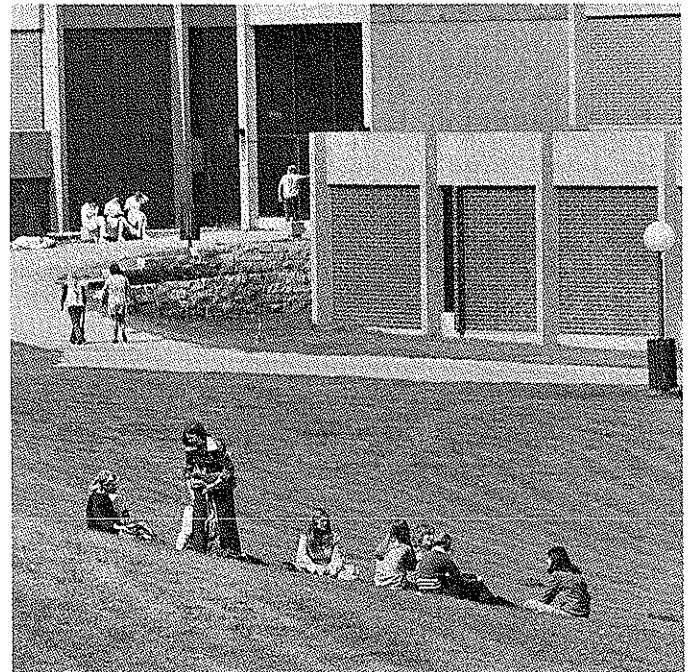
Merged Area Ten represents an emerging socio-politico-economic unit. It is an area in transition, mingling rapidly developing urban centers and rich farm lands dotted with small rural communities. Within its borders are many space-age industries, prosperous farms, a major state university, several private liberal arts colleges, and myriad supportive and service institutions and industries. In this setting of vigorous economic expansion and rapid population growth, advancing technology has created unprecedented demands for formal education and training programs. This same technology simultaneously has placed greater demands upon the individual in his role of responsible citizen.

## THE COMMUNITY COLLEGE

For years, American society has taken for granted the importance of secondary schooling for the many and higher education for the few. It has only been in the past 15 years or so that recognition has been extended to the need for post-high school education for the majority of adults. Accordingly, institutions of higher education, although well

suited to the service of a relatively select few, have not been prepared to satisfy the needs of the growing numbers of individuals who desire to participate in post-high school education. Thus, the citizens of Iowa have delegated this responsibility to the comprehensive community college.

Kirkwood Community College is charged by law with the responsibility of identifying the educational needs and desires of adult citizens and of designing educational programs which will help them fulfill their goals.



# PHILOSOPHY AND MISSION

## PHILOSOPHY

Kirkwood Community College believes that the opportunity to develop capacities consistent with one's needs and aspirations is every person's right. To recognize and foster the uniqueness of each individual and to meet diverse educational and related service needs, the college should apply available resources to provide accessible and comprehensive programs. These programs should respond to individuals who seek to understand, adapt to, and appreciate the environment, and to the other constituencies who look to the college for assistance. Kirkwood Community College should contribute to a steadily improving quality of life for the people of the district by developing and maintaining a comprehensive range of outstanding educational offerings and services.

Education expands one's mind, spirit, and abilities. The concepts of growth and change define education as a continuous process. Schools and colleges, therefore, must relate their programs and policies to lifelong learning. Kirkwood Community College believes education provides an important means for each person to grow towards greater self-fulfillment as well as a means by which societies preserve and interpret their culture and global heritage. Learning is enhanced when people can apply what they learn. Similarly, the application of skills, values, and attitudes is improved when people have an understanding of related theory. Education provides balance among these elements and thus contributes to success in the various aspects of an individual's life.

## STATE LAW

The law under which Kirkwood was established and continues to operate, Section 280A in the Code of Iowa, states in part, that area community colleges offer to the greatest extent possible, educational opportunities and services in each of the following, when applicable, but not necessarily limited to:

- 1) The first two years of college work including pre-professional education.
- 2) Vocational and technical training.

- 3) Programs for in-service training and retraining of workers.
- 4) Programs for high school completion for students of post-high school age.
- 5) Programs for all students of high school age who may best serve themselves by enrolling for vocational and technical training while also enrolled in a local high school, public or private.
- 6) Student personnel services
- 7) Community services
- 8) Vocational education for persons who have academic, socioeconomic, or other handicaps which prevent succeeding in regular vocational education programs.
- 9) Training, retraining, and all necessary preparation for productive employment of all citizens.
- 10) Vocational and technical training for persons who are not enrolled in a high school and who have not completed high school.

## MISSION

Consistent with the philosophy held by Kirkwood Community College, and in accordance with the charge given it by the State of Iowa, the mission of Kirkwood Community College is to enhance human and community resources, by acting on its own initiative and in concert with other agencies, to provide quality educational programs and community services.

## HISTORY

Kirkwood's history dates from January, 1965, when a steering committee was formed to establish a vocational school to serve Area Ten. Work on the study began almost immediately and was completed by July, 1965.

Soon after, the Iowa General Assembly passed enabling legislation which made possible the establishment of a system of community colleges and area vocational-technical schools throughout the state. Educators and laymen in Area Ten recognized the need for a comprehensive community college which would provide college transfer and adult education curricula as well as



vocational-technical curricula. Therefore, the nine-man board of directors elected by the citizens of the area asked for and received permission from the State Board of Public Instruction to establish Kirkwood Community College. The college was formally established on July 1, 1966.

The college immediately assumed responsibility for federally funded vocational-technical programs which had been provided by the Cedar Rapids Community School District since 1964. The Arts and Sciences, Student Services and Community Education Divisions were established in 1967.

In the college's short history, the foundation has been established for expanded educational opportunities in vocational-technical education, college transfer and career-oriented programs, adult and continuing education, student services, and community services.

## ACCREDITATION

Kirkwood Community College is accredited by, and is a member of, the North Central Association of Colleges and Secondary Schools. Kirkwood is also approved by the Board of Regents and the State Board of Public Instruc-

tion. Individual programs within the college are accredited by appropriate associations within their respective fields. Many programs are approved for veterans.

## COLLEGE FACILITIES

The Kirkwood main campus, located at 6301 Kirkwood Boulevard S.W. in Cedar Rapids, is a 315-acre countryside site on the south edge of Cedar Rapids. The first permanent building, Linn Hall, was completed in the fall of 1969. It contains classrooms, various laboratories and offices, and two large multi-purpose rooms.

The building houses more than 40 full-time vocational-technical offerings plus science and foreign language laboratories and classrooms. Some day and evening adult Community Education classes also are offered in Linn Hall. The college's main administrative offices are located in Linn Hall in addition to the college's public radio station, KCCK-FM.

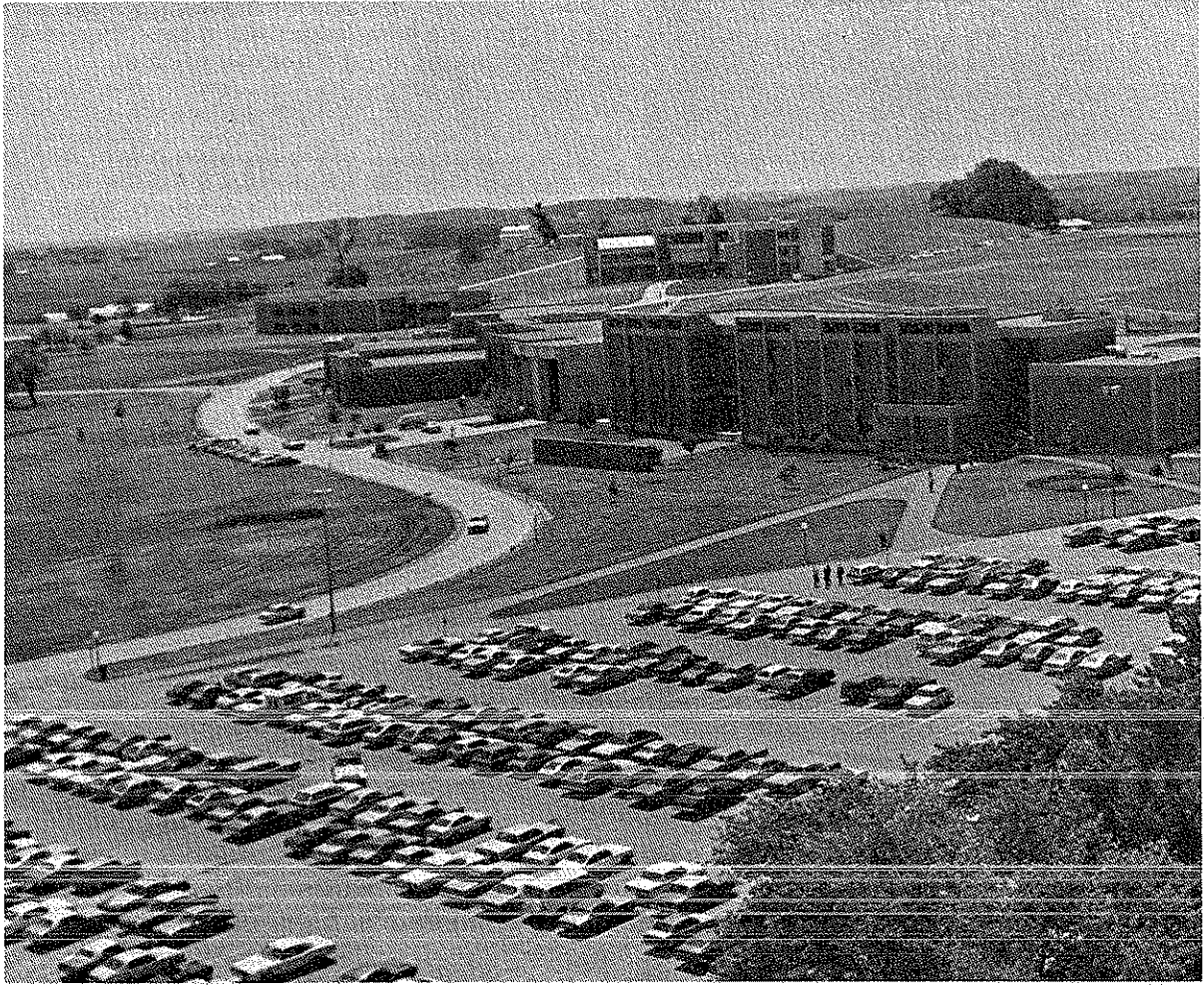
Iowa Hall, completed in January of 1975, is the second permanent building to be built on the Kirkwood campus. It contains the college cafeteria, bookstore, coffeehouse, Student Activities Office, conference rooms, multipurpose rooms, lounges and study areas...

Just northeast of Iowa Hall is the East Campus which consists of 22 relocatable buildings. This portion of the campus consists of classrooms, laboratories, a student lounge and offices of the Arts and Sciences and Community Education Divisions. The college's Horticulture and Natural Resources laboratory adjoins the East Campus.

Adjacent to the East Campus is Jones Hall. It houses Kirkwood's new Skill Center, which offers a program of services for disadvantaged and handicapped persons. It also serves as a trades center with facilities for Kirkwood's welding and building trades programs.

Benton Hall is the college's new Learning Resource Center, or library. It was completed in the spring of 1977 and connects the east and west campuses. It is adjacent to Iowa Hall.

Kirkwood's agricultural programs are located on the south side of the campus. This area includes the college's new agricultural mechanics building, Washington Hall. Com-



pleted in 1978, it houses the farm mechanics program and other classes related to farm mechanization. Other programs having facilities on the farm site include Agribusiness and Natural Resources, Rural Building Construction, Horse Husbandry (including barn, stall and arena), and Animal Health. There are also hog farrowing houses, beef feed lots and a feed mixing laboratory for the beef testing station.

Located to the west of the agriculture campus is the college's truck driving range.

#### **ACCESS FOR HANDICAPPED**

The college has undertaken an effort to remove architectural barriers and improve accessibility to campus facilities for handicapped and disabled persons. The college is committed to providing handicapped and disabled individuals with equal access to all college programs and services.



**Kirkwood's farm laboratory on the main campus**

## **BENTON HALL LEARNING RESOURCE CENTER**

The Learning Resource Center (LRC) is located in Benton Hall, a new facility opened in the spring of 1977 and situated in the center of Kirkwood's main campus. Benton Hall, a 33,000-square-foot building, is designed to be a multi-functional center. It houses the traditional functions of a library with the varied components of a learning resource center.

Public services are located on the first floor. These include the circulation department, the card catalog and the reference department. A periodical collection of 400 titles, microforms and readers, a teacher-preparation room, archives, a copy machine, and work space for the LRC staff are also on this floor.

The second floor contains a flexible arrangement of non-traditional learning spaces geared for individualized modular learning and includes teacher stations and distribution centers for tapes and films. Also, on the second floor are five typing carrels, videotape viewing areas, a classroom, and four group study rooms.

The 35,000-volume book collection is located on both the first and second floors as are the study and lounge areas

for students. The LRC provides the services of professional librarians and a support team of technicians, clerical staff and work/study students.

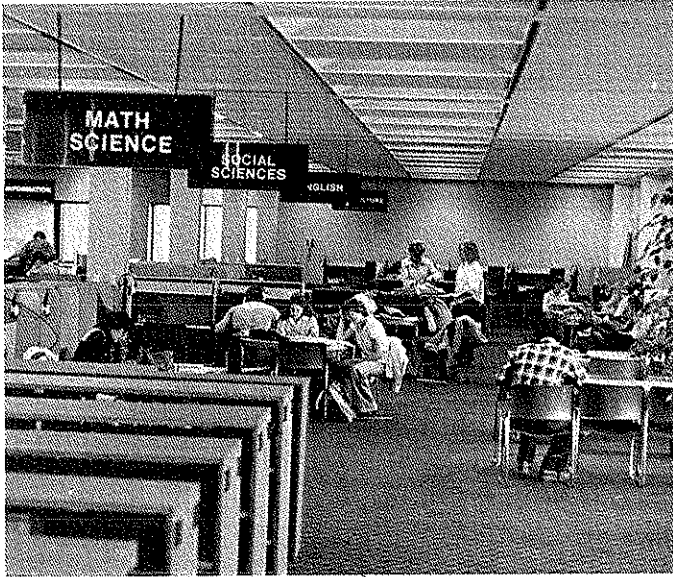
## **KCCK-FM PUBLIC RADIO**

KCCK-FM is a 10,000-watt radio station which broadcasts to communities throughout the college's seven-county area. The station is affiliated with National Public Radio, a network of more than 200 stations across the nation. The station broadcasts daily from 6 a.m. to 12 a.m. at 88.3 on the radio dial. KCCK offers a variety of programming—from programs on music, drama and public affairs to children's features.

The station publishes a monthly program guide and listeners provide support through a "Friends of KCCK" organization. Contributions by listeners and funding from the Corporation for Public Broadcasting help to defray station operating expenses. KCCK's studio and offices are located in Room 210 of Linn Hall.

## **OFF-CAMPUS FACILITIES**

Lincoln Community Education Center in southwest Cedar Rapids is the site of general interest classes, adult basic



**Benton Hall Learning Resource Center**

education and high school completion classes, the Right-to-Read and Veterans Upward Bound programs, congregate meals, and the college's infant/child care center.

Other Community Education centers offer a similar educational program in Iowa City, Marion, Monticello, Washington and Williamsburg. (More information on off-campus programs and services is available in the Community Education section of this catalog.)

As many as 700 adult evening Community Education classes are offered per quarter in more than 100 locations in the seven counties, including schools, churches, factories, stores and community centers in cooperation with 39 local school districts.

Arts and Sciences college credit courses are offered at Kennedy High School in Cedar Rapids and in Iowa City, Monticello, Vinton, Washington, and Williamsburg. Many of the off-campus credit courses are available through the college's Telenetwork instructional system at the various Community Education centers.

The state reformatory in Anamosa offers Kirkwood classes which serve approximately 500 of the 700 inmates.

Kirkwood-Welty Park is a 22-acre recreational area located south of Cedar Rapids consisting of a softball-baseball field and park area.

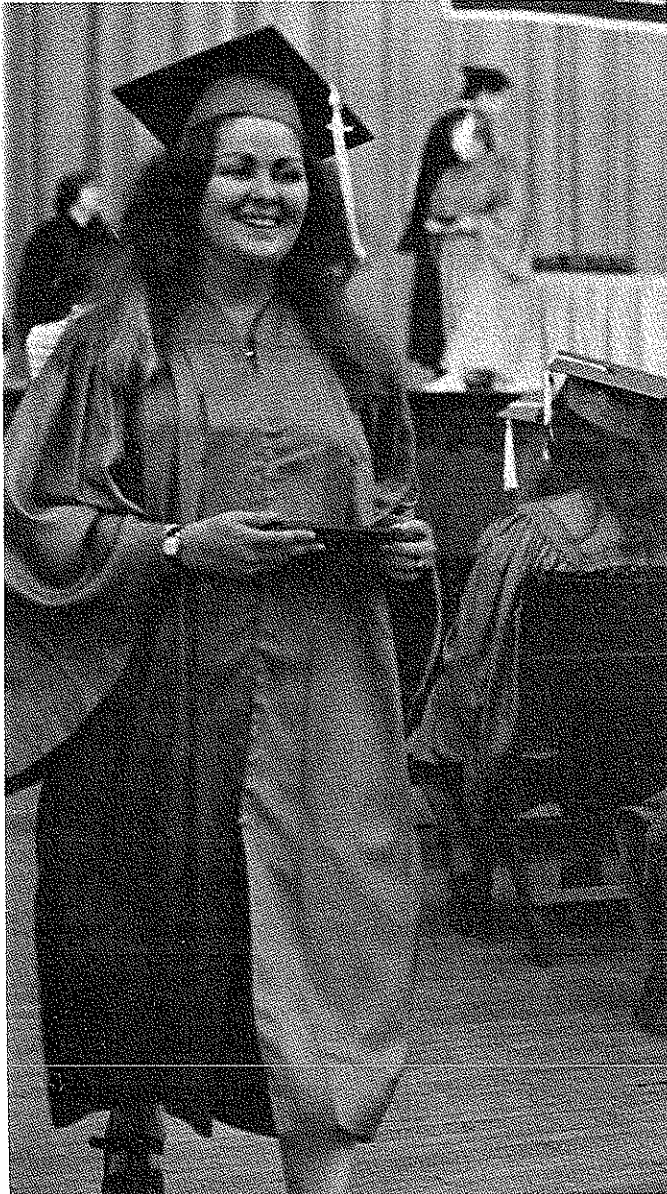
## **EXPANDING HORIZONS FOR WOMEN**

Kirkwood offers a year-round program of activities for adult women through its "Expanding Horizons for Women" program. The program features short seminars and workshops on topics of interest to women, as well as career advising and counseling activities designed to assist women who are returning to school and entering careers. An information brochure is prepared quarterly listing college activities of interest to women, including information on Arts and Sciences courses, vocational-technical career programs, Community Education classes and other educational opportunities. The Expanding Horizons program sponsors Women's Assistance Sessions prior to each quarter for women who would like to continue their education and possibly pursue a career. These sessions provide information on counseling services, financial aid and registration procedures at Kirkwood. The college's Infant/Child Care Center is available to women attending Kirkwood classes and activities.

## **KIRKWOOD FOUNDATIONS**

The primary objective of the Kirkwood Community College Foundation and the Kirkwood Community College Facilities Foundation is the strengthening of Kirkwood's scientific, literary and educational pursuits. As two private non-profit corporations, the foundations are empowered to solicit and receive tax deductible gifts, bequests, and trusts; all for the benefit of Kirkwood Community College. Any gift to Kirkwood, restricted or unrestricted, may be made through the foundations.

The foundations encourage voluntary giving to provide more funds for scholarships, fellowships, student loans,



library acquisitions, faculty grants, and other college needs for which tax dollars are limited or unavailable.

Voluntary board members from Kirkwood's seven-county area assist in the many fund raising efforts.

## **ANNUAL FUND DRIVES**

The foundations serve to channel gifts from alumni, friends, corporations and foundations to the college through annual fund drives. Many gifts are received each year as a result of these campaigns.

The foundations also coordinate planned giving in the form of deferred gifts through bequests, living trusts, testamentary trusts, life insurance agreements, life income contracts and gift annuities.

## **MEMORIAL FUNDS**

Permanent memorials on the campus, "named" scholarships, professorships, facilities, or areas in buildings also are coordinated through the foundations.

## **KIRKWOOD ALUMNI ASSOCIATION**

The Alumni Association was founded to serve the needs and interests of students who complete programs at Kirkwood.

A 14-member Alumni Board of Directors meets monthly to plan and direct the comprehensive alumni program, which includes trips, reunions, and service projects for Kirkwood graduates as well as area residents. In addition, a major fund raising event is conducted each year to solicit alumni support for the Kirkwood Alumni Scholarship Fund. The alumni directors are involved in such projects as student recruitment, legislation and commencement coffees.

Membership in the Alumni Association includes all graduates of Kirkwood, in addition to those students who have completed one year of study but did not graduate. The Alumni Affairs office is located in Linn Hall.

# ACADEMIC CALENDAR

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## 1979-80

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### FALL 1979

August 27, 28 Registration  
 August 29 Classes begin  
 September 3 College holiday, no classes,  
 offices closed  
 September 5 Last day to register or add classes  
 October 31 Last day to drop classes  
 November 12 College holiday, no classes,  
 offices closed  
 November 21 Quarter ends  
 November 22, 23 College holiday, no classes,  
 offices closed

### WINTER 1979-80

November 26, 27 Registration days  
 November 28 Classes begin  
 December 4 Last day to register late or add classes  
 December 25 College holiday, no classes,  
 offices closed  
 Dec. 24-Jan. 2 Student recess days  
 January 1 College holiday, no classes,  
 offices closed  
 February 8 Last day to drop classes  
 February 18 College holiday, no classes,  
 offices closed  
 February 29 Quarter ends

### SPRING 1980

March 3, 4 Registration days  
 March 5 Classes begin  
 March 11 Last day to register late or add classes  
 April 4 College holiday, no classes,  
 offices closed  
 Mar. 31-Apr. 4 Student recess days  
 May 9 Last day to drop classes

May 26 College holiday, no classes,  
 offices closed  
 May 30 Quarter ends  
 May 31 Commencement

### SUMMER 1980

June 2 Registration day  
 June 3 Classes begin  
 June 9 Last day to register late or add classes  
 July 4 College holiday, no classes,  
 offices closed  
 August 1 Last day to drop classes  
 August 22 Quarter ends  
 August 23 Commencement

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## 1980-81

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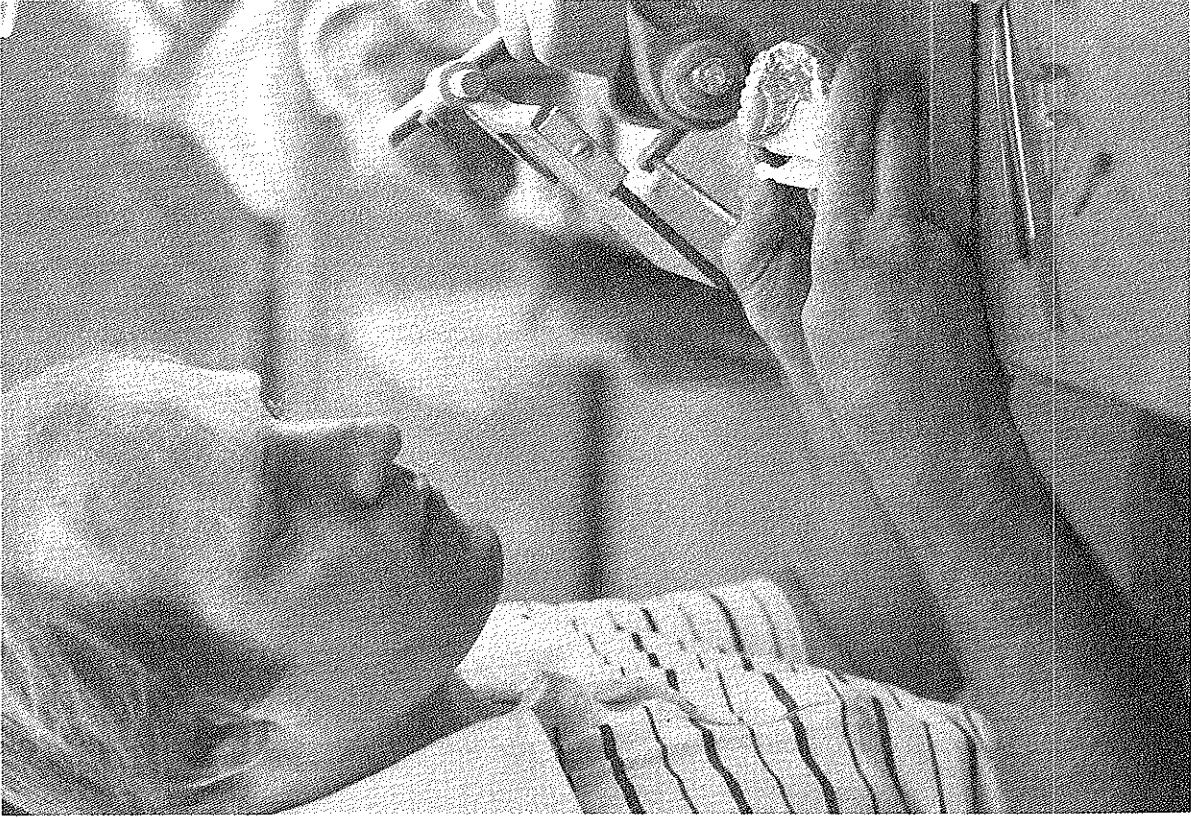
### FALL 1980

August 25, 26 Registration  
 August 27 Classes begin  
 September 1 College holiday, no classes,  
 offices closed  
 September 2 Last day to register late or add classes  
 October 29 Last day to drop classes  
 November 11 College holiday, no classes,  
 offices closed  
 November 19 Quarter ends

### WINTER 1980-81

November 20, 21 Registration days  
 November 24 Classes begin  
 November 27, 28 College holiday, no classes,  
 offices closed  
 December 2 Last day to register late or add classes  
 December 25 College holiday, no classes,  
 offices closed





Dec. 22-Jan. 2	Student recess days
January 1	College holiday, no classes, offices closed
February 6	Last day to drop classes
February 16	College holiday, no classes, offices closed
February 27	Quarter ends
<b>SPRING 1981</b>	
March 2, 3	Registration days
March 4	Classes begin
March 10	Last day to register late or add classes
April 13-17	Student recess days
April 17	College holiday, no classes, offices closed
May 8	Last day to drop classes
May 25	College holiday, no classes, offices closed
May 29	Quarter ends
May 30	Commencement
<b>SUMMER 1981</b>	
June 1	Registration
June 2	Classes begin
June 9	Last day to register late or add classes
July 3	College holiday, no classes, offices closed
July 31	Last day to drop classes
August 21	Quarter ends
August 22	Commencement

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## 1981-82

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<b>FALL 1981</b>	
Aug. 31-Sept. 1	Registration days
September 2	Classes begin
September 7	College holiday, no classes, offices closed
September 9	Last day to register late or add classes
November 4	Last day to drop classes

November 11	College holiday, no classes, offices closed
November 25	Quarter ends

### WINTER 1981-1982

November 26, 27	College holiday, no classes, offices closed
Nov. 30-Dec. 1	Registration days
December 2	Classes begin
December 8	Last day to register late or add classes
December 23-30	Student recess days
January 1	College holiday, no classes, offices closed
February 12	Last day to drop classes
February 15	College holiday, no classes, offices closed
March 5	Quarter ends

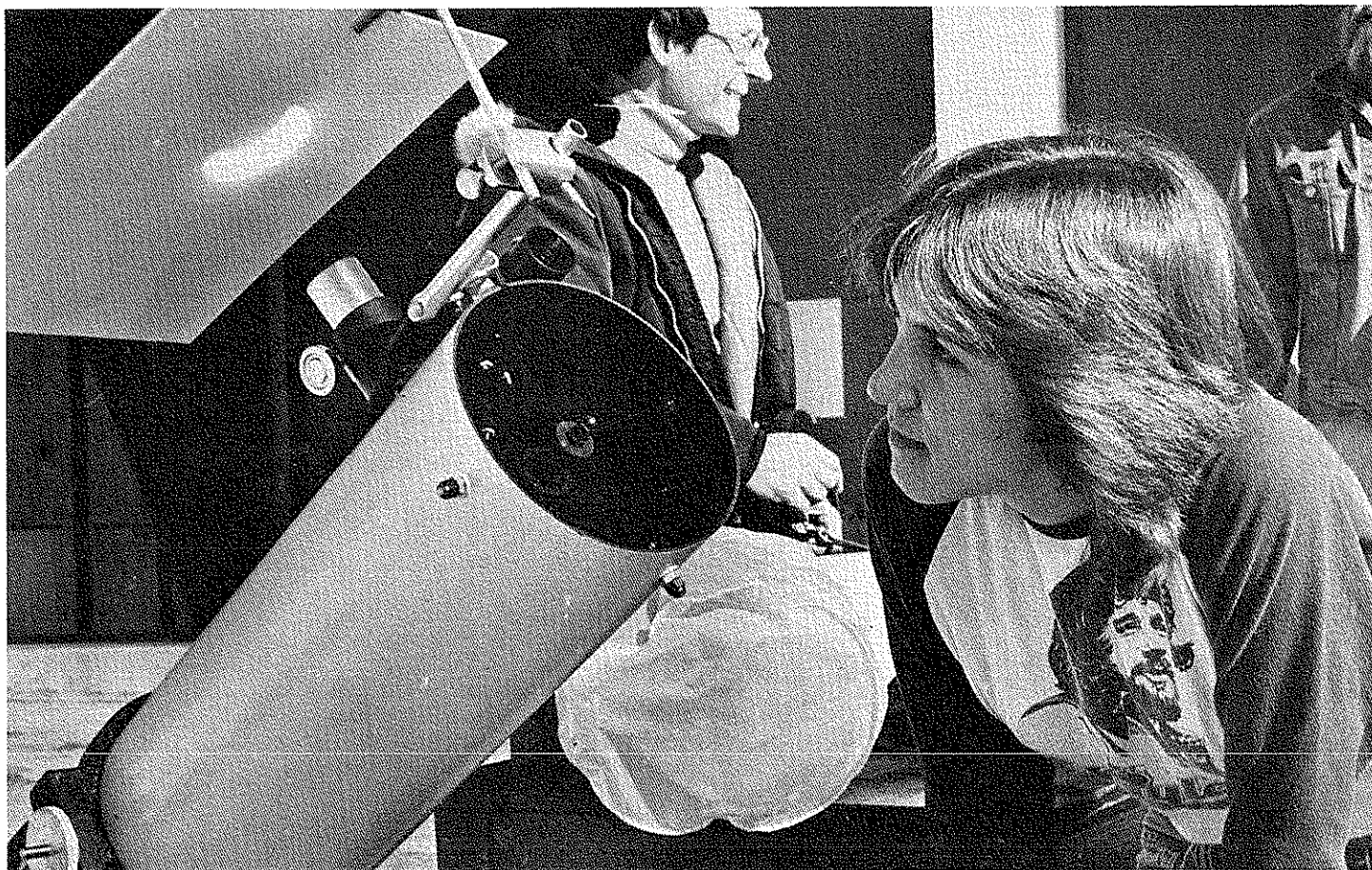
### SPRING 1982

March 8, 9	Registration days
March 10	Classes begin
March 16	Last day to register late or add classes
April 9	College holiday, no classes, offices closed
April 12-16	Student recess days
May 14	Last day to drop classes
May 31	College holiday, no classes, offices closed
June 4	Quarter ends
June 5	Commencement

### SUMMER 1982

June 7	Registration day
June 8	Classes begin
June 14	Last day to register late or add classes
July 5	College holiday
August 6	Last day to drop classes
August 27	Quarter ends
August 28	Commencement

# INSTRUCTIONAL PROGRAM



# GUIDE TO COLLEGE PROGRAMS

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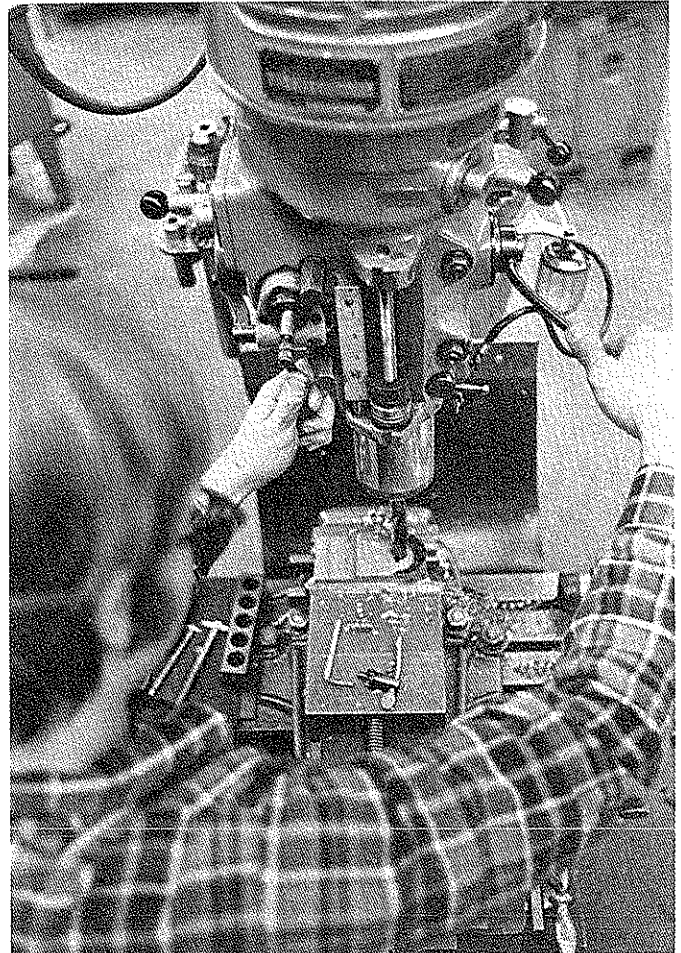
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# ARTS AND SCIENCES DIVISION

The Arts and Sciences Division offers three types of programs, college parallel-transfer, college transfer-career option, and developmental.

## COLLEGE PARALLEL- TRANSFER CURRICULA

### CAREER AREAS

College parallel-transfer curricula permit completion of the first two years of a bachelor's degree program. Students can begin their preparation for post baccalaureate careers by carefully selecting courses in their Associate of Arts (AA) degree program. Kirkwood Arts and Sciences curricula can provide the initial course work leading to any of the career areas listed below.

Communication and Media

Broadcasting

Journalism

Business

Management

Banking and Finance

Accounting

Marketing and Distribution

Manufacturing

Construction

Engineering

Public Service

Social Work

Education

Law

Government

Environment

Fisheries and Wildlife Biologies

Forestry

Health

Dentistry

Medicine

Nursing

Pharmacy

Medical Technology

Physical Therapy

Consumer Affairs and Homemaking

Fine Arts and Humanities

Marine Science

Transportation

Personal Services

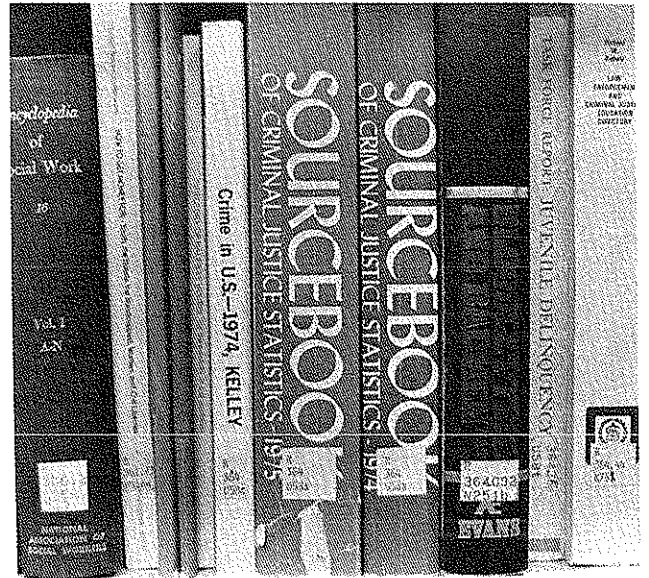
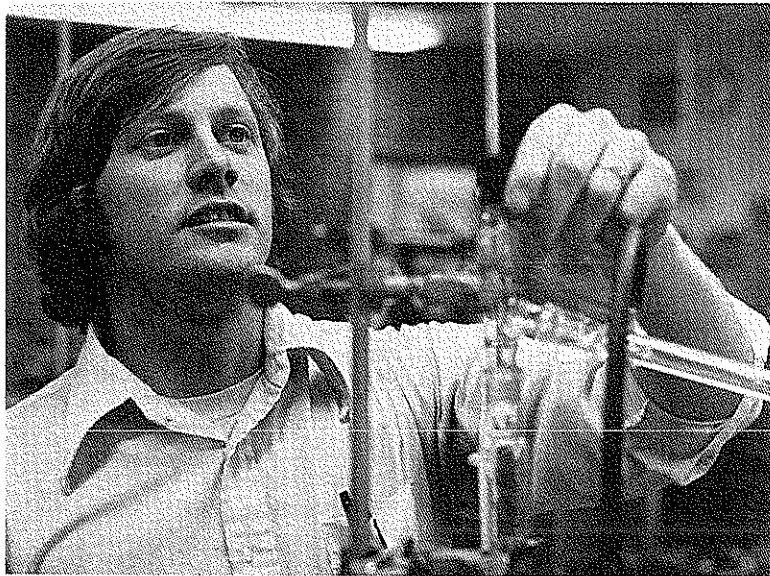
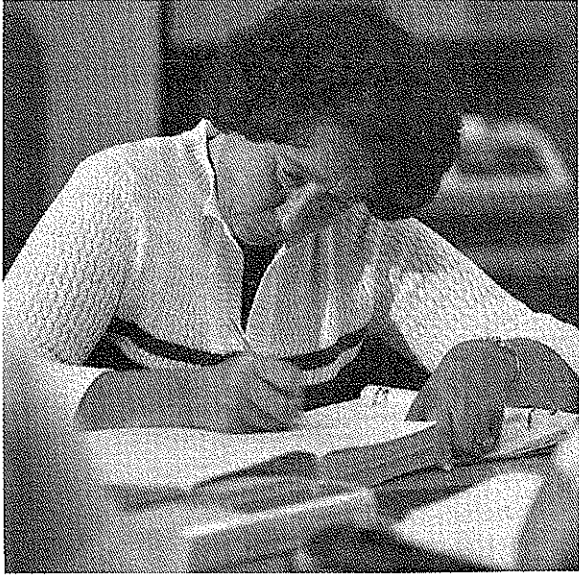
Agribusiness and Natural Resources

Veterinary Medicine

Horticulture

## COLLEGE MAJORS

The Arts and Sciences curricula also provides students with courses appropriate to most baccalaureate majors. With careful planning, students can complete the first two years of most college majors listed below. Faculty advisors and counselors can provide valuable assistance to stu-



dents planning to transfer. Students should consult with an advisor or counselor when making course selections.

- |                         |                    |
|-------------------------|--------------------|
| Accounting              | Foreign Language   |
| Agricultural Science    | Forestry           |
| Anthropology            | History            |
| Art                     | Journalism         |
| Biochemistry            | Liberal Arts       |
| Biology                 | Literature         |
| Biophysics              | Math               |
| Business Administration | Music              |
| Chemistry               | Nursing            |
| Computer Science        | Physical Education |
| Economics               | Political Science  |
| Education               | Psychology         |
| Engineering             | Recreation         |
| English                 | Sociology          |
| Environmental Studies   | Speech             |
| Finance                 | Statistics         |

## COLLEGE TRANSFER-CAREER OPTION PROGRAMS

Several college transfer-career option programs are available to students. Persons who wish to study for one or two years in college transfer courses, but who also want to develop occupational skills suitable for employment immediately upon completion of one or two years of study, may find these career oriented programs especially attractive. Credits earned in these programs may be applied towards a baccalaureate degree program at a four-year university or college. Descriptions of the college transfer/career option programs follow.

## AIDE FOR THE HANDICAPPED

The Aide for the Handicapped program prepares students taking one year of study for work as paraprofessionals in a variety of school or community agencies serving the handicapped. Students learn to carry out special programs designed by a variety of professionals. After two years of study, the student also may be employed, or may go on to pursue a four-year degree in a related field such as a special education, social services, or some form of therapy. After successful completion of the first-year program, the student will be awarded a diploma.

Students working toward an Associate of Arts degree must fulfill the general requirements for the degree in addition to completing the required technical courses listed below.

### FIRST YEAR

REQUIRED TECHNICAL COURSES		Credit	Hrs.
PY027T	Skill Development in Human Services I	4	48
PY029T	Human Services Practicum and Seminar I	4	144
PY028T	Skill Development in Human Services II	4	48
PY026T	Orientation to Human Services	2	24
PY031T	Skill Development in Human Services III	4	48
PY030T	Practicum and Seminar in Human Services II	8	264
MS001T	First Aid	1	12
PD005T	Human Potential Lab	2	30





**REQUIRED RELATED COURSES**

PY002T	General Psychology	4	48
PY020T	Psychology of Growth & Development	4	48
PY024T	Exceptional Child	4	48
CM101T	Composition I	4	48

**SECOND YEAR**

Students planning to receive an AA degree need 23 credits to complete the core requirements, and 21 credits of electives.

**RECOMMENDED ELECTIVES**

PY004T	Educational Psychology	4	48
PY009T	Introduction to Teaching	4	48
PY005T	American Public Education	4	48
SO004T	Introduction to Sociology	4	48
SW002T	Social Welfare Programs	3	36
PY025T	The Young Child	4	48
SW001T	Introduction to Social Welfare	3	36
SO013T	Sociology of Poverty	4	48
PS002T	American Government	4	48
PS006T	Iowa Government Today and Tomorrow	4	48

**CRIMINAL JUSTICE**

The Criminal Justice program has two areas of emphasis, Law Enforcement and Corrections. The student need not select which area to emphasize until completion of approximately one-third of the program, thus providing each student the maximum opportunity to determine which career area to select.

The program's emphasis is on individual interests, therefore internships, experience credit examinations and certification procedures are offered. All are designed to assist the student to prepare for a career in the criminal justice system, either after completion of the Associate of Arts degree or after transfer to a four-year college or university.

Students must fulfill the general requirements for the Associate of Arts degree in addition to completing the required technical courses listed below.

**LAW ENFORCEMENT**

**FIRST YEAR**

**REQUIRED TECHNICAL COURSES\***

		Credits	Hrs.
LE009T	Introduction to Criminal Justice	4	48

LE012T	History of Police in America	4	48
LE010T	Traffic Safety and Accident Investigation	3	36
LW001T	Criminal Procedural Law	4	48
LE011T	Traffic Regulation Procedures	3	36
CM204T	Speech I	3	36
CM101T	Composition I	4	48
CM117T	Composition II	4	48

**RECOMMENDED ELECTIVES**

PY002T	General Psychology	4	48
SO011T	Juvenile Delinquency and Deviance	4	48
SW001T	Introduction to Social Welfare	3	36
PS002T	American Government	4	48

**SECOND YEAR**

**REQUIRED TECHNICAL COURSES**

LW002T	Criminal Evidence	4	48
LW003T	Criminal Law	4	48
LW004T	Applications of Criminal Law	4	48

The courses listed below may be substituted for any one of the three second-year courses listed above.

LE002T	Patrol Procedures	4	48
LE004T	Criminal Investigation	4	48
LE005T	Crime Scene Investigation	4	48

\*During the two years of the program, Introduction to Criminal Justice must be taken along with seven of the courses listed under "Required Technical Courses."

**CORRECTIONS**

**FIRST YEAR**

**REQUIRED TECHNICAL COURSES**

LE009T	Introduction to Criminal Justice	4	48
CO004T	Penology	4	48
CO002T	Introduction to Community Corrections	4	48
CO003T	Management in Correctional Institutions	4	48
PY020T	Psychology of Growth and Development	4	48
SO013T	Sociology of Poverty	4	48

**RECOMMENDED ELECTIVES**

PY002T	General Psychology	4	48
SO004T	Introduction to Sociology	4	48
SO006T	Social Problems	4	48
SW001T	Introduction to Social Welfare	3	36

## SECOND YEAR

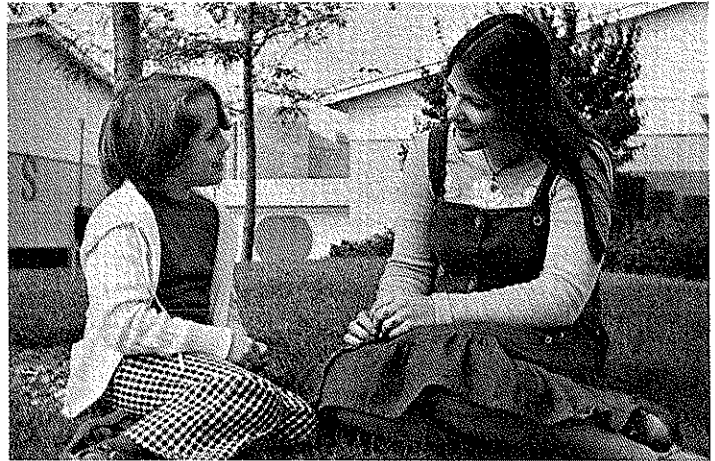
### REQUIRED TECHNICAL COURSES

LW003T	Criminal Law	4	48
LW004T	Applications of Criminal Law	4	48
SO011T	Juvenile Delinquency and Deviance	4	48
PY021T	Personality and Social Psychology	4	48

### RECOMMENDED ELECTIVES

SO007T	Criminology	4	48
PS006T	Iowa Government: Today and Tomorrow	4	48
LW002T	Criminal Evidence	4	48
LW001T	Criminal Procedural Law	4	48
CO006T	Race Relations in the Criminal Justice System	4	48
*	Intake Skills	3	36
*	Basic Counseling Techniques	3	36

\*Courses being developed



## FIRE SCIENCE

This program is designed to prepare students for entering the firefighting field as well as to provide upgrade training for current fire personnel. About 60 per cent of the course work in the program is in liberal arts studies, with the remaining portion related to gaining a knowledge of fire behavior, firefighting methods and fire prevention.

Students working toward an Associate of Arts degree must fulfill the general requirements for the degree in addition to completing the required courses listed below.

### TECHNICAL COURSES

		Credits	Hrs.
FS001T	Introduction to History and Philosophy of Fire Science	2	24
FS012T	Fire Behavior	4	48
FS010T	Building Design for Fire Protection	4	48
FS002T	Fire Protection Systems and Equipment	4	48
FS003T	Industrial Fire Protection and Security	2	24
FS007T	Hazardous Materials	4	48
FS004T	Fluid Flows	4	48
FS006T	Fire Investigation	2	24
FS009T	Fire Protection Administration and Management	2	24
FS008T	Tactics for Fire Protection	3	36
FS005T	Strategic Planning for Fire Protection	3	36
FS013T	Fire Insurance	3	36
	Electives in the humanities, math/science, social science and English	49	588

## HUMAN SERVICES

The Human Services program will train you for employment in social service agencies, residential facilities for the mentally handicapped, community service centers, nursing homes, and child care facilities. A graduate of this program may help an elderly client apply for Social Security benefits, may serve as a friend to a young boy who is having trouble, may drive a handicapped child to the doctor, or may provide similar helping services to other people who need personal attention.

This is a college transfer/career option program which can be completed in two years with the student earning an Associate of Arts degree. Part-time students also may enter the program and complete the requirements over a longer period of time. Upon graduation from Kirkwood, students will be qualified either to enroll as junior-year students in a four-year college or seek employment as human services workers.

Students must fulfill the general requirements for the Associate of Arts degree in addition to completing the required technical courses listed below.

### FIRST YEAR

#### REQUIRED TECHNICAL COURSES

		Credits	Hrs.
SW002T	Social Welfare Programs	3	36

SW003T	Human Services Observation	2	24
SW001T	Introduction to Social Welfare	3	36

**REQUIRED RELATED COURSES**

PD004T	Human Potential Lab	2	24
CM101T	Composition I	4	28
CM204T	Interpersonal Communications	3	36
PY002T	General Psychology	4	48
CM117T	Composition II	4	48
SO004T	Introduction to Sociology	4	48
PY020T	Human Growth and Development	4	48
SO006T	Social Problems	4	48

**SECOND YEAR**

**REQUIRED TECHNICAL COURSES**

SW004T	Human Services Techniques I	4	48
SW006T	Human Services Techniques II	4	48
SW005T	Field Experience and Seminar I	6	192
*	Special Topics in Human Services	4	48
SW007T	Field Experience and Seminar II	9	300

**REQUIRED RELATED COURSES**

CM201T	Public Speaking	3	36
CM202T	Speech II: Group Communication	3	36

\*Course being developed.

**INTERNATIONAL TRADE**

The International Trade program, six quarters in length, is designed to prepare people and businesses to meet the challenge of increasing world trade in the years ahead. Students who complete the program will be prepared for employment managing export and import functions in businesses and industries. Positions are open to both men and women.

The program is structured to prepare people for employment upon receiving the Associate of Arts degree. Students who desire increased opportunities for advancement may transfer to four-year colleges to complete a bachelor's degree. Course credits earned are transferable to most colleges. Enrollment may be on a part-time or full-time basis.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 14 to 16 hours per quarter.

Students must fulfill the general requirements for the Associate of Arts degree in addition to completing the required technical courses listed below.

**REQUIRED TECHNICAL COURSES**

		Credits	Hrs.
MK014T	Exploring World Trade	3	36
MK017T	Techniques of Exporting	3	36
MK021T	Foreign Trade Documentation	3	36
MK022T	International Transportation	3	36
MK024T	International Business	3	36
MK027T	Advanced Documentation	3	36
SO008T	Cultural Anthropology	4	48
AM003T	Business Internship	9	324
EC015T	Business Economics	4	48

**REQUIRED RELATED COURSES**

CM101T	Composition I	4	48
CM117T	Composition II	4	48
CM201T	Speech	3	36
	Humanities (foreign language is recommended)	8	96
GE001T	Human Geography	4	48
DP001T	Introduction to Data Processing	3	36
AM036U	Traffic and Transportation	3	36
	Social Science (Macro Economics is recommended)	8	96
	Math/Science	16	192

**RECOMMENDED ELECTIVE COURSES**

Choose 25 credit hours from the following courses, with advisor's approval.

AM052T	Introduction to Management	2	24
AC001T	Principles of Accounting I	4	48
MK003T	Principles of Selling	4	48
MK001T	Principles of Marketing	4	48
OE006T	College Typing I	3	72
LW005T	Business Law I	4	48
	Foreign Language (fulfills humanities requirement)	8 or more	
	Other courses as approved by advisor		

**LEGAL ASSISTANT**

The legal profession has recognized that there are many tasks in serving a client's needs which can be performed by a trained, non-lawyer assistant working under the direction of an attorney. The Legal Assistant program trains people for work in law offices as "lawyer assistants." Under the direction of a lawyer, the legal assistant per-



forms many functions including preparation of routine documents, preliminary drafting of legal briefs, legal research, etc.

The Legal Assistant program is a seven-quarter program leading to an Associate of Arts degree. Students must fulfill the general requirements for the Associate of Arts degree in addition to completing the required technical courses listed below.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 15 to 17 hours per quarter.

**REQUIRED TECHNICAL COURSES**

		Credits	Hrs.
AC015T	Personal Tax	2	24
AC016T	Income Tax for Business	3	36
AC020T	Tax III Advanced	4	48
LW008T	Introduction to Law	3	36
LW010T	Legal Processes	3	36
LW009T	Legal Systems	3	36

LW011T	Estates and Trusts I	3	36
LW012T	Estates and Trusts II	3	36
LW013T	Tax IV: Estate and Gift	3	36
LW015T	Torts and Trials I	3	36
LW016T	Torts and Trials II	4	48
LW017T	Business Organizational Law I	3	36
LW018T	Business Organizational Law II	3	36
LW014T	Legal Internship Research	6	
LW021T	Commercial Law	4	48
LW019T	Real Estate Law	4	48
LW020T	Law Office Management	3	36

**REQUIRED RELATED COURSES**

AC001T	Principles of Accounting I	4	48
CM101T	Composition I	4	48
CM1171T	Composition II	4	48
CM203T	Speech I	3	36
DP046U	Elements of Data Processing	3	36
	Math/Science Requirements	8	96
	Humanities Requirements	8	96

**LIBRARY SERVICES**

Library Services is a 13-credit-hour library technician program designed to prepare students for para-professional work in all types of libraries. Persons who wish to work in a library, but do not want to complete the five years of college study normally required of Masters of Library Sciences librarians, will find this program particularly appealing.

The purpose of this program is to prepare individuals to work with professional librarians in ordering and processing books and materials for shelves, typing cards for the card catalogue, checking and preparing periodical materials, keeping files and shelves up-to-date, and working at circulation. The program also familiarizes students with audio-visual operations and procedures.

Students may complete the required 15 credit hours of course work for a Library Services certificate or complete the Library Services core-courses along with 35 hours of electives for an Associate of Arts degree in Library Services. (Library technical courses may not transfer toward a library major at a four-year institution).

Students working toward an Associate of Arts degree must fulfill the general requirements for the degree in

addition to completing the required technical courses listed below.

**REQUIRED TECHNICAL COURSES**

		Credits	Hrs.
LS008T	Introduction to Uses of the Library I	1	12
LS009T	Introduction to Uses of the Library II	1	12
LS010T	Introduction to Uses of the Library III	1	12
LS006T	Technical Processes	3	36
LS003T	Library Literature	3	36
LS004T	Library Procedures	3	36
LS001T	Instruction in Educational Media	3	36

**ELECTIVES**

LS007T	School Library Operations	3	36
LT001T	Children's Literature	4	48

**TEACHER ASSOCIATE**

This program is designed to prepare students to work in schools, day care centers and other "educational" settings as paraprofessionals. The program consists of specific skills training, general education, and experience working with children or youth in a school setting. In addition, the student will have the option of transferring the credits earned toward the first two years of a teacher certification program.

The student who completes the program should be prepared to function in a variety of roles as part of a teaching team and would typically work as an aide or associate to a teacher.

Students must fulfill the general requirements for the Associate of Arts degree in addition to completing the required technical courses listed below.

**FIRST YEAR**

**REQUIRED RELATED COURSES**

		Credits	Hrs.
PY002T	General Psychology	4	48
PY020T	Psychology of Growth & Development	4	48
LS008T	Introduction to Uses of Library I	1	12
LS009T	Introduction to Uses of Library II	1	12
OE006T	Typing I	2	48
LT001T	Children's Literature	4	48
	Math/Science	8	96



**SECOND YEAR**

**REQUIRED TECHNICAL COURSES**

PY007T	Teacher Associate Practicum	4	144
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**REQUIRED RELATED COURSES**

PY005T	American Public Education	4	48
PY009T	Introduction to Teaching	3	36
LS001T	Instruction in Educational Media	3	36
	Electives in the humanities, social science, and math/science	28	336

**ENGLISH AS A SECOND LANGUAGE**

The English as a Second Language program is a full-time English and orientation program for non-English speaking persons.

The English as a Second Language program is designed to provide instruction to help the non-English speaker to reach a level of proficiency in speaking English that is necessary for employment or attending school. Students may learn at their own pace and stay in the program

until reaching the level of proficiency necessary to enter a credit program.

New students are required to complete two quarters of Orientation to American Culture. This course is intended to supplement instruction received through the English as a Second Language program. The course presents information that will help the student to understand the American educational system, the United States governmental system, and American institutions and customs. Program planning is the principal concern of the second quarter of the course. Students participate in conversations, take quizzes, make oral reports and learn notetaking.

## CREDIT BY EXAMINATION

Students in the Arts and Sciences Division may earn up to 40 quarter hours of credit through general examinations of the College Level Examination Program (CLEP). In addition, a wide variety of subject matter examinations are available to enable students to earn college credit for their knowledge in various subject areas, thereby allowing them to test out of individual courses. Information about these examinations may be obtained from the Counseling Office.

## COURSES FOR SPECIFIC DEGREE REQUIREMENTS

### COMPOSITION I, II AND SPEECH I: 11 Credits

Composition I must be taken before Composition II. Students can choose between Speech I: Interpersonal Communications and Speech I: Public Speaking. Speech may be taken before Composition. It is recommended that students complete their requirement during their first 45 credit hours at Kirkwood.

### HUMANITIES: 8 Credits

The Humanities required can be completed by taking eight credit hours from the following list of courses. Some

courses can satisfy **either** the Humanities **or** the Social Science requirements. However, one course cannot be counted in both areas simultaneously.

Course	Crs.	Course	Crs.
Introduction to Fiction	4	Literature of Terror	4
Introduction to Dramatic Literature	4	Art History I	3
Introduction to Poetry	4	Art History II	3
Critical Reading	4	Art History III	3
Children's Literature	4	Black Literature	4
Masterpieces of Literature I	4	Popular Literature	4
Masterpieces of Literature II	4	Europe in the Age of Monarchy	4
Masterpieces of Literature III	4	Europe in the Age of Liberalism	4
Elementary French (or Spanish or German) I	4	Europe in the Age of Totalitarianism	4
II	4	Spanish-American Civilization	3
III	4	Spanish Civilization	3
Intermediate French (or Spanish or German) I	3	Advanced German I	3
II	3	Advanced German II	3
III	3	Advanced German III	3
French Civilization I	3	Introduction to Theater	3
French Civilization II	3	Music Appreciation	4
French Civilization III	3	Introduction to Philosophy	4
Czech Ethnic Heritage I	1	Introduction to Religion	4
Czech Ethnic Heritage II	2	Art Appreciation	4
Czech Ethnic Heritage III	3	Introduction to Film	4
Czech Ethnic Heritage IV	4	Selected Topics: Greek Mythology and Literature	2
U.S. History: 17th — 18th Century	4	Selected Topics: American Nature Writing	2
U.S. History: 19th Century	4		
U.S. History: 20th Century	4		
Science Fiction	4		

Foreign Language requirements differ in the various four-year institutions. In general, a bachelor of arts degree requires two years of foreign language, and a bachelor of science degree requires one year of foreign language study.

### SOCIAL SCIENCE: 8 Credits

The courses listed below satisfy the Social Science requirements. In order to meet requirements of four-year institutions, it is often advisable to complete course sequences within a discipline rather than selecting one course from each of several disciplines. Some courses

can satisfy either the Social Science or Humanities requirements. However, one course cannot be counted in both areas simultaneously.

Courses	Crs.	Courses	Crs.
Introduction to Criminal Justice	4	Introduction to Personality and Social Psychology	4
U.S. History/17th and 18th century	4	Europe in the Age of Monarchy	4
U.S. History/19th century	4	Europe in the Age of Liberalism	4
U.S. History/20th century	4	Europe in the Age of Totalitarianism	4
World Politics	4	Psychology of Human Growth: Conception to Senescence	4
Introduction to Sociology	4	Human Geography	4
Social Problems	4	Iowa Government: Today and Tomorrow	4
Marriage and the Family	4	American Federal Government	4
Sociology of Poverty	4	American Public Education	4
Introduction to Teaching	4	Man and the Environment: Atmosphere*	1
Juvenile Delinquency and Deviancy	4	Man and the Environment: Hydrosphere*	1
Criminology	4	Man and the Environment: Lithosphere*	2
Ed Psychology and Measurement	4	Introduction to Cultural Anthropology	4
General Psychology	4		
Principles of Economics (Macro)	4		
Principles of Economics (Micro)	4		
Contemporary Economics Problems	4		
Biosocial Issues—Today and Tomorrow*	2		

\*Indicates course offered for partial credit in the Science area and partial credit in the Social Sciences.

Math for Elementary School Teachers	5	Fundamentals of Biochemistry	4
Principles of Biology	4	Nutrition	4
Biology of Organisms	4	General Chemistry I	5
Environmental Biology	4	General Chemistry II	5
Biosocial Issues: Today and Tomorrow*	2	Quantitative Analysis	6
Invertebrate Zoology I	4	Organic Chemistry I	4
Invertebrate Zoology II	4	Organic Chemistry II	4
Vertebrate Zoology I	4	Organic Chemistry III	4
Vertebrate Zoology II	4	Astronomy	4
Human Anatomy and Physiology I	4	21st Century Introductory Physics	4
Human Anatomy and Physiology II	4	Science and Society	4
Human Anatomy and Physiology III	4	College Physics I	4
Man and the Environment: Atmosphere*	3	College Physics II	4
Man and the Environment: Hydrosphere*	3	College Physics III	4
Man and the Environment: Lithosphere*	2	General Physics I	4
Microbiology I	4	General Physics II	4
Microbiology II	3	General Physics III	4
Principles of Chemistry (lecture)	3	Man Evolving	4
Principles of Chemistry (lab)	1	Engineering Graphics I	3
Fundamentals of Organic Chemistry	4	Statics	3
		Dynamics	5
		Thermodynamics	6
		Introduction to Engineering Computations	3
		Material Science I	5
		Finite Math	5
		Problem Solving by Computer Programming	4

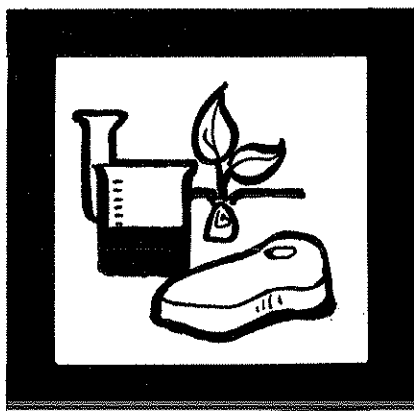
\*Indicates courses offered for partial credit in the Science area and partial credit in the Social Sciences.

## MATH/SCIENCE: 8 credits (30 credits for A.S.)

Many Math/Science courses have high school or college prerequisites. Students should check with an advisor before selecting courses.

Courses	Crs.	Courses	Crs.
Intermediate Algebra	5	Calculus III	4
College Algebra	5	Differential Equations I	5
Trigonometry	5	Differential Equations II	4
Analytic Geometry	5	Linear Algebra	5
Calculus I	5	Fundamentals of Statistics	5
Calculus II	5		

# VOCATIONAL-TECHNICAL DIVISION



## AGRIBUSINESS & NATURAL RESOURCES

### TOPDRESS

Is an advanced standing program designed to allow students having taken high school vocational agriculture to transfer their high school competencies into a similar or entirely unique career program at Kirkwood. In effect, college type credit will be awarded for their high school accomplishments in those areas of previous training. Interested students should contact the Office of Admissions for the exact procedures to follow.

### AGRIBUSINESS

The college offers two Agribusiness programs designed to prepare students for careers in agriculture sales and services. The programs are Agriculture Supply Sales and Service (day) and Agribusiness Management (evening). These programs offer courses related to stocking and merchandising, feed, grain, fertilizers, chemicals, seed, hardware or animal health products.

Students may take either program or a combination of the programs, depending on whether they wish to attend classes in the day or evening, and depending on the type of previous work experience and education they have had. Since course needs of students vary a great deal, the student's program of study is designed with the assistance of an advisor.

### AGRICULTURE SUPPLY SALES AND SERVICES (Day)

Students successfully completing 110 credits in this program receive an Associate of Applied Science degree. A diploma is awarded upon successful completion of 55 credits. A typical full-time student would take 12 to 19 credits per quarter and be in classes between 260 and 360 contact hours per quarter. It is recommended that students take a minimum of two six-week employment experience periods as part of the program.

Students can get advanced standing credit for prior education of experience. This concept is called "TOPDRESS" and is discussed at the beginning of this section.





Students in the Fashion Merchandising program are shown on a visit to the Apparel Center at the World Trade Center in Dallas, Texas. Field trips as well as job internships in busi-

nesses and industries are examples of ways in which vocational-technical students gain practical experience in their career fields while at Kirkwood.

All veterans must take the required number of credit hours per quarter in order to graduate within the approved number of quarters for this program. This will be 16 to 19 credit hours per quarter.

The following are some approved and suggested courses. Students may select courses from the list below or others, as stated earlier, with approval of their associate department head and faculty advisor. A faculty member will be able to list the required courses.

#### SUGGESTED FIRST-YEAR COURSES

##### TECHNICAL COURSES

	Credits	Hrs.
AC008U Agribusiness Records	4	48
AM025U Agribusiness Practices	4	60
PY004U Psychology of Human Relations I	3	36
MK002U Basic Salesmanship	3	48
AG012U Employment Experience	6	240
EC004U Agricultural Economics I	4	48
AG266U Agricultural Leadership	3	36

##### RELATED COURSES

	Credits	Hrs.
MA001U Ag Mathematics	2	24
AG263U Agriculture Career Orientation	1	12
MK004U Futures Marketing	1-4	12-48

##### ELECTIVES

	Credits	Hrs.
MK003U Ag Product Marketing I	3	48
AG065U Beef Enterprise	1-6	24-144
AG116U Crop Enterprise	1-6	24-144
AG072U Swine Enterprise	1-6	24-144
AG005U Ag Chemicals	2	24
AG150U Livestock Nutrition	3	72
AG200U Animal Health Products	3	48
AG017U Field Crop Production	1-6	24-144
AG215U Machinery Economics	1-3	12-36

#### SUGGESTED SECOND-YEAR COURSES

##### TECHNICAL COURSES

	Credits	Hrs.
AG003U Agribusiness Procedures	4	36
AG221U Special Projects-Agribusiness	1-9	24-216
AG012U Employment Experience	6-12	240-480
MK035U Agribusiness Sales	4	48
AM004U Agriculture Foremanship	3	36

##### RELATED COURSES

	Credits	Hrs.
PY004U Psychology of Human Relations	3	36

#### ELECTIVES

	Credits	Hrs.
AG103U Agricultural Finance	3	48
AG208U Animal Science Management	3-11	48-192
AG016U Feed Rations	2	36
AG079U Field Crop Planning	5	60
AG179U Advanced Livestock Evaluation	3	36

## AGRIBUSINESS MANAGEMENT (Evening)

This program is a mid-management program. It is designed for persons who want to enter retail business serving farmers, or for those persons already employed in the retail agriculture sales field. The program is arranged so that persons already employed can attend classes in the evening at hours that don't conflict with their work schedule.

The average student in this program takes 12 credit hours of courses per quarter for eight quarters. Students earn an Associate of Applied Science degree upon the successful completion of 100 credit hours. A diploma is awarded for completing 55 credit hours. All veterans must take 12 to 15 credit hours per quarter in order to graduate within eight quarters.

Students select 12 to 19 credit hours of courses per quarter from the list below or other agriculture programs, with the approval of the associate department head and their faculty advisor. The following courses are not in sequence, so a student may take them whenever offered.

##### TECHNICAL COURSES

	Credits	Hrs.
AG251U Modern Soybean Production	2	24
AG115U Modern Corn Production	2	24
AG214U Agricultural Supply Management	4	48
AM025U Agribusiness Practices	4	48
MK002U Basic Ag Salesmanship	4	48
AG003U Agribusiness Procedures	4	48
EC004U Agricultural Economics	4	48
AG221U Special Projects: Agribusiness	9	144
AG005U Agricultural Chemicals	4	48
AG112U Agribusiness Management	4	48
MK035U Agribusiness Sales	4	48
AG016U Feed Rations	4	48
AM004U Agricultural Foremanship	4	48
MK004U Futures Marketing	2	24

**RELATED COURSES**

PY004U	Psychology of Human Relations I	4	48
MA001U	Agricultural Mathematics	4	48
AG215U	Machinery Economics	4	48

**ELECTIVES**

AG002U	Forage and Oat Production	4	48
AG053U	Soil Fertility	4	48
AG103U	Agricultural Finance	4	48
AG042U	Weed Identification	4	48
AG061U	Ruminant Nutrition	4	48
AG088U	Swine Production*	4	48
AG200U	Animal Health Products	4	48
AG079U	Field Crop Planning	4	48
AG094U	Grain Marketing	4	48
LW003U	Agricultural Law*	4	48
AG001T	Fundamentals of Soil Science	3	36
*	Soil Analysis Lab	3	36
MH019U	Reconditioning and Repair*	5	60
MH045U	Machinery Operations	3	36
AM059U	Parts Room Management	3	36
AG002T	Principles of Horticulture	3	36
AC019T	Agriculture Accounting	3	36
AG004T	Introduction to Ag Education	1	12
AG266U	Agricultural Leadership	3	36
AG109U	Agriculture Power Unit Operations	5 & 6	6 & 48
AG274U	Horticulture Pesticide Application	3	36
GR040U	Ag Drawing and Blueprinting	3	36
AG203U	Horsemanship	4	72
AG223U	Horse Hoof Care	4	72
AG271U	Swine Diseases Seminar	3	36
AG005T	Animal Production	4	72
AG006T	Principles of Crop Production	4	48
*	Agribusiness Operations	3	36
*	Livestock Biochemistry Lab	3	36
CS029U	Ventilation, Insulation and Heating	2.5	30
AG269U	Greenhouse Production	3	36
AG268U	Interior Plants	3	36
AG152U	Land Use & Conservation	2-4	48-96
AG211U	Horse Judging	6	96
AG272U	Horse Breeds	3	36
AG234U	Small Animal Psychology	4	72
AG267U	Beef Diseases Seminar	3	36
AT009U	Interior Plant Design	3	36
MA001U	Agricultural Math	3	36
AG022U	Horse Nutrition	4	72
AG236U	Kennel Management	4	72
AG273U	Rural Water Systems	3	36
AG279U	Rural Facilities Maintenance	1-3	12-36

AG275U	Cooling and Ventilation of Rural Buildings	1-3	12-36
AG278U	Ornamental Trees and Shrubs	1-3	12-36
AG276U	Residential Planting Design	1-3	12-36
AG078U	Horse Health	1-3	12-36
AG280U	Horse Diseases Seminar	1-2	12-24
CS001T	Agricultural Construction Materials and Procedures*	1-3	12-24
AG017U	Field Crop Production	1-4	12-48
CS055U	Greenhouse Facilities and Equipment	1-4	12-48
AG277U	Native Trees and Shrubs	1-4	12-48
AG205U	Farmstead Planning	1-3	12-36
AG229U	Horse Shows	1-3	12-36
AG235U	Small Animal Health	1-5	12-60

\*To be developed.

**AGRICULTURE MECHANICS**

The Agriculture Mechanics program is designed to prepare individuals for entry-level employment or provide employment advancement as specialized farm machinery mechanics, farm implement service representatives or supervisors. During the first year, students work on basic fundamentals in the areas of tractor electricity, gas engines, assembly and handling of farm machinery including implement truck operation, and reconditioning and repair of used farm equipment. The second year of the program is devoted to the diagnosis and repair of farm tractors and systems including gasoline and diesel fuel systems and engines, hydraulics, transmissions and final drives. Students will work in specialized labs and classrooms.

A student may enter the program any quarter during the first year but must have had previous training or experience to enter the second year.

Upon successful completion of 52 credits, which is equivalent to three quarters, a student may receive a diploma as a machinery and equipment handling specialist. Upon successful completion of 103 credits or six quarters, the student will receive an Associate of Applied Science degree.

All veterans must take the required number of credit hours per quarter in order to graduate within the approved number of quarters for this program. This will be 16 to 19 credit hours per quarter.

Students select courses from the list below, with approval

of their associate department head and faculty advisor. A typical student would attend classes 260 to 360 contact hours per quarter depending on his or her previous occupational and educational background.

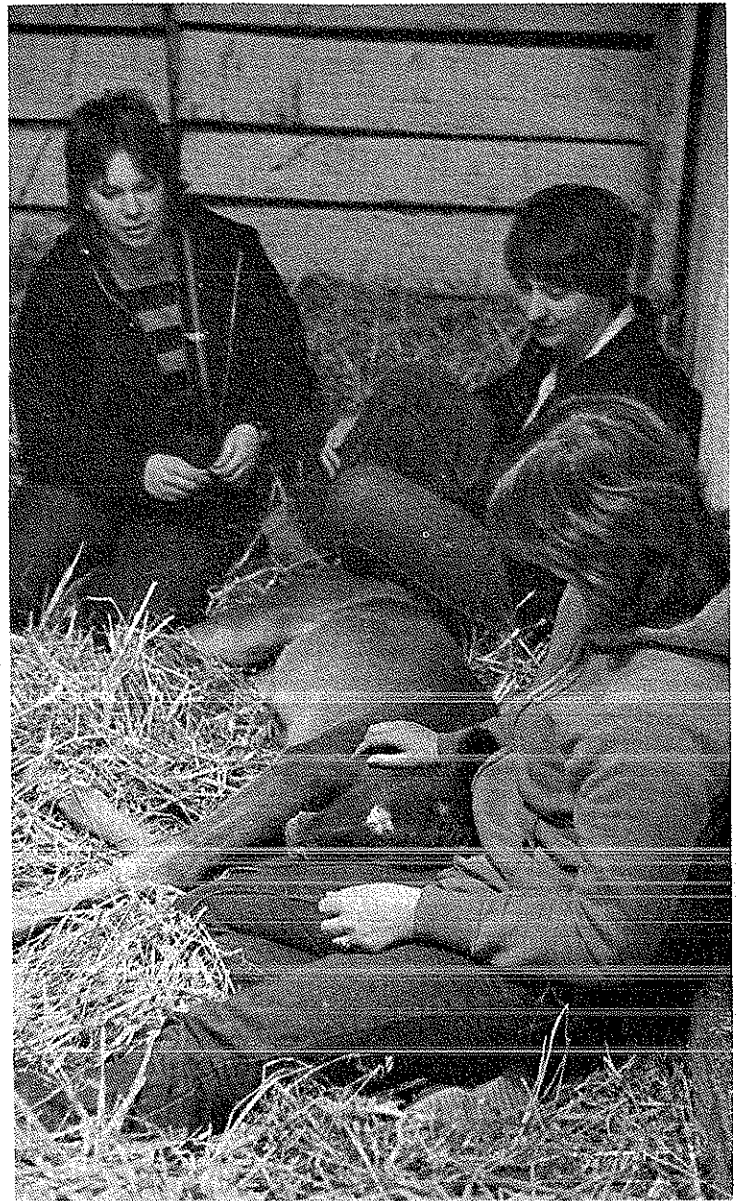
<b>FIRST-YEAR COURSES</b>		Credits	Hrs.
EL027U	Basic & Applied Electricity	8	144
MH005U	Manual Interpretation and Application	3	48
MH027U	Machinery Assembly and Handling Tillage	3	48
AG263U	Agriculture Career Orientation	1	12
MH009U	*Supervised Shop Projects	3	36
MH013U	Basic and Applied Gas Engines	8	144
MH007U	Machinery Assembly and Handling-Materials	3	48
MH028U	Machinery Assembly and Handling: Planting and Harvesting	3	48
MH009U	*Supervised Shop Projects	3	36
CM002U	Communication Skills I	3	36
MH019U	Reconditioning and Repair**	5	108
MH025U	Machinery Operation and Adjustment: Tillage	3	48
MH006U	Machine Operation and Adjustment: Crops	3	48
MH009U	*Supervised Shop Projects	3	36

#### **SECOND-YEAR COURSES**

MH001U	Basic Hydraulics	3	48
MH014U	Gas Engine Diagnosis and Overhaul	8	156
MH016U	Power Transfer Systems	3	48
PY004U	Psychology of Human Relations I	3	36
MH003U	Applied Hydraulics	3	48
MH017U	Advanced Power Transfer Systems	3	48
MH008U	Diesel Diagnosis and Overhaul	8	156
AM013U	Implement Business Procedures	3	36
MH018U	Automatic Transmissions	3	48
MH021U	Unit Diagnosis and Overhaul	8	156
MH015U	Hydraulic Controls	3	48
AG108U	Shop Facilities and Equipment	3	36

\*With permission of the associate department head and faculty advisor, the student may elect to take courses in other areas of the college in place of these courses.

\*\*To be developed.



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### **ANIMAL HEALTH**

This program provides instruction for students preparing for careers in kennel shops, health product services and sales, as well as farm health programs. Course work

covers disease prevention, parasites, health regulations covering both large and small animals, genetics, and types of facilities and their effect on the health of animals.

This is a three-quarter program which, depending upon the student's background, can be taken in several ways. Students can successfully complete three quarters (50 credit hours) and receive a diploma, or may choose to combine the program with the Production Agriculture or Agribusiness programs and receive the Associate of Applied Science degree. Students may specialize in such areas as small animal health or swine, beef and horse health.

Kirkwood's farm laboratory is used in the program as a live laboratory in which to study some of the problem areas discussed in the courses. In some areas of the program, veterinarians serve as instructors to provide the necessary in-depth instruction. There are 260 to 360 contact hours offered per quarter in this program.

All veterans must take the required number of hours per quarter in order to graduate within three quarters. This will vary from 240 to 336 contact hours per quarter.

Students select a minimum of 16 credit hours of courses per quarter from the courses listed below, and must obtain the approval of their faculty advisor or associate department head prior to registration. Students should select courses based on their individual needs. Faculty advisors will list those courses which are required.

		Credits	Hrs.
AG263U	Agriculture Career Orientation	1	12
AG267U	Beef Diseases Seminar	2	24
AG238U	Cattle Health	3	48
AG230U	Animal Evaluation and Selection	3	48
AG109U	Ag Power Unit Operation	3	48
MK003U	Agriculture Product Marketing	3	48
AG148U	Applied Livestock Husbandry	3	48
AG071U	Swine Enterprise, Fall	2	48
AG054U	Horsemanship	3	36
AG211U	Horse Judging	3	36
MK002U	Basic Ag Salesmanship	3	36
AG234U	Small Animal Psychology	3	36
AG265U	Specialized Dog Training	2	36
OE006T	College Typing I	3	72
BY030T	Principles of Biology	4	72
AG200U	Animal Health Products	3	48
AG271U	Swine Diseases Seminar	2	24
AG150U	Livestock Nutrition	3	48

AG064U	Beef Feed Lot Management	2	30
AG148U	Applied Livestock Husbandry	3	48
AM025U	Agribusiness Practices	4	60
AG266U	Agricultural Leadership	3	36
AC019U	Agricultural Accounting**	4	48
AG022U	Horse Nutrition	3	48
AG223U	Hoof Care	3	36
LW003U	VFM Agricultural Law**	3	36
AG237U	Special Projects: Animal Health	3	36
AG236U	Kenel Management	3	36
PY004U	Psychology of Human Relations	2	36
CH001T	Principles of Chemistry	4	72
AM059U	Parts Room Management	3	36
AG005T	Animal Production	4	48
AG266U	Agriculture Leadership	3	48
AG148U	Applied Livestock Husbandry	3	60
CM002U	Communications Skills	3	36
AG237U	Special Projects: Animal Health	3	36
AG054U	Horsemanship	3	36
AG204U	Horse Breeding	3	60
AG235U	Small Animal Health	5	72
AG280U	Horse Diseases Seminar	2	24
BY031T	Biology of Organisms	4	72

\*\*To be developed.

## HORSE HUSBANDRY

The Horse Husbandry program is designed to prepare students for entry employment in the horse industry. Students also may be employed in the sales field in the feed and track areas, or be self-employed. Students spend about 50 per cent of their time in the laboratory working with horses. The central farm laboratory consists of an indoor riding arena, a 40-stall stable and supportive facilities.

Instruction includes "hands-on" experience with assistant stable managers, horse handlers, assistant horse handlers, and horsemanship instructors, in such areas as breaking and training horses, horse judging and work in breeding operations. The school maintains a band of brood mares for the purpose of teaching mare and foal care as well as breaking a young horse.

The Horse Husbandry program is six quarters in length. Students who successfully complete 100 credits will receive an Associate of Applied Science degree. Those completing 50 credits will receive a diploma. There are from 260 to 360 contact hours of instruction per quarter.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will be 16 to 19 credit hours per quarter.

Students may select from the following courses, with the approval of their associate department head and faculty advisor.

**FIRST-YEAR COURSES**

		Credits	Hrs.
AG050U	Horse Enterprise, Fall	3	48
AG054U	Horsemanship, Fall	5	96
AG109U	Ag Power Unit Operations	4	96
AC008U	Agribusiness Records	4	60
MA001U	Agricultural Mathematics	2	24
AG263U	Agriculture Career Orientation	1	12
AG075U	Horse Enterprise, Winter	3	60
AG203U	Horsemanship, Winter	4	72
AG078U	Horse Health	6	96
AG022U	Horse Nutrition	4	72
AG006U	*Career Planning Seminar	1	12
AG202U	Horse Enterprise, Spring	3	60
AG229U	Horsemanship, Spring	5	96
AG223U	Hoof Care	4	72
AG204U	Horse Breeding	6	96
AG239U	*Horse Industry Problems	1-12	288
AG220U	*Special Projects: Horse Science	3	36

**SECOND-YEAR COURSES**

AG212U	Stable Management, Fall	6	96
AG211U	Horse Judging	6	96
AG210U	Horse Training	6	96
AG220U	* Special Projects: Horse Science	3	72
AG216U	Stable Management, Winter	6	96
AG201U	Horse Physiology	4	72
AG247U	Horse Feed Rations	4	72
PY004U	Psychology of Human Relations I	3	36
AG220U	* Special Projects, Horse Science	3	72
AG227U	Stable Management, Spring	3	48
AG051U	Horse Shows	3	48
AG228U	Specialized Training	4	72
AG002U	Forage and Oat Production	6	96
CM002U	Communication Skills	2	24
AG220U	*Special Projects: Horse Science	3	72
AG239U	*Horse Industry Problems	1-12	288

\*These courses are electives.



**HORTICULTURE AND NATURAL RESOURCES**

The Horticulture and Natural Resources programs offer preparatory training for a diverse range of careers. Working under the direction of a faculty advisor, students develop an individual training plan which is approved by the program associate head. This plan typically involves completion of a basic core of instruction, followed by electives selected to meet educational requirements for specific career areas. Students are in class from 260 to 360 hours per quarter, depending upon their previous educational and occupational experiences.

Graduation standards require 45 to 50 credits for a diploma and 100 to 105 credits for the Associate of Applied Science (AAS) degree. Students earning the AAS degree must have completed one satisfactory employment experi-

ence. Time is allocated between April 15 and June 1 to meet this requirement.

Normal enrollment entry date for the full-time preparatory section is at the beginning of summer quarter. Students may enroll at the beginning of fall quarter if openings exist. Entry date for evening classes is at the beginning of each quarter. Evening classes will, in some cases, emphasize slightly different subject matter than the day classes.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will be 16 to 19 credit hours per quarter.

Students select courses with the approval of their faculty advisor and associate department head in preparation for employment in the following areas:

### Landscape/Nursery/Garden Center

Employment opportunities include positions in landscape design and construction, garden center sales and service, nursery stock and greenhouse production, as well as positions in interior landscaping and plant material management.

### Grounds and Turf Management

Career opportunities include professional grounds management, and positions with private corporations, governmental institutions, private estates, etc. Students are encouraged to select a broad range of courses, since many positions involve both indoor and outdoor plant material responsibilities.

### Parks and Natural Resources

Career opportunities include employment in city, county, and state parks as park attendants, officers, rangers, executive directors, or as specialists such as arborists, horticulturists, equipment operators, etc. The courses offered are tailored to actual training requirements stated in job descriptions utilized throughout the state.

### TECHNICAL COURSES

	Credits	Hrs.
AG044U Plant Materials I ~	4	47
AG045U Plant Materials II ~	4	72
AG046U Plant Materials III ~	4	72
AG252U Plant Materials Maintenance ~	4	72
AG039U Plant Disease and Insects ~	4	72

AG057U Turfgrass Management ~	4	72
AG062U Horticulture Equipment ~	4	72
AG029U Landscape Construction ~	4	72
AG056U Soil & Water Mechanics ~	4	72
AG048U Plant Propagation ~	4	72
AG206U Greenhouse Practices	4	72
AG030U Basic Landscape Drawing ~	4	72
AG034U Commercial Landscape Design	4	72
AG031U Residential Landscape Design ~	4	72
AG033U Grounds Equipment Management ~	4	72
AG254U Grounds Management Problems ~	4	72
AG032U Recreational Areas Design ~	4	72
AG010U Park Maintenance Programs ~	4	72
AG009U Parks and Grounds Law ~	4	72
AG015U Parks and Recreation Administration ~	4	72
CS002U Facility Construction ~	4	72
AG018U Wildlife Reserves ~	4	72
AG047U Herbaceous Plant Material	4	72
AG035U Commercial Plant Production	4	72
AG027U House Plants	4	72
AG026U Garden Center Operations	4	72
AG036U Fruit and Vegetable Production	4	72
AG012U Employment Experience ~	6	240
AG006U Career Planning Seminar ~	1	12
AG222U Special Projects: Horticulture ~	1,3,4,6	ARR
AG059U Special Projects: Natural Resources	1,3,4,6	ARR

### RELATED COURSES

PY004U Psychology of Human Relations I ~	4	48
CM005U Oral Communication ~	4	72
MK002U Basic Ag Salesmanship	4	48
BY045T Aquatic Wildlife ~	2	36
BY046T Mammalian Wildlife ~	4	48
BY044T Avian Wildlife ~	4	48
AG263U Agriculture Career Orientation	1	12

The following instructional units are available in the evening hours:

Greenhouse Production I  
 Interior Plant Design  
 Interior Plants  
 Horticulture Pesticide Application  
 Ornamental Trees and Shrubs  
 Native Trees and Shrubs  
 Residential Landscape Plantings

## MARINE AND SMALL ENGINE MECHANIC

This is a three-quarter program leading to employment in the growing fields of lawn and garden equipment repair, marine and small engine repair, and turf and recreational vehicle repair. Students in the program study engine electrical systems, hydraulics, power transfer systems, gasoline engines, welding, fibreglassing, and sheet metal work. Students spend approximately 60 per cent of their class time in the laboratory learning the skills required for employment as a marine and small engine mechanic.

Any interested student may enroll for any course any quarter except the spring quarter. To be eligible for entry in the spring quarter, a student must have had previous training (fall and winter quarters) or experience in the field. Students may elect to generalize or specialize in the spring quarter.

Upon successful completion of three quarters or 52 credits, the student will receive a diploma.

All veterans must take the required number of hours per quarter in order to graduate within three quarters. This will vary from 240 to 336 contact hours per quarter.

Students may select courses from the list below, with approval of the associate department head and faculty advisor. A typical student would attend classes 260 to 360 contact hours per quarter depending upon his or her previous occupational and educational background.

		Credits	Hrs.
EL027U	Basic and Applied Electricity	8	144
MH001U	Basic Hydraulics	3	48
MH016U	Power Transfer Systems	3	48
MH009U	Supervised Shop Projects	3	48
AG263U	Ag Career Orientation	1	12
MH013U	Basic & Applied Gas Engines	8	144
MH019U	Reconditioning & Repair	6	108
MH009U	Supervised Shop Projects	3	36
MH022U	Systems Diagnosis and Repair	14	240
MH026U	Vehicle and Equipment Sales and Service Management	4	48

## PRODUCTION AGRICULTURE

The Production Agriculture program prepares students for entry employment or employment advancement in the science of food production. Students receive preparation leading to employment as farm operators, livestock technicians, livestock buyers and crop technicians. Special emphasis is placed on management decision making. Students spend about 50 per cent of their time at the college's demonstration farm. The farm laboratory is equipped with swine and beef breeding herds, as well as livestock finishing units. The cropping program consists of 400 acres of row crops and forage production. The length and time patterns of courses are designed to fully utilize the farm laboratory.

This program is seven quarters in length which includes from 260 to 360 contact hours per quarter. Students successfully completing 110 credits in this program receive an Associate of Applied Science degree. Those completing 55 credits receive a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will be 16 to 19 credit hours per quarter.

The following are approved and suggested courses. Students may select from the following courses, with the approval of their associate department head and faculty advisor.

<b>FIRST-YEAR COURSES</b>		Credits	Hrs.
AC008U	Agribusiness Records	4	48
MK003U	Agriculture Product Marketing	3	48
AG071U	Swine Enterprise, Fall	2	48
AG114U	Crop Enterprise, Fall	2	48
AG230U	Animal Evaluation and Selection	3	48
AG109U	Ag. Power Unit Operations	4	96
AG263U	Agriculture Career Orientation	1	12
AG017U	*Field Crop Production	1 to 6	24-144
AG149U	*Applied Livestock Husbandry**	1 to 6	24-144
AG250U	Beef Cow Management	2	24
AG064U	Beef Feedlot Management	2	24
AG115U	Modern Corn Production	2	24
AG251U	Modern Soybean Production	2	24
AG150U	Livestock Nutrition	4	72
AG200U	Animal Health Products	2-4	24-48



AG014U	Farm and Shop Maintenance	3	72
AG006U	*Career Planning Seminar	1	12
AG149U	*Applied Livestock Husbandry	1-6	24-144
AG073U	Swine Enterprise, Spring	2	36
AG116U	Crop Enterprise, Spring	2	36
AG065U	Beef Enterprise, Spring	2	36
AG005U	Ag. Chemicals	2	24
AG011U	Tillage and Planting Equipment	3	48
AG012U	Employment Experience	1-6	
AG017U	*Field Crop Production	1-6	24-144
AG149U	*Applied Livestock Husbandry	1-6	24-144

**ELECTIVES**

AG249U	Beef and Dairy Artificial Insemination	2	36
AG004U	Swine Artificial Insemination	2	36
AG017U	Field Crop Production	1-6	24-144
AG179U	*Advanced Livestock Evaluation	2-6	36-72
AG149U	*Applied Livestock Husbandry	1-6	24-144
AG218U	*Special Projects, Agronomy	3	36
AG219U	*Special Projects: Animal Science	3	72
AG221U	*Special Projects: Agribusiness	3	36

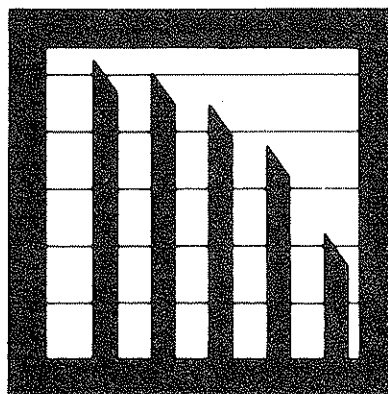
**SECOND-YEAR COURSES**

AG208U	Animal Science Management, Fall	2-4	48-96
AG152U	Land Use and Conservation	2-4	48-96
AG103U	Agriculture Finance**	2-4	48-96
AG061U	Ruminant Nutrition	3	24-48
AG012U	*Employment Experience	1-6	
AG179U	*Advanced Livestock Evaluation	2-6	36-72
AG218U	*Special Projects, Agronomy	3	36
AG219U	*Special Projects: Animal Science	3	36
AG221U	*Special Projects: Agribusiness	3	36
AG213U	Animal Science, Winter	5	72
AG215U	Machinery Economics	2-4	24-48
AG016U	Feed Rations	2-4	24-48
AG079U	Field Crop Planning	5	72
PY004U	Psychology of Human Relations I	3	48
AG179U	*Advanced Livestock Evaluation	2-6	36-72
AG218U	*Special Projects, Agronomy	3	36
AG219U	*Special Projects: Animal Science	3	36
AG221U	*Special Projects: Agribusiness	3	36
AG225U	Animal Science, Management, Spring	3	48
AG205U	Farmstead Planning	2	24
AG002U	Forage and Oat Production	3-6	48-96
MK004U	Futures Marketing	2	12
CM002U	Communication Skills	2	12
AG012U	Employment Experience	1-6	
AG179U	*Advanced Livestock Evaluation	2-6	36-72
AG218U	*Special Projects: Agronomy	3	36

AG219U	*Special Projects: Animal Science	3	36
AG221U	*Special Projects: Agribusiness	3	36

\*These courses emphasize skill development for students who wish to improve or enhance their abilities in these areas.

\*\*To be developed.



# BUSINESS & OFFICE CAREERS

## ACCOUNTING SPECIALIST

This program is an 84-week program designed to prepare individuals for semi-professional employment opportunities in the accounting field. Upon completion of the program, the student will be prepared to enter business in the areas of cost accounting, auditing, general accounting and many other specialized areas of financial reporting. Requirements include accounting principles and practice, general and occupational information, and a business internship.

Graduates may receive an Associate of Arts degree or an Associate of Applied Science degree.

All veterans must take the required number of hours per quarter in order to graduate within the approved number

of quarters for this program. This will vary from 15 to 20 credit hours per quarter.

<b>TECHNICAL COURSES</b>		Credits	Hrs.
AC001T	Principles of Accounting I	4	48
AC002T	Principles of Accounting II	4	48
AC003T	Principles of Accounting III	4	48
AC006T	Intermediate Accounting I	4	48
AC007T	Intermediate Accounting II	4	48
AC009T	Intermediate Accounting III	4	48
AC004T	Cost Accounting I	4	48
AC005T	Cost Accounting II	4	48
AC015T	Personal Income Tax	2	24
AC016T	Income Tax for Business	3	36
AC009U	Accounting Problems	6	108
AM003T	Business Internship	12	480
<b>RELATED COURSES</b>			
OE009T	Office Machines	4	60
LW005T	Business Law I	4	48
MA020D	Beginning Algebra	5	60
MA043T	Finite Mathematics	5	60
CM201T	Speech I	3	36
LW006T	Business Law II	4	48
DP048U	Business Application of Data Processing	4	48
EC013T	Economics Macro	4	48
EC014T	Economics Micro	4	48
CM002U	Communication Skills I or	3	36
CM101T	Composition I	4	48
CM003U	Communication Skills II or	3	36
CM117T	Composition II	4	48
MA031T	Intermediate Algebra and	5	60
MA043T	Finite Mathematics	5	60
MA027T	Quantitative Method II	5	60
AM002T	Principles of Finance	3	36
	Business elective	4	48
	General education electives	6	72

## JUNIOR ACCOUNTING

40

The Junior Accounting program is a one-year program designed to provide a fundamental knowledge of accounting, an understanding of basic concepts, definitions and terminologies, and insight into the characteristics and methods of operating accounting systems.

The program includes group instruction, individual instruction and laboratory practice. The program also provides on-the-job training periods through which the student gains actual work experience. Graduates receive a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 19 to 22 credit hours per quarter. (Except summer quarter is 12 credit hours served in an internship.)

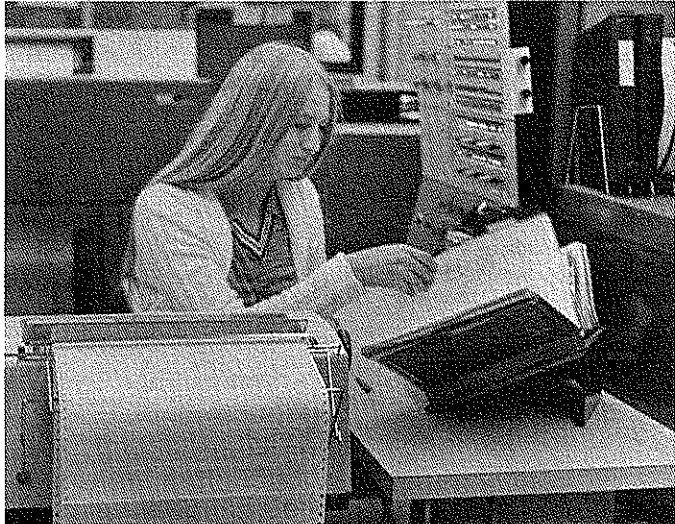
<b>TECHNICAL COURSES</b>		Credits	Hrs.
AC001V	Accounting Fundamentals I	5	60
AC002V	Accounting Fundamentals II	5	60
AC003V	Accounting Fundamentals III	5	60
AC009U	Accounting Problems	15	360
OE009T	Office Machines	4	60
OE006T	College Typing I	3	60
AC015T	Personal Income Tax	2	24
AM003T	Business Internship	12	480

<b>RELATED COURSES</b>			
DP006T	Computer and Data Processing Concept	3	36
LW005T	Business Law I	4	48
EC015T	Principles of Business Economics	4	48
CM002U	Communication Skills I or		
CM101T	Composition I	3/4	36/48
CM003U	Communication Skills II or		
CM117T	Composition II	3/4	36/48
PD005T	Human Potential Laboratory	2	24
MA003U	Math II	3	36
DP048U	Business Applications of Data Processing	3	36

## COMPUTER OPERATIONS

The Computer Operations program trains students for employment in a variety of closely related occupations in data processing. A student completing the two-quarter certificate program could work as a data librarian, work scheduler, records auditor, documentation specialist, operations assistant, or computer and console operator. Students may enroll at the beginning of the fall, winter or spring quarters.

Computer Operations is approved for two quarters. A



## COMPUTER PROGRAMMER

Students in Computer Programming will complete a six-quarter curriculum and graduate with an Associate of Applied Science degree. Course work is business oriented with much of the second year of study used to broaden the student's knowledge of business systems. Training in programming stresses applied technical knowledge so that the student can step directly into the occupation of computer programming. Units of training change frequently to keep pace with the industry. New students may begin in the fall, winter, spring, or summer quarters.

The computer programmer program is six quarters. A veteran must take 15 to 18 credit hours per quarter in order to graduate in six quarters.

Students must select, with the consent of an advisor, courses from the following list:

veteran must take 17 credit hours per quarter to graduate within two quarters.

Students must select, with consent of an advisor, courses from the following list:

### TECHNICAL CORE COURSES

	Credits	Hrs.
DP001U Self-Service Aids	1	18
DP002U Punched-Card Data Processing	2	36
DP003U Computer Operating Techniques	2	36
DP005U Introduction to S/360-370	3	36
DP009U Assigned Operations Projects	3	60
DP011U Introduction to Report Program Generator	4	60
DP021U Disk Operating System Concepts and Facilities	3	36
DP027U System Utilities	2	36
DP039U Records and Scheduling of Data Processing Operations	3	36
DP040U Related Equipment I	1	24
DP048U Business Applications of Data Processing	3	36
DP006T Computer and Data Processing Concepts	3	36
<b>RELATED COURSE</b>		
AM022U Principles of Supervision	3	36

### TECHNICAL COURSES

	Credit	Hrs.
DP013U Introduction to COBOL	5	84
DP021U Disk Operating System/VS Concepts and Facilities	3	48
DP041U Program Design and Documentation	3	36
DP006T Computer & Data Processing Concepts	3	36
DP001U Self-Service Aids for Programmers	2	36
DP014U Advanced COBOL	5	84
DP022U Disk Operating System/VS Coding	5	72
DP042U Program Testing	3	48
DP007U Assembler Language I	5	84
DP016U Introduction to FORTRAN	3	48
DP044U Data Management I	4	60
DP049U Introduction to Systems Analysis	3	36
DP018U Introduction to PL/I	5	84
DP083U Data Management II	5	84
DP048U Business Applications of Data Processing	3	36
DP011U Introduction to Report Program Generator II	4	60
DP085U Data Communications	5	84
DP084U Business Applications II	3	36
DP036U Assigned Programming Projects	5	96
DP026U Programming Systems	4	48
DP037U Installation Management	3	36
<b>RELATED COURSES</b>		
CM002U Communication Skills	3	36
Elective Course	3	36

AC001U	Accounting Survey	3	36
MA043T	Finite Mathematics	5	60
AM022U	Principles of Supervision	3	36

Additional courses from the Business Department, Data Processing Department and Mathematics Department may be taken, with an advisor's consent.

## VOCATIONAL KEYPUNCH

The keypuncher is a valuable member of the data processing team. This one-quarter program will train the student to punch and verify cards which will serve as input to data processing equipment. Training will be done on the latest equipment available. Graduates receive a certificate.

Vocational Keypunch is a one-quarter program. A veteran must take 17 credit hours to graduate in one quarter.

Students are required to select the following courses:

### TECHNICAL CORE COURSES

		Credits	Hrs.
DP003V	Vocational Keypunch	8	180
DP002U	Punched-Card Data Processing	2	36
DP006T	Computer and Data Processing Concepts	3	36

### RELATED COURSES

PD001U	Personal Development I	1	12
OE101T	Filing Systems and Record Control	3	36

## OFFICE EDUCATION

The core approach to the Office Education curriculum allows a student to delay selecting a program until the end of the first quarter.

The Office Careers class, a core course completed the first quarter, provides a means of exploring the six secretarial fields available:

Administrative Secretary	Insurance Secretary
Clerical Receptionist	Legal Secretary
General Secretary	Medical Secretary

### OFFICE EDUCATION CORE COURSES

OE006T	College Typing I	.5-3	10-60
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OE007T	College Typing II	.5-3	10-60
OE008T	College Typing III	.5-3	10-60
OE016V	Office Careers	1	24
OE101T	Filing Systems and Records Control	3	36
CM002U	Communication Skills I	3	36
OE001U	Office Procedures I	4	60
PD001U	Personal Development	2	24
OE015V	Transcribing Machines	2	36
OE025V	Office Education Seminar	1	12
OE005U	Office Education Lab	2	36
CM001U	Business Writing	3	36
AM003T	Business Internship	5	200
OE009T	Office Machines	4	60

### OFFICE EDUCATION SHORTHAND CORE COURSES

OE001T	College Shorthand I	4	60
OE002T	College Shorthand II	4	60
OE003T	College Shorthand III	4	60
OE004T	College Shorthand Transcription	3	48

## ADMINISTRATIVE SECRETARY

The Administrative Secretary program permits length and depth in the study of secretarial science. It not only prepares a student for a position in the office but also provides a well-rounded educational background for a skilled secretary and a participating member of an executive team.

Upon successful completion of this two-year program (five or six quarters), graduates receive an Associate of Applied Science degree.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 16 to 18 credit hours per quarter.

	Credits	Hrs.	
Office Education Core Courses	39	728	
Office Education-Shorthand Core Courses	15	228	
OE011T	Secretarial Procedures	4	48
OE012T	Typing IV	3	60
AM019U	Office Management	4	48
OE011T	Secretarial Procedures	4	48
AC001T	Principles of Accounting I or	4	48
AC004V	Office Accounting	4	48

AC002T	Principles of Accounting II or	4	48
AC006U	Management Accounting	4	48
DP046U	Elements of Data Processing or	3	36
DP006T	Computer/Data Processing		
	Concepts	3	36
CM201T	Public Speaking or	3	36
CM204T	Interpersonal Communications	3	36
EC013T	Principles of Economics (Micro) or	3	36
EC015T	Principles of Business Economics	4	48
LW005T	Business Law I	4	48
AM032T	Introduction to Business	4	48
PY002T	General Psychology	4	48
AM003T	Business Internship	4	160
OE004T	College Shorthand Translation	3	48
	*Electives	12	

\*Electives are selected with the coordinator's approval.

### ADVANCED PLACEMENT

Any person who holds a Certified Professional Secretary Certificate may make application to receive up to 36 hours credit toward an Associate of Applied Science degree. The following courses are accepted for credit:

		Credits	Hrs.
LW005T	Business Law I	4	48
OE011T	Secretarial Procedures	4	48
EC013T	Principles of Economics (Macro)	4	48
AC001T	Principles of Accounting I	4	48
AC002T	Principles of Accounting II	4	48
OE010T	Filing Systems and Records Control	3	36
OE007T	College Typing II	3	60
OE008T	College Typing III	3	60
AM019U	Office Management	4	48
PY004U	Psychology of Human Relations I	3	36

## CLERICAL-RECEPTIONIST

The Clerical-Receptionist program prepares students for entry into clerical positions in the office. These positions include clerk/typist, filing clerk and receptionist.

After successful completion of this three-quarter program, graduates receive a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 14 to 22 credit hours per quarter.

	Credits	Hrs.
Office Education Core Courses	39	728



### RELATED COURSES

PY004U	Psychology of Human Relations I	3	36
AC004V	Office Accounting	4	48
OE002U	Office Procedures II	3	60
DP001V	Introductory Key punch	3	36
OE030V	Receptionist Seminar	1	12
	Electives (requires program coordinator's approval)	5	60

## GENERAL SECRETARY

Students planning a secretarial career in any one of dozens of businesses such as banking firms, advertising agencies, travel agencies, and educational institutions will find the General Secretary program suited to them.

After successful completion of this four-quarter program, graduates receive a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number

of quarters for this program. This will vary from 15 to 50 credit hours per quarter.

	Credits	Hrs.
Office Education Core Courses	39	728
Office Education Shorthand Core Courses	15	228

**RELATED COURSES**

OE012T	College Typing IV	3	72
PY004U	Psychology of Human Relations, or	3	60
PD005T	Human Potential Lab	2	24
OE002U	Office Procedures II	3	60
AC004V	Office Accounting, or	4	48
AC001T	Principles of Accounting	4	48
	Electives (selected with program coordinator's approval)	4	48

**INSURANCE SECRETARY**

The Insurance Secretary program offers specialized training to those interested in working in the insurance field. Opportunities are available in large home offices as well as smaller agency offices. Training is given in general office procedures with emphasis on courses in Insurance Terminology, Principles of Insurance, and Insurance Typing.

After successful completion of this four-quarter program, graduates receive a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 18 to 20 credit hours per quarter.

	Credits	Hrs.
Office Education Core Courses	39	728

**TECHNICAL CORE COURSES**

MK006T	Principles of Insurance	3	48
OE028V	Insurance Typewriting	3	36
OE014V	Insurance Terminology	2	24
OE003U	Insurance Machine Transcription	3	36
OE002U	Office Procedures II	3	60

**RELATED COURSES**

AM032T	Introduction to Business	4	48
OE012T	College Typing IV	3	60

OE001T	College Shorthand I	4	60
PY004U	Psychology of Human Relations I	3	36
AC004V	Office Accounting	4	48
	Electives (selected with program coordinator's approval)	12	

**LEGAL SECRETARY**

The Legal Secretary program provides specialized training necessary for work in a law office, a bank, or similar area. In addition to advanced training in basic office skills, the student completes specialized course work in the legal secretarial area.

Upon successful completion of this four-quarter program, the student is awarded a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 16 to 21 credit hours per quarter.

	Credits	Hrs.
Office Education Core Courses	39	728
Office Education Shorthand Core Courses	15	228

**TECHNICAL COURSES**

LW005T	Business Law I	4	48
LW006T	Business Law II	4	48
OE006V	Legal Terminology	3	48
OE005V	Legal Typing	3	48
AC008V	Income Tax Procedures	3	36
OE003V	Legal Dictation	3	36
OE004V	Legal Machine Transcription	3	36
OE002V	Law Office Procedures	3	36

**RELATED COURSES**

PY004U	Psychology of Human Relations I	3	36
AC004V	Office Accounting	4	48

**MEDICAL SECRETARY**

The Medical Secretary program is designed to give students the skills they will need as a secretary in a health office setting, including doctors' offices, insurance offices, clinics, hospitals and laboratories. This program provides

a good foundation for medical records work.

Upon successful completion of this four-quarter program, graduates receive a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 17 to 23 hours per quarter.

Office Education Core Courses		Credits	Hrs.
		39	728
<b>TECHNICAL CORE COURSES</b>			
BY006U	Basic Anatomy and Physiology	4	60
MS004V	Medical Terminology I	2	24
MS005V	Medical Terminology II	2	24
MS006V	Medical Terminology III	3	36
OE012V	Medical Secretarial Typing	3	48
OE011V	Medical Secretarial Office Procedures	4	48
MS013V	Pharmacology I	4	24
OE010V	Medical Secretarial Machine Transcribing	3	36
LW001V	Medical Law	1	24
OE007V	Medical Secretary Dictation	4	48
<b>RELATED COURSES</b>			
OE012T	College Typing IV <sup>1</sup>	3	60
AC004V	Office Accounting	4	48
PY004U	Psychology of Human Relations Electives <sup>2</sup>	3	36

<sup>1</sup>College Typing IV is required if the shorthand sequence is not taken.

<sup>2</sup>Electives other than shorthand may be taken with the approval of the coordinator.

## CREDIT SUPPLEMENTAL PROGRAMS IN MANAGEMENT DEVELOPMENT

The Management Development program is designed to develop and improve management skills for those persons currently in management positions or those seeking advancement into a supervisory capacity.

The program provides an extensive selection of both general and technical management courses offered on

either a credit or non-credit basis. All programs lead to a Certificate of Completion, which verifies that the graduate has acquired the specialized training, knowledge and skills needed for management-level advancement. A certificate can be attained by completing 30 quarter hours of credit in one of the following areas: Industrial Management, Sales/Marketing Management, Administrative Management, or Traffic/Transportation Management.

Credits earned in the Management Development program can be applied toward a diploma (54 credit hours), or toward an Associate of Applied Science or Associate of Arts degree, both 90 quarter hours in length.

Any student, pursuing an Associate of Arts degree and anticipating transferring this degree as the first two years of a four-year degree, should first consult a Kirkwood counselor or the coordinator of the program regarding transferring of credit earned in this program. Transfer of credit will vary depending upon the four-year institution the student plans to attend.

Previously taken courses at any accredited institution which parallel the offerings of the Management Development program will be considered for credit. Previous work experience related to the student's career emphasis also will be considered for credit toward the diploma and associate degree programs.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 2 to 15 credit hours per quarter.

## OPTION I: MANAGEMENT DEVELOPMENT CERTIFICATE PROGRAMS

### REQUIRED CORE COURSES

The following are required core courses for each of the certificate Management Development programs: Industrial Management, Sales/Marketing Management, Administrative Management, and Traffic and Transportation Management:

		Credits
AM052T	Introduction to Management	2
AM079T	Techniques of Supervision	2
AM045T	Human Behavior in Organizations	3
EC015T	Principles of Business Economics (Macro Economics may be substituted)	4
AM078T	Management Communications	3

## INDUSTRIAL MANAGEMENT (30 quarter hours minimum)

### SPECIALIZED OR CAREER COURSES IN ADDITION TO CORE COURSES

Any three of the following courses are required:

AM035U	Industrial Engineering	2
AM048U	Inventory Production & Control	3
AM049U	Labor and Management Relations	2
AM044U	Work Simplification	2
AM032U	Introduction to Quality Control	2
AM042U	Management Tools for Decision Making	2
MK023U	Industrial Marketing	3
MK039U	Introduction to Purchasing	2

### ELECTIVES

Electives are to be chosen from any courses listed under the specialized area that were not selected to meet that requirement and these additional courses:

AM047U	Human Resources Management	4
AC003U	Accounting for Non-accounting Managers	2
DP010U	Data Processing for Non-Data Processing Managers	2
AM051U	OSHA: Its Application	2
AM050U	Management by Objectives	2
AM077T	Organizational Behavior	3
AM055U	Current Topics in Management	1-2
PD005T	Human Potential Lab	2

## SALES/MARKETING MANAGEMENT (30 quarter hours minimum)

### SPECIALIZED OR CAREER COURSES IN ADDITION TO REQUIRED CORE COURSES

Any three of the following courses are required:  
Sales Promotion for Results

AM030U	Sales Management	2
MK016T	Counselor Selling	4
MK001T	Principles of Marketing	4
MK023U	Industrial Marketing	3
MK003T	Principles of Selling	4

### ELECTIVES

Electives are to be chosen from any courses listed under the specialized area that were not selected to meet that requirement and these additional courses:

AM049U	Labor and Management Relations	2
AM047U	Human Resources Management	4
AM042U	Management Tools for Decision Making	2
AC003U	Accounting for Non-Accounting Managers	2
AM050U	Management by Objectives	2
DP010U	Data Processing for Managers	2
AM077T	Organizational Behavior	3
AM055U	Current Topics in Management	1-2
PD005T	Human Potential Lab	2

## ADMINISTRATIVE MANAGEMENT (30 quarter hours)

### SPECIALIZED OR CAREER COURSES IN ADDITION TO REQUIRED CORE COURSES

Any three of the following courses are required:

AC005U	Small Business Recordkeeping	2
AM019U	Office Management	4
AM047U	Human Resources Management	4
AM029U	Wage and Salary Administration	2
AM054U	Public Administration	3
AM031U	Management Information Systems	2
AM049U	Labor and Management Relations	2
AM058U	Effective Work Behavior	2

### ELECTIVES

Electives are to be chosen from any courses listed under the specialized area that were not selected to meet that requirement and these additional courses:

AC003U	Accounting for Non-accounting Managers	2
AM050U	Management by Objectives	2
AM047U	Human Resources Management	4
DP010U	Data Processing for Managers	2



AM077T	Organizational Behavior	3
AM055U	Current Topics in Management	1-2
PD005T	Human Potential Lab	2

hours of Cooperative Education may be included in this option.

## TRAFFIC AND TRANSPORTATION MANAGEMENT

### SPECIALIZED OR CAREER COURSES IN ADDITION TO REQUIRED CORE COURSES

All these courses required for Traffic Management students:

AM036U	Traffic & Transportation Management I	3
AM037U	Traffic & Transportation Management II	3
AM038U	Traffic & Transportation Management III	3
AM039U	Traffic & Transportation Management IV	3
AM040U	Traffic & Transportation Management V	3
AM041U	Traffic & Transportation Management VI	3

### RECOMMENDED ELECTIVES FOR DIPLOMA PROGRAM

AM034T	Interstate Commerce Law and Practice I	3
AM035T	Interstate Commerce Law and Practice II	3
AM036T	Interstate Commerce Law and Practice III	3

## OPTION II: MANAGEMENT DEVELOPMENT DIPLOMA PROGRAM

The diploma program in Management Development is 54 quarter hours in length and is designed to be a continuation of the certificate option in Management Development. To receive this award the student must have completed one of the 30 quarter-hour certificate programs previously outlined. The remaining 24 hours of course work is to be selected from general management courses, or up to 12

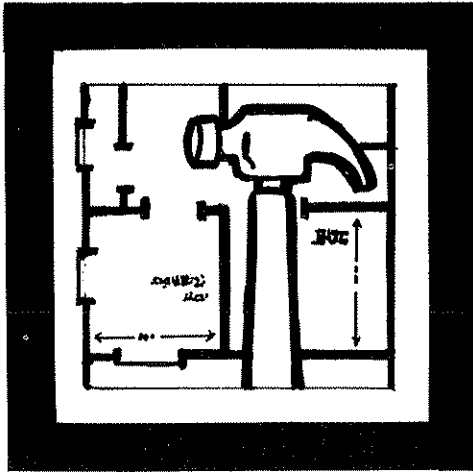
## OPTION III: ASSOCIATE DEGREE PROGRAMS

The student may complete either an Associate of Applied Science degree or an Associate of Arts degree in Management Development. Both degrees include 90 quarter hours of course work.

A) The Associate of Applied Science degree is a more "technically" oriented degree which allows the student to specialize further than he might under the AA degree, in a specific occupational area.

The student must complete at least 18 hours from the general education core and must have completed one of the 30-hour certificate program options for this award.

B) The Associate of Arts degree requires the student to complete the college's requirements for the AA degree and, in addition, complete one of the 30-hour certificate programs of Management Development outlined previously. Special attention should be given to the planning of this program option if the student anticipates transferring to a four-year institution, as transferability will vary depending upon the institution involved.



# CONSTRUCTION CAREERS

## ARCHITECTURAL DRAFTING

The Architectural Drafting program is designed basically to prepare an individual for entry employment in an architect's office. Normally, this involves the drawing or redrawing of plans, elevations, details, plumbing, and electrical and mechanical layouts. Attention is given to accuracy, neatness and proper drawing procedure. The type of drawing is primarily of commercial construction rather than of residential. The program consists of four 12-week quarters or 1,440 clock hours.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will be 360 clock hours per quarter. Graduates receive a diploma.

### REQUIRED TECHNICAL COURSES

	Credits	Hrs.
GR032U Architectural Drafting I	13	288
GR033U Architectural Drafting II	13	288

GR034U Architectural Drafting III	11	240
GR035U Architectural Drafting IV	14	438
GR036U Related Disciplines	2	24
CS033U Estimating	3	36
CS034U Presentations	2	24
CS035U Construction Materials	3	36
CS036U Construction Methods	3	36

### REQUIRED RELATED COURSES

MA011U Mathematics I	3	36
MA003U Mathematics II	3	36
CM002U Communication Skills I	3	36
PY003U The Profession	1	12

## RESIDENTIAL CARPENTRY

Residential Carpentry is a one-year program designed to prepare the student for entry-level employment as a carpenter in the home building and light commercial construction field. Through this program you will receive training in most phases of home construction as it relates to the carpenter's trade. Construction of a house and other projects will be undertaken as part of instruction, with approximately 20 hours per week spent in the lab or on the building site. Graduates of the program receive a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program.

### TECHNICAL COURSES

	Credits	Hrs.
CS047U Construction Lab I	10	240
CS048U Construction Lab II	10	240
CS049U Construction Lab III	10	240
CS050U Construction Lab IV	6	150
CS051U Construction Related I	5	60
CS052U Construction Related II	5	60
CS053U Construction Related III	5	60
CS054U Construction Related IV	2	30

### RELATED COURSES

GR039U Principles of Drafting and Sketching	4	60
GR037U Blueprint Reading I	5	60
GR038U Blueprint Reading II	3	36
AM003U Business Practices	2	24

## RURAL BUILDING CONSTRUCTION

The Rural Building Construction program is designed to provide students with the performance and management skills necessary to earn a living in the rural construction industry. Instructional areas are carpentry, excavation, masonry and concrete, electricity, plumbing, heating and ventilation, metal work and structural steel.

Each course in this program, with the exception of the two Facilities Construction courses are self-contained, offered without prerequisites to any interested student. The Facilities Construction courses require that a student have previous training or experience.

A student may enroll for one or more courses any quarter. The typical full-time student would attend classes 260 to 360 contact hours per quarter depending on their previous occupational and educational experience. Approximately 50 per cent of student time is spent in laboratory exercises. The student receives a diploma for successful completion of four quarters or 72 credits. Students receive a certificate for completing one quarter of study.

All veterans must take the required number of hours per quarter in order to graduate within four quarters. This will vary from 240 to 336 contact hours per quarter.

Students select from the following courses with the approval of their associate department head and faculty advisor.

		Credits	Hrs.
CS045U	Fundamentals of Carpentry I	5	84
CS046U	Fundamentals of Carpentry II	5	84
CS044U	Excavation	4	60
CS043U	Masonry and Concrete	4	60
AG263U	Ag Career Orientation	1	12
CS042U	Construction Techniques	5	84
EL018U	Fundamentals of Electrical Service	5	84
MM006U	Metals and Welding	4	60
CS041U	Heating and Ventilation	4	60
CS040U	Job Planning and Scheduling in Carpentry	5	84
CS039U	Plumbing	5	84
CS038U	Electrical Construction	4	60
CS037U	Metal Fabrication	4	60
CS007U	Facilities Construction: Planning and Preparation	9	144
CS008U	Facilities Construction: Erection	9	144



## WELDING

The complete welding program at Kirkwood is approximately 1,080 hours, or 36 weeks. It consists of three main phases, each being about 12 weeks. The first is metallic arc welding, or commonly referred to as stick welding. A student satisfactorily completing this section of the program will have the necessary skill required for passing the American Welding Society's Guide Bend Test in three positions with 3/8-inch steel plate using low-hydrogen electrodes. Also included in this section is oxy-acetylene cutting, Mathematics I and blueprint reading.

The second phase is referred to as combination welding. This covers semi-automatic, oxy-acetylene, heliarc, sheet metal, cast iron and non-ferrous welding. It is recommended that students take the first two phases as a minimum.

The third quarter involves the study of the technical aspects of welding, plus drawing, shop math, communication skills. The set-up and use of production machinery, welding inspection methods, and a student project also are included. This quarter is to provide the students with the background needed to obtain work in industry as a supervisor, methods man, inspector or specialist welder, or in a field of welding sales.

The first two quarters of the program are set up on a modular basis; that is, students can progress at their own pace within the time allotted, since the lessons are self-

instructional with all necessary demonstrations provided on videotape. Instructors provide individual help as necessary. Students can enroll at any time if space is available. Students who enroll in the daytime must enroll on a full-time basis or for 30 clock hours per week.

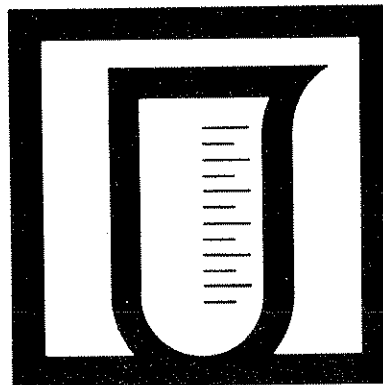
All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 180 to 360 clock hours per quarter.

		Credits	Hrs.
MM011V	Introduction to Arc Welding	1	26
MM025V	Weaving the Electrode	.5	12
MM028V	Flame Cutting	1	18
MM026V	Introduction to Joint Welding	1	28
MM027V	Powdered Iron Weld Methods	1	28
MM029V	Butt Joints: Flat	1	30
MM030V	Horizontal Weld Techniques	1	24
MM031V	Vertical Welding Techniques	1	26
MM032V	Overhead Welding Techniques	.5	18
MA011U	Mathematics I	3	36
MM034V	Blueprint Reading for Welders	3	36
MM033V	A.W.S. Test: Low-Hydrogen Electrodes	3.5	78
MM017V	Semi-automatic Welding	3	60
MM035V	Oxy-acetylene Light-Gauge Steel Welding	1	20
MM036V	Oxy-acetylene Heavy Steel Welding	1	20
MM037V	Brazing and Silver Solder	1	20
MM038V	Oxy-acetylene Cast Iron Repair	1	20
MM039V	Oxy-acetylene Non-Ferrous Materials	1	20
MM019V	Heliarc Welding	5	104
MM020V	Special Arc Welding Techniques	3	60
MA003U	Mathematics II	3	36
MM009V	Production Machinery	2	56
MM022V	Welding Inspection	2	56
MM023V	Student Project	2	56
MM024V	Welding Technology	4	60
GR001V	Graphic Skills	2	36
MA004U	Mathematics III	2	36
CM002U	Communication Skills	2	36
PY001V	Human Relations and Shop Supervision	1	24

**SPECIAL COURSES**

**50**

MM010V	Welding for Auto Mechanics	2	48
MM012V	Welding Special Projects	2	48
MM065V	Pipe Welding Technology	8	160



# ENVIRONMENTAL CAREERS

## PUBLIC HEALTH TECHNICIAN

The Public Health Technician program is designed to prepare the student for careers with city and county boards of health or housing, community improvement agencies, and city agencies which address problems of environmental quality and public health.

The program is four quarters in length. It features a combination of curriculum, laboratory, and practical field learning experiences. The last quarter, usually in the summer, involves work experience in public health agencies such as local Health Departments. Graduates receive a diploma. A student may select to extend the program to six quarters with additional related course work and receive an associate degree.

All veterans must take the required number of hours per quarter in which to graduate within the approved number of quarters for this program.

		Credits	Hrs.
EV004U	Introduction to Environmental Health	2	24
EV024U	Diseases of Man	2	24
EV015U	Insect and Rodent Control	2	36



EV025U	Water Supplies I	2	36
EV026U	Wastewater Systems I	2	36
EV028U	Shelter Environment	6	96
EV009U	Recreational Sanitation	2	36
EV010U	Solid Waste Management	2	36
EV029U	Water Supplies II	3	48
EV030U	Wastewater Systems II	3	48
EV027U	Food and Milk Sanitation	6	96
EV013U	Supervised Field Studies	12	384
EV014U	Environmental Health Seminar	2	24
	Math/science electives	46/51	552/612

## WATER AND WASTEWATER TECHNOLOGY

This program prepares students for employment in the areas of wastewater collection and treatment, water treatment and distribution, and laboratory analysis in water and wastewater facilities. Job opportunities are available with municipal and privately owned water or wastewater

facilities, private laboratories, regulatory agencies, and engineering firms.

The curriculum consists of classroom, laboratory, and practical field learning experiences. A pilot scale water and wastewater treatment facility is located on campus. It provides students with training experience in a functioning treatment plant.

The program involves 1,404 clock hours and totals 64 credit hours of study. It may be taken during the day and/or evening. Graduates receive a diploma.

This program has been approved for veteran benefits. All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this quarter.

		Credits	Hrs.
EV027V	Water/Wastewater Plant Administration	2	24
EV030V	Water Treatment	3	72
EV034V	Wastewater Collection	2	36
EV035V	Introduction to Water and Waste Treatment	2	24
EV036V	Basic Laboratory Skills	2	48
EV038V	Water Analysis	2	48
EV039V	Pumps	1	24
EV040V	Basic Environmental Science	3	48
EV041V	Wastewater Treatment I	3	72
EV042V	Wastewater Analysis I	2	48
EV043V	Operations Reports	1	12
EV044V	Water Resources	2	24
EV045V	Wells	2	24
EV046V	Water Distribution	2	48
EV048V	Wastewater Analysis II	2	48
EV049V	Lagoons	2	24
EV050V	Special Projects	2	48
EV051V	Internship or elective or combination	12	480
EV052V	Sludge Treatment and Disposal	2	36
EV053V	Wastewater Treatment Plant Troubleshooting	1	24
EV054V	Activated Sludge and Rotating Biological Contactors	2	36
CH001T	Principles of Chemistry	3	36
CM002U	Communications Skills	3	36
ELQ19V	Basic Electricity	2	24
	Math elective	4/5	48/60



## HEALTH CAREERS

### DENTAL ASSISTANT

Dental assistant students are prepared for successful employment in private dental offices, group practice, dental services, clinics and hospitals as well as public health agencies.

The objective of this four-quarter program is to prepare students to directly assist the dentist in the treatment of patients, manage a smoothly functioning business office and perform basic laboratory procedures in a dental office.

Graduates receive a diploma and are eligible to take the national certification examination. The Dental Assistant program is accredited by the American Dental Association Commission of Accreditation. An Associate of Applied Science or Associate of Arts degree will be awarded if minimal additional requirements are met. Consult the requirements for the Associate of Arts degree as listed in this catalog.

All veterans must take the required number of hours per quarter in order to graduate within the approved number

of quarters for this program. This will vary from 288 to 224 clock hours per quarter.

<b>TECHNICAL COURSES</b>		Credits	Hrs.
DN102U	Dental Materials	3.5	48
DN103U	Dental Assisting	5.5	72
DN101U	Dental Orientation	2	24
DN115U	Dental Lab. Assisting I	4.5	84
BY110U	Dental Anatomy	3.5	48
BY111U	Head and Neck Anatomy	3	36
DN113U	Dental Radiography I	2.5	36
DN116U	Dental Lab Assisting II	2	36
DN109U	Laboratory Practicum I	4.5	90
MS001T	First Aid	2	24
BY109U	Oral Microbiology	2.5	36
DN120U	Dental Pharmacology Therapeutics	2.5	36
DN141U	Dental Specialties	5.5	72
DN114U	Dental Radiography II	1.5	24
AM033U	Dental Office Management I	2	36
DN110U	Lab. Practicum II	7.5	168
DN121U	Disease and Prevention	3.5	48
AC007U	Dental Bookkeeping	3	36
AM034U	Dental Office Management II	3	36
DN111U	Clinic I	3.5	114
DN112U	Clinic II	3.5	114

<b>RELATED COURSES</b>			
CM101T	Composition I	4	48
CM204T	Speech I	3	36
PY022T	Psychology of Human Relations	3	36
PY002T	General Psychology	4	48

### DENTAL ASSISTANT OFF-CAMPUS PROGRAM

This state-wide program provides an opportunity for employed dental assistants to demonstrate adequate competence and gain a recognized formal education. The program provides extension courses off campus for college credit, a quarterly seminar and various evaluation procedures.

Graduates are awarded a diploma. The program can be completed over a period of six months or up to three years. Students wanting to enroll must submit proof that



## DENTAL LABORATORY TECHNICIAN

Dental laboratory technicians are employed in commercial dental laboratories, private dental offices or in their own commercial laboratories. As part of the two-year program, students box, pour and articulate models, set up, wax up, invest and process full dentures; cast inlays, crowns, bridges, partials, acrylic and porcelain jackets, porcelain on metal, and construct many other special dental appliances.

Graduates receive an Associate of Applied Science degree.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 16 to 21 credit hours per quarter.

they have been employed two years as a dental assistant and have access to a dental office facility.

### TECHNICAL COURSES

	Credits	Hrs.
DN142U Dental Assistant Seminar	1	12
DN133U Dental Assistant Advanced Placement—Set A	8.5	14-20
DN134U Dental Assistant Advanced Placement—Set B	8	14-20
DN135U Dental Assistant Advanced Placement—Set C	5.5	14-20
DN136U Dental Assistant Advanced Placement—Set D	4	14-20
DN137U Dental Assistant Advanced Placement—Set E	5.5	12-18
DN138U Dental Assistant Advanced Placement—Set F	8.5	15-20
DN139U Dental Assistant Advanced Placement—Set G	9	12-20
DN140U Dental Assistant Advanced Placement—Set H	19	20-30

### RELATED COURSES

CM101T Composition I	4	48
CM204T Speech I: Interpersonal Communications	3	36
PY002T General Psychology	4	48
MS001T Emergency and First Aid Procedures (CPR)	1	12

### FIRST YEAR

	Credits	Hrs.
DN004U Dental Terminology (DLT)	2.5	36
DN001U Dental Materials (DLT)	4	72
DN005U Dental Equipment (DLT)	2.5	36
BY003U Oral Anatomy	3	36
BY002U Dental Anatomy I	3	48
BY001U Dental Anatomy II	2	24
PH004U Technical Chemistry and Physics I	3.5	60
PH005U Technical Chemistry and Physics II	3	48
PH006U Technical Physics III	2	24
DN006U Clinical Experience I and Seminar	12	384
DN021U Denture Techniques I	6.5	120
DN023U Articulators and Articulation	3.5	60
DN024U Cast Inlay and Crown	5	96
DN025U Crown and Bridge	10	192
DN026U Partial Denture Techniques I	4	84

### SECOND YEAR

DN008U Acrylic Jacket, Crowns and Veneers	5	96
DN027U Partial Denture Techniques II	5	96
DN022U Denture Techniques II	6	120
DN003U Orthodontics	3	66
DN009U Precision Attachment Partial	4	84
DN010U Cast Metal Base Dentures	2	42
DN002U Porcelain Techniques	4	84
DN028U G.I.S. Orthodontics	8	156
DN029U G.I.S. Fixed Bridges	8	156
DN030U G.I.S. Ceramics	8	156
DN031U G.I.S. Removable Bridges	8	156

DN032U	G.I.S. Full Dentures	8	156
DN007U	DLT Clinical Experience and Seminar	12	384

**RELATED COURSES**

PY022T	Psychology of Human Relations	3	36
CM002U	Communication Skills I	3	36
DN020U	Laboratory Management (DLT)	3	36
PY007U	Sales Psychology and Human Relations	3	36

## DENTAL LAB TECHNICIAN OFF-CAMPUS PROGRAM

This program is offered in identified metropolitan areas where the need for dental lab technicians is not currently being met.

Students will receive instruction and practical experience in the five main areas of dental laboratory technology, which include: complete and partial denture construction; crown and fixed bridgework fabrication; gold or other non-precious metal cast partials; individual porcelain and acrylic restorations; and orthodontic appliances.

Classroom instruction is held on Friday nights and weekends at a pre-determined off-campus site. Under a cooperative arrangement, courses are taught by instructors from Kirkwood Community College, with the cooperating agency offering facilities and supportive services. Classes are supplemented by self-study modules consisting of study materials, slides and tapes that students may check-out and use in their home. The program also consists of nine quarter hours of Arts and Sciences courses that may be taken at an accredited college of the student's choice.

This is a two-year program with graduates receiving an Associate of Applied Science degree.

**TECHNICAL COURSES**

		Credits	Hrs.
DN144U	Dental Laboratory Technology Core	5	108
DN145U	Full Denture Technology I	6	132
DN149U	Clinic Ia	2	72
DN146U	Full Denture Technology II	11	240
DN147U	Partial Denture Technology I	11	240
DN150U	Clinic Ib	2	72

DN148U	Partial Denture Technology II	3	60
DN159U	Crown and Bridge Technology I	7	144
DN151U	Clinic Ic	2	72
DN160U	Crown and Bridge Technology II	11	252
DN161U	Ceramics Technology I	11	240
DN152U	Clinic Id	2	72
DN162U	Ceramics Technology II	5	108
DN163U	Orthodontic Technology I	6	132
DN153U	Clinic Ie	2	72
DN154U	Clinic II A, or	12	432
DN155U	Clinic II B, or		
DN156U	Clinic II C, or		
DN157U	Clinic II D, or		
DN158U	Clinic II E		

**RELATED COURSES**

CM002U	Communication Skills I	3	36
PY004U	Psychology of Human Relations I	2-4	24-48
SO004T	Introduction to Sociology	4	48
PY007U	Sales Psychology and Human Relations	3	36

## DENTAL MANAGEMENT

This program is designed for dental office managers and/or receptionists who wish to expand their skills in the area of management. The program provides electives for persons who may want to pursue their individual interest based on their current employment. Students may enroll part time. It is open to graduates of one-year accredited programs, certified dental assistants and others. Students may obtain an Associate of Applied Science degree if minimum requirements are met.

**TECHNICAL COURSES**

		Credits	Hrs.
DN131U	Dental Management Seminar I	3	36
DN132U	Dental Management Seminar II	3	36
PD005T	Human Potential	2	36
AM052T	Introduction to Management	2	24
AM079T	Techniques of Supervision	2	24

**ELECTIVES**

Electives in the humanities, math/science, social science	9	108
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## PREVENTIVE DENTISTRY

Preventive dentistry is a part-time program designed for dental assistants who wish to expand their knowledge and skills in the area of preventive dentistry. It includes the mechanics, theory, philosophy and psychology for teaching the prevention of oral diseases to dental patients, with emphasis on plaque control. Students who complete this program should be able to establish, teach and evaluate a plaque control program in a dental office.

The program is open to graduates of a one-year accredited dental assistant program, or certified dental assistants with a minimum of six month's employment in a dental office. Graduates are eligible for an Associate of Applied Science degree if degree requirements are completed, or a certificate.

### TECHNICAL COURSES

		Credits	Hrs.
DN127U	Preventive Dentistry Seminar I	4	48
DN128U	Preventive Dentistry Seminar II	4	48
PY002T	General Psychology	4	48
SO004T	Introduction to Sociology	4	48
PD005T	Human Potential	2	24

### ELECTIVES

Electives may be selected from the following subject areas and be approved by the advisor of the Dental Assistant program.

Educational Psychology	Communication Courses
Photography Courses	Social Problems
Audio-visual Courses	Chemistry

## ELECTROENCEPHALOGRAPHIC TECHNOLOGIST

The Electroencephalographic Technologist (EEG Tech) program is a cooperative two-year program between Kirkwood Community College and the University of Iowa Department of Neurology. Related and general education courses are provided by Kirkwood Community College, with the EEG core courses and clinical experience provided by the University of Iowa Department of Neurology. Graduates are awarded an Associate of Applied Science degree from Kirkwood Community College.

The Electroencephalographic Technologist functions in a laboratory performing neurological tests on either hospitalized patients or out-patients. The electroencephalograph records the electrical activity of the brain. The recorded activity assists the physician in the diagnosis and treatment of patients having various types of brain dysfunction.

Electroencephalographic Technologists may be employed in private and public hospitals, clinics, private neurologists' offices, and research institutions.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 12 to 21 credit hours per quarter.

### TECHNICAL COURSES

		Credits	Hrs.
MS025U	Introduction to Health Care	4	72
MS037U	Clinical EEG Lecture I	2	24
MS038U	Introduction to EEG Lab Tech/Seminar	4	84
MS001T	Emergency/First Aid Procedures	2	24
MS040U	Applied Electronics and Instrumentation	3	48
MS041U	General Neurology I	2	24
MS042U	Clinical Laboratory I/Seminar	8.5	192
MS043U	General Neurology II	2	24
MS044U	Clinical Laboratory II/Seminar	15	348
MS045U	Special Instrumentation Tech. I	3	60
MS046U	Clinical Laboratory III/Seminar	13	300
MS047U	Special Instrumentation Tech II	5	120
MS048U	Clinical EEG Lecture II	2	24
MS049U	Clinical Laboratory IV/Seminar	9	204

### RELATED COURSES

MA012U	Technical Mathematics I	4	60
EL029U	Electronics Circuits I	12	192
CM101T	Composition I	4	48
BY006U	Basic Anatomy and Physiology	4	60
PY002T	General Psychology	4	48
BY009U	Homeostatic Physiology	4	48

## MEDICAL ASSISTANT

This program is four quarters, and prepares students to work under the supervision of a doctor as a Medical

Assistant. The assistant's duties are both administrative and clinical. Some of these duties include assisting the doctor with examinations, arranging hospital admissions, assisting in medical emergencies, performing laboratory tests authorized by the doctor, ordering medical supplies, answering the phone and scheduling appointments, typing medical reports and completing insurance forms.

Following graduation, the student may take the national certification test offered by the American Association of Medical Assistants. Those passing the test become nationally certified medical assistants.

Graduates of the program receive a diploma. The Medical Assistant program at Kirkwood is accredited by the Council on Medical Education of the American Medical Association in cooperation with the American Association of Medical Assistants.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 276 to 396 clock hours per quarter.

TECHNICAL COURSES		Credits	Hrs.
MS022V	Medical Procedures I	6	120
MS023V	Medical Procedures II	6	108
MS024V	Medical Procedures III	2	36
MS025V	Medical Procedures IV	2	24
LW001V	Medical Law	2	24
MS004V	Medical Terminology I	2	24
MS005V	Medical Terminology II	2	24
MS006V	Medical Terminology III	3	36
OE031V	Business Skills I Medical Insurance	2	24
MS008V	Supervised Clinical Experience I: Medical Assistant	6	204
MS001T	First Aid or CPR	2	48
MS009V	Supervised Clinical Experience II: Medical Assistant	13	372
PY004U	Psychology of Human Relations I	2	24
MS013V	Pharmacology	2	24
MS025U	Introduction to Health Care	4	72
OE018T	Typing Module V	.5	10
OE019T	Typing Module VI	.5	10

RELATED COURSES		Credits	Hrs.
OE013V	Medical Typing	2	36
BY006U	Basic Anatomy and Physiology	4	72
AC006V	Medical Bookkeeping	4	48

### ELECTIVES

Students may select any course in the following list to fulfill a Social Science requirement of four credits (48 hours).

PY002T	General Psychology
PY025T	The Young Child
PY020T	Psychology of Growth and Development
SO004T	Introduction to Sociology
SO006T	Social Problems

## MEDICAL RECORD TECHNICIAN

This program is designed to prepare students for careers in the medical record field. An unpaid directed practicum is offered in various types of health facilities.

The medical record technician may be employed in the medical records department of hospitals, medical clinics, nursing homes, state and federal health agencies, and health research societies.

Graduates of this six-quarter program receive an Associate of Applied Science degree. Following graduation, students may take the National Accreditation Test offered by the American Medical Record Association. Graduates who pass the test become accredited record technicians.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 17 to 23 hours per quarter.

TECHNICAL COURSES		Credits	Hrs.
MA036U	Statistical Preparation	4	48
MS004V	Medical Terminology I	2	24
MS005V	Medical Terminology II	2	24
MS006V	Medical Terminology III	3	36
OE011V	Medical Office Procedures/Medical Record Science I	4	48
OE009U	Medical Record Science II	4	48
OE012U	Medical Record Science III	4	48
OE012V	Medical Secretarial Typing	3	36
OE010V	Medical Machine Transcription	3	36
OE010U	Nosology and Health Data	4	48
OE013U	Documentation of Medical Records	3	36
OE014U	Legal Aspects of Medical Records	2	24
OE011U	Directed Practicum	15	540

## RELATED COURSES

AM019U	Office Management	4	48
CM002U	Communication Skills I, or	3	36
CM101T	Composition I,	4	48
CM001U	Business Writing, or	3	36
CM117T	Composition II	4	48
DP001T	Introduction to Data Processing, or	3	36
DP046U	Elements of Data Processing	3	36
PD001U	Personal Development	2	24
PY002T	General Psychology or	4	48
PY004U	Psychology of Human Relations I	3	36
MS013V	Pharmacology	2	24
OE001U	Office Procedures I	4	60
OE008T	Typing III	3	60
OE041T	Memory Typewriter	1	24
OE010T	Filing Systems and Records		
	Control	3	36
OE015V	Transcribing Machines	3	36
AC004V	Office Accounting	4	48
BY006U	Basic Anatomy and Physiology	4	60
BY009U	Homeostatic Physiology	4	48
BY003V	Introduction to Pathology	4	48

## NURSING EDUCATION

The Nursing Education program offers Licensed Practical Nursing (LPN) and Associate Degree Nursing (RN) options in a cored curriculum. Students are eligible for admission if they are 17 years of age and have a high school diploma or equivalent. The first three quarters of the LPN and ADN programs are identical and provide a core of skills, knowledge, ability and concepts common to the practical and registered technical nurse. Students will be counseled when selecting the fourth quarter ADN or LPN option on the basis of:

- 1) Student goals, interests and expectations.
- 2) Ability to meet Nursing I, II and III course objectives, performance and examinations.

No single factor will determine the direction the student takes.

Nursing courses and clinical experiences are offered concurrently on the Kirkwood campus and in cooperating health facilities in the area. The curriculum consists of

major phases of medical, surgical, maternal, pediatric and psychiatric nursing, and is designed to prepare graduates to work in hospitals, extended or long-term care health facilities, doctor's offices, clinics and agencies providing nursing care. The LPN student learns specific procedures and patient care skills pertinent to the performance expected by employers of these graduates. Graduates receive a diploma and are eligible for the state examination for LPN licensure.

ADN students receive additional instruction in nursing and science courses and more extensive clinical patient care skills. ADN students learn to: 1. plan, implement and evaluate a plan of nursing care for patients, 2. assume specific leadership skills, and 3. make responsible decisions regarding nursing care. Graduates of the ADN program receive an Associate of Applied Science degree and are eligible for the state examination for RN licensure.

**ADN ADVANCED PLACEMENT:** Kirkwood offers an ADN Advanced Placement program for people with previous health experience such as LPNs, corpsmen, medics, aides or orderlies. Applicants may receive up to three quarters of credit for previous experience and are appropriately placed in the nursing curriculum depending upon faculty evaluation of ability, performance, credits or examination. There are two options available. The first option is to enter Nursing II, III, ADN IV in the day program at Kirkwood's main campus. The second option is for LPNs with at least one year of work experience to enter Nursing V each fall quarter in the evening-weekend program at Kirkwood's Iowa City Community Education Center.

**LICENSED PRACTICAL NURSE:** All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 16 to 18 credit hours per quarter.

**ASSOCIATE DEGREE NURSING:** All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 16 to 19 credit hours per quarter.

## ASSOCIATE DEGREE NURSE

### TECHNICAL COURSES

		Credits	Hrs.
MS001T	Emergency and First Aid Procedures	2	24
NS002U	Metrology	2	12
NS013U	Nutrition	2	24
NS003U	Nursing I (Fundamentals of Nursing)	9	156
NS004U	Nursing II (Introduction to Medical-Surgical Nursing)	10	180
NS005U	Nursing III (Maternal & Child Nursing)	12	228
NS006U	Nursing IV ADN (Psychiatric Nursing)	10	180
NS007U	Nursing V (Medical-Surgical Nursing)	12	240
NS008U	Nursing VI (Medical-Surgical Nursing)	12	240
NS009U	Nursing VII (Advanced Maternal-Child Nursing)	12	240
NS001U	Changing Patterns in Health Care	2	24
NS010U	Nursing VIII (High Priority Care and Management Principles)	16	336
NS011U	Seminar Nursing ADN	2	24
NS012U	Advanced Placement Seminar ADN	1	12

### RELATED COURSES

BY006U	Basic Anatomy and Physiology	4	60
PY002T	General Psychology	4	48
CM204T	Speech	3	36
BY042T	Microbiology I - 4 yr. limit	4	84
PY020T	Psychology of Growth & Development	4	48
CM101T	Composition I	4	48
CM117T	Composition II: Technical Writing	4	48
SO004T	Introduction to Sociology	4	48
SO006T	Social Problems	4	48
BY009U	Homeostatic Physiology	4	48

### ELECTIVES

Choice of transferable credit courses.	4	48
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## LICENSED PRACTICAL NURSE

### TECHNICAL COURSES

		Credits	Hrs.
MS001T	Emergency and First Aid Procedures	2	24
NS002U	Metrology	1	12
NS013U	Nutrition	2	24
NS003U	Nursing I (Fundamentals of Nursing)	9	156
NS004U	Nursing II (Intro to Medical-Surgical Nursing)	10	180
NS005U	Nursing III (Maternal and Child Nursing)	12	228

NS016V	Nursing IV PN (Medical-Surgical Nursing)	13	314
NS017V	Seminar Nursing PN	2	24

### RELATED COURSES

BY006U	Basic Anatomy and Physiology	4	60
PY002T	General Psychology	4	48
CM204T	Speech	3	36
BY042T	Microbiology I	4	72
PY020T	Psychology of Growth & Development	4	48

### ELECTIVES

Choice of transferable credit courses.	2	24
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## OCCUPATIONAL THERAPY ASSISTANT

The Occupational Therapy Assistant program combines academic and clinical experience in a planned seven-quarter program. Instruction consists of a combination of traditional lecture classes and small group and self-paced learning activities which allow students who have prior training or experience, or those who learn more rapidly, to complete the program in less than seven quarters.

The program prepares the graduate for a health career, working under the supervision of a registered occupational therapist. The focus of the program is helping patients to perform tasks critical to self-care, work and leisure activities, and restoration and treatment of physical and psychosocial disabilities.

Occupational therapy assistants are employed in hospitals, nursing homes, area education agencies, mental health facilities, rehabilitation centers, and extended care facilities. Graduates will have the opportunity to work under guidance, providing patients occupational therapy treatment, assessment and evaluation. Graduates receive an Associate of Applied Science degree and are eligible for the National Certification Examination (AOTA).

All veterans must take sufficient courses (12 to 20 credit hours) each quarter so as to remain in good standing and complete the program in seven quarters.

### TECHNICAL COURSES

		Credits	Hrs.
TH005U	Therapeutic Techniques I	4	60

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MS025U	Introduction to Health Care	4	72
TH004U	Developmental Processes	6	84
TH006U	Therapeutic Techniques II	4	72
TH002U	Health-Illness-Health	10	168
TH003U	Major Crafts	8	192
CM007U	Medical Communications	4	48
MS001T	Emergency First Aid Procedures: CPR	1	24
MS001T	Emergency First Aid Procedures: First Aid	1	24
MS004V	Medical Terminology I	2	48
TH007U	Therapeutic Techniques III	15	252
TH010U	Clinical Experience A	7	252
TH009U	Clinical Experience B	7	252
TH001U	Occupational Therapy Management Skills	2	24
MS036U	Independent Study in Health Science	2	48
TH008U	Clinical Experience C	7	252
TH011U	Seminar	2	24

**RELATED COURSES**

BY006U	Basic Anatomy and Physiology	4	60
PY002T	General Psychology	4	48
PD007D	P.A.D. Personal Achievement or PD008D or PD009D	1-3	24-72
BY011U	Functional Anatomy	4	48
PD005T	Human Potential Lab	2	36
CM201T	Speech I: Public Speaking	3	36
CM101T	Composition I	4	48

**OPERATING ROOM PROGRAM**

The Operating Room program is a one-quarter advance placement program designed to prepare persons with previous health occupation education and/or experience for entry-level employment in an operating room. Enrollment is open to registered nurses, licensed practical nurses, medical assistants, emergency medical technicians, corpsmen and other health practitioners or individuals who meet the necessary prerequisites (evidence of having completed courses in basic anatomy and physiology, microbiology, and introduction to health care or the equivalent).

Basic operating room procedures and technical skills, including care and use of surgical instruments and equipment, and preparation of patients and personnel for operative procedures, are taught in the classroom/

laboratory at Kirkwood. Clinical experience is gained in local hospital operating rooms under the supervision of Kirkwood faculty. Graduates are awarded a certificate, and will be prepared for employment in hospitals and clinics as operating room nurses or operating room technicians, depending on their status upon entering the program.

All veterans must take the required number of hours in order to graduate within the approved credit hours for this program. This will vary from 12 to 21 credit hours.

**TECHNICAL COURSES**

		Credits	Hrs.
MS001T	Emergency/First Aid Procedures	1-3	12-36
MS006U	Operating Room Techniques I	3	48
MS026V	Advanced Operating Room Tech	3	36
MS027V	Advanced Supervised Clinical Practicum	10	240

**ORTHOPAEDIC PHYSICIAN'S ASSISTANT**

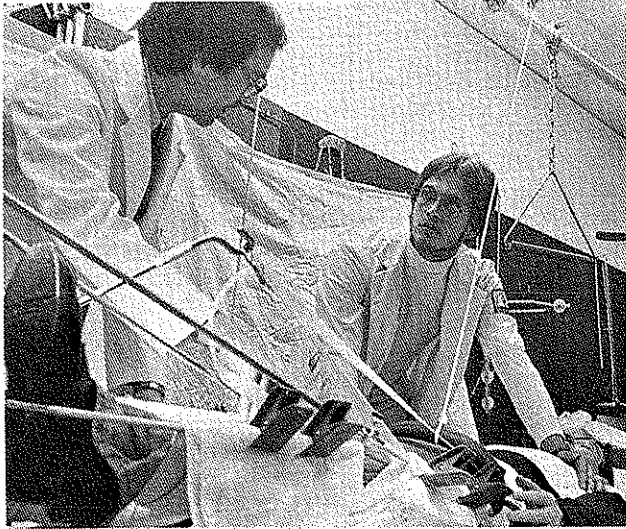
The Orthopaedic Physician's Assistant (OPA) curriculum of six quarters prepares students to assist in the care of patients with musculoskeletal disorders and diseases under the supervision of an orthopaedic surgeon. Although specific duties may vary according to employer needs, the OPA functions primarily as a surgical assistant, cast and traction technician, patient data collector and patient instructor.

Theory and practice is integrated and concurrent during the program. Classroom and laboratory activities are provided at Kirkwood, while practical experience is obtained in selected hospitals and private physicians' offices. Graduates receive an Associate of Applied Science degree.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 12 to 21 credit hours per quarter.

**TECHNICAL COURSES**

		Credits	Hrs.
MS007U	Principles of Immobilization I	3.5	60



## RESPIRATORY THERAPY

The Respiratory Therapy curriculum is a two-year ladder program designed to prepare students as allied health specialists in the field of respiratory therapy. The role of the Respiratory Therapist is primarily, but not limited to cardio-respiratory care in the form of oxygen administration, ventilatory support, blood gas analysis, chest physiotherapy and pulmonary rehabilitation. The therapist's role also often encompasses other related therapeutic and diagnostic functions such as pulmonary function testing.

Graduates of the program receive an Associate of Applied Science degree and are eligible for the National Registry Examination for Respiratory Therapists. The first-year curriculum provides an option for students to be granted a diploma as a Respiratory Therapy Technician. This option must be arranged with a program coordinator.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 16 to 20 credit hours per quarter.

MS006U	Operating Room Techniques	3	48
MS025U	Introduction to Health Care	4	72
MS002U	Emergency Care	4	48
MS004U	Orthopaedic Conditions I	4	48
MS008U	Supervised Laboratory Experience I	6	144
MS013U	Principles of Immobilization II	3.5	60
MS009U	Supervised Lab Experience II	6	144
MS005U	Orthopaedic Conditions II	4	48
MS015U	Introduction to Physical Therapy, Orthotics and Prosthetics	3	36
OE007U	Office Procedures	2	36
MS010U	Supervised Lab Experience III	9	216
MS011U	Supervised Clinical Experience IV	12	360
MS012U	Supervised Clinical Experience V/ Seminar	12	360
MS001T	Emergency and First Aid Procedures	2	24

### RELATED COURSES

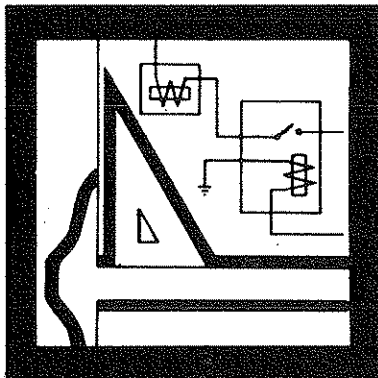
BY006U	Basic Anatomy and Physiology	4	60
BY042T	Microbiology I	4	72
CM101T	Composition I	4	48
BY011U	Functional Anatomy	4	48
CM117T	Composition II: Tech Writing	4	48
BY030T	Principles of Biology	4	72
CM201T	Speech	3	36
	Electives	4	48

### TECHNICAL COURSES

		Credits	Hrs.
MS025U	Introduction to Health Care	4	72
MS014U	Respiratory Therapy Techniques I	5	84
MS023U	Respiratory Therapy Techniques II	4	60
MS019U	Clinical Experience I	8	192
MS017U	Ventilation Therapy	5	72
MS054U	Pharmacology I	1	12
MS052U	Clinical Medicine I	3	36
MS020U	Clinical Experience II	8	192
MS050U	Diagnostic Lab Techniques	2-4	36-60
MS053U	Clinical Medicine II	3	36
MS051U	Clinical Experience IIIa	4-8	96-192
MS032U	Pediatric Respiratory Equipment and Clinical Topics	4	60
MS055U	Advanced Pharmacology II	2	24
MS021U	Clinical Experience IIIb	4	96
MS059U	Advanced Pathology	3	36
MS060U	Advanced Respiratory Therapy Equipment/Procedures	4	60
MS022U	Clinical Experience IV	8	192
AM023U	Management & Medical Ethics	3	36
MS033U	Clinical Experience V	8	192
MS058U	Advanced Life Support	2	36
MS056U	Educational Techniques	3	36
MS057U	Clinical Experience VI	8	192

### RELATED COURSES

MA031T	Intermediate Algebra	5	60
PH011T	Medical Physics	4	48
BY006U	Basic Anatomy & Physiology	4	60
BY013U	Cardio-pulmonary A & P	4	60
BY042T	Microbiology I	4	72
CH002T	Fundamentals of Organic Chemistry	4	60
BY009U	Homeostatic Physiology	4	48
CH003T	Fundamentals of Biochemistry	4	60
PY002T	General Psychology	4	48
CM101T	Composition I	4	48
CM117T	Composition II: Technical Writing	4	48
CM201T	Speech I: Public Speaking	3	36



# MANUFACTURING PRODUCTION CAREERS

## ELECTRONICS ENGINEERING TECHNOLOGY

Electronics Engineering Technology is oriented toward research and development electronics. Major emphasis is

on circuit analysis, basic design and modification. Successful completion of the Electronics Engineering Technology program qualifies the student for an entry-level job as a research and development technician, an engineer associate, or as an instrumentation technician in certain industries. Other occupations include field engineer, technical sales representative and electronics draftsman.

Normally students maintain 19 to 23 credit hours per quarter. Students who transfer credits from other programs or other institutions must maintain a minimum of 12 credit hours per quarter and have an approved course of study which will lead to graduation within six quarters in order to be considered a full-time student. An Associate of Applied Science degree is awarded to those who successfully complete this six-quarter program.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 12 to 24 credit hours per quarter.

### TECHNICAL COURSES

		Credits	Hrs.
EL001U	Introduction to Electronics	3	72
EL002U	Electric Circuits I	6	84
EL003U	Electric Circuits II	6	84
EL031U	Electric Circuits III	6	84
EL035U	Active Devices	7	120
EL015U	Solid-State Circuit Analysis and Design	7	120
EL033U	Electronic Test Methods	3	60
EL013U	Industrial Electronics	3	60
EL006U	Communication Electronics	7	120
EL012U	Transmission Systems	6	96
EL010U	Television Circuit Analysis	7	120
EL034U	Transform Circuit Analysis	4	60
EL022U	Network Analysis and Design	4	60
EL058U	Design Projects I	1	24
EL059U	Design Projects II	2	48
EL060U	Microprocessors/Microcomputers	4	60
EL061U	Digital Circuits & Systems	5	84
EL062U	Digital Principles	4	60

### RELATED COURSES

MA012U	Technical Mathematics I	4	60
MA014U	Technical Mathematics II-E	4	60
MA015U	Technical Mathematics III	4	60
EG008U	Engineering Problems	3	60
GR001U	Electronic Drawing	3	72

PH001U	Applied Physics I	4	60
PH002U	Applied Physics II	4	60
CM002U	Communication Skills I	3	36
CM003U	Communication Skills II	3	36
CM004U	Technical Reporting	3	36
PY004U	Psychology of Human Relations	3	36
EC003U	American Institutions	3	36

## MACHINIST

The machine shop curriculum is planned to prepare students to enter the machinist trade and to become skilled machinists or machine operators. A balance of practical shop work and related instruction provide a solid foundation for advancement in the trade. Related instruction includes shop math, blueprint reading and machine technology. The practical shop work is individualized so that students can progress at an accelerated pace.

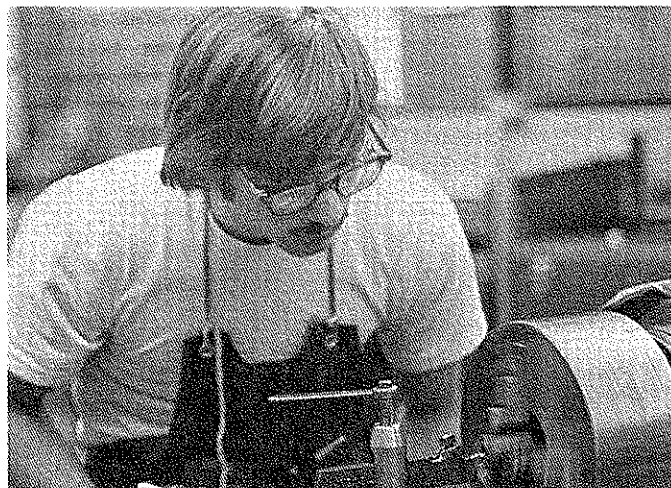
Students learn the care and use of precision measuring and layout tools, and develop skills on basic machine tools and production machines. Basic metallurgy and heat treatment of steel also is covered.

The day programs are three quarters in length and involve 1,080 clock hours and 55 credits. The evening program is four quarters in length and involves 920 clock hours and 48 credits. Its content is similar to the day program. Graduates of the Machinist program are awarded a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program.

TECHNICAL COURSES	Day		Evening		
	Cr.	Hrs.	Cr.	Hrs.	
MM001V	Machinist Lab I	10	240	8	192
MM002V	Machinist Lab II	12	288	8	192
MM003V	Machinist Lab III	13	312	8	192
MM004V	Machinist Lab IV			8	192
MM005V	Machinist Related I	10	120	4	48
MM006V	Machinist Related II	6	72	4	48
MM007V	Machinist Related III	4	48	4	48
MM008V	Machinist Related IV			4	48

Single courses are available in the evenings and begin each college quarter. These courses are scheduled two evenings per week, involve 96 clock hours, and are four credits each. The single courses include:



MM052V	Bench Work—Engine Lathe I	4	96
MM053V	Engine Lathe II	4	96
MM054V	Milling I	4	96
MM055V	Milling II	4	96
MM056V	Grinding and Heat Treat	4	96
MM057V	N. C. Operation and Programming	4	96
MM058V	Turret Lathe	4	96

## MECHANICAL ENGINEERING TECHNOLOGY

This is a two-year program consisting of six 12-week quarters. The curriculum includes practical experience in the drafting room as well as shops and laboratories, but emphasizes technical studies in the classroom.

The program stresses a high degree of ability in analytical problem solving as well as the ability to translate ideas and concepts into graphic representations. Students will gain a thorough knowledge of mechanical and manufacturing processes, enabling them to follow a design to its conclusion in the actual manufacture and ultimate production of a tool or product. The instruction in design provides



the student possessing mechanical and mathematical aptitudes an opportunity to qualify for work in research and development in a wide range of industrial areas, from farm machinery to electronics.

Normally, students maintain between 18 to 21 credit hours per quarter. Students who transfer credits from other programs or other institutions must maintain a minimum of 12 credit hours per quarter and have an approved course of study which will lead to graduation within six quarters in order to be considered a full-time student. Graduates earn an Associate of Applied Science degree.

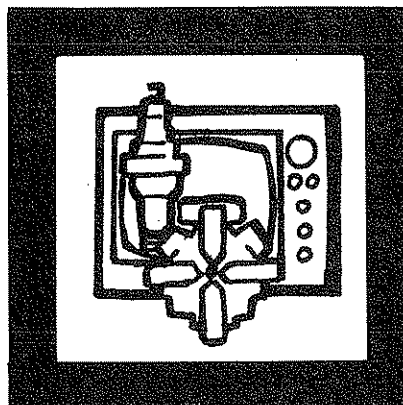
All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 12 to 21 credit hours per quarter.

#### TECHNICAL COURSES

		Credits	Hrs.
GR002U	Engineering Drawing I	6	120
GR003U	Engineering Drawing II	6	120
GR004U	Engineering Drawing III	5	120
GR005U	Design Problems I	2	60
GR006U	Design Problems II	6	144
EG001U	Statics	8	120
EG002U	Kinematics of Mechanisms	7	120
EG003U	Dynamics	7	120
EG004U	Machine Design	7	144
EG005U	Engineering Materials	2	48
EG006U	Strength of Materials I	4	60
EG007U	Strength of Materials II	5	60
MA007U	Engineering Computations I	2	48
MA008U	Engineering Computations II	2	48
MH002U	Hydraulics	4	72

#### RELATED COURSES

PH003U	Heat, Light and Sound	5	72
EL026U	Electricity	3	60
MA012U	Technical Mathematics I	4	60
MA013U	Technical Mathematics II	5	60
MA015U	Technical Mathematics III	4	48
MM001U	Manufacturing Processes I	3	72
MM002U	Manufacturing Processes II	3	72
CM002U	Communication Skills I	3	36
CM003U	Communication Skills II	3	36
CM004U	Technical Reporting	3	36
PY004U	Psychology of Human Relations I	3	60
EC003U	American Institutions	3	36
SO001U	Industrial Organizations	3	36



## MANUFACTURING SERVICE CAREERS

### AUTOMOTIVE COLLISION REPAIR

Automobile collision repair personnel are employed in body and fender shops, dealerships, and garages which offer collision repair services. Other employers are trucking, taxicab and bus companies, and automotive manufacturers.

Students in the program receive training in the full range of shop processes used to restore damaged vehicles. Students learn to use hydraulic jacks, rams, air and electric grinders, sanders, buffers, drills, panel cutters, welders, torches, paint guns, damage dozers, alignment tools and specialized hand tools.

The Kirkwood program is three 12-week quarters in length. Class periods are six hours per day, five days per week. Graduates are awarded a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number

of quarters for this program. This will be 360 clock hours per quarter.

<b>TECHNICAL COURSES</b>		Credits	Hrs.
MH009V	Collision Lab I	12	300
MH010V	Collision Lab II	12	300
MH011V	Collision Lab III	12	300
MH012V	Collision Related I	3-5	36-60
MH013V	Collision Related II	3-5	36-60
MH014V	Collision Related III	3-5	36-60
<b>RELATED COURSE</b>			
AM003U	Business Practices	2	36

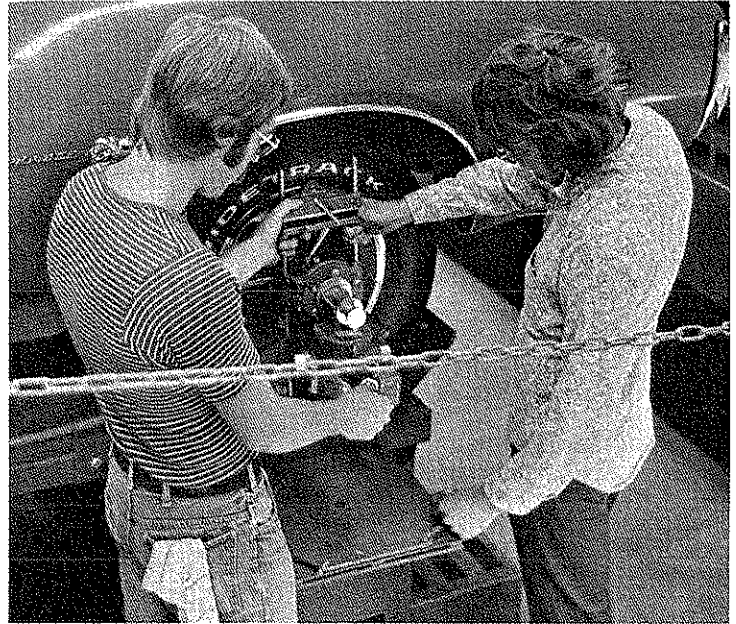
## AUTOMOTIVE MECHANICS

The Automotive Mechanics program is planned to provide four quarters of basic auto mechanics for post-high school age students. It is designed for the student who wishes to become a first-class auto mechanic. Training includes a wide variety of organized learning experiences. Class periods are six hours per day, five days per week.

Due to the complexity of the modern automobile, and the variations in makes and models, there are many opportunities for ingenuity and exploration. Students enrolled in this program spend 25 to 30 per cent of their time in classroom and laboratory instruction, and the balance of their time in the automotive shop. Graduates receive a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will be 360 clock hours per quarter.

<b>TECHNICAL COURSES</b>		Credits	Hrs.
MH001V	Auto Mechanics Lab I	10	240
MH002V	Auto Mechanics Lab II	10	240
MH003V	Auto Mechanics Lab III	10	240
MH004V	Auto Mechanics Lab IV	10	240
MH005V	Auto Mechanics Related I	10	120
MH006V	Auto Mechanics Related II	8	96
MH007V	Auto Mechanics Related III	10	120
MH008V	Auto Mechanics Related IV	10	120



<b>RELATED COURSE</b>			
AM003U	Business Practices	2	24

## AUTOMOTIVE TECHNOLOGY (Apprenticeship)

This program requires full-time employment (with salary) in an automotive dealership and a minimum of two nights per week of course work on the Kirkwood campus. These courses include both the technical automotive theory and general education requirements.

This work/study (apprenticeship) program is completed over three years. Graduates receive an Associate of Applied Science degree. Students also must pass the certification exams of the National Institute for Automotive Service Excellence (NIASE).

The course work portion of the program is not approved for veteran's benefits.

**TECHNICAL COURSES**

		Credits	Hrs.
MH029U	Automotive Internship	12	5,760
MH030U	Automotive Fundamentals	3	36
MH031U	Brakes	3	36
MH032U	Automotive Electrical I	3	36
MH033U	Automotive Electrical II	3	36
MH034U	Vehicle Inspection	3	36
MH035U	Engines	4	48
MH036U	Fuels, Lubricating and Cooling	4	48
MH037U	Tune-Up I	3	36
MH038U	Tune-Up II	3	36
MH039U	Emission Control	3	36
MH040U	Power Trains and Transmissions I	3	36
MH041U	Power Trains and Transmissions II	3	36
MH042U	Air Conditioning and Heating	3	36
MH043U	Auto Parts Department Manager	3	36
MH044U	Auto Service Department Manager	3	36

**RELATED COURSES**

AM081T	Personal Finance	3	36
AM045T	Human Behavior in Organizations, or		
PY022T	Psychology of Human Relations	3	36
CM002U	Communication Skills I, or		
CM101T	Composition I	3-4	36/48
MA011U	Mathematics I, or		
MA031T	Intermediate Algebra	4-5	48/60
AC001T	Principles of Accounting I	3	36
MK001T	Principles of Marketing	4	48
MK003T	Principles of Selling	3	36
AM022U	Principles of Supervision	3	36
	Elective	3	36

**COMMUNICATION ELECTRONICS**

Communication Electronics is oriented toward the fields of consumer electronics servicing and radio and television broadcasting. Major emphasis is on maintenance and troubleshooting of existing equipment. Successful completion of the Communication Electronics program qualifies the student for an entry job as a radio-TV service technician, broadcast engineer, two-way radio service technician, test technician, commercial sound technician,

or as a technician in many related fields. The program is four quarters. Graduates are awarded a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will be 360 clock hours per quarter.

**TECHNICAL COURSES**

		Credits	Hrs.
EL001U	Introduction to Electronics	3	72
EL029U	Electronic Circuits I	12	192
EL030U	Electronic Circuits II	10	180
EL002V	Audio Systems	8	144
EL001V	Electronic Shop Methods	1	36
EL003V	Broadcast Systems	4	60
EL007U	Communication Electronics I	5	96
EL008U	Communication Electronics II	5	84
EL004V	Television I	11	204
EL005V	Television II	4	84
EL006V	Troubleshooting	5	120
EL013V	Digital Circuits	2	36

**RELATED COURSES**

MA012U	Technical Mathematics I	4	60
CM002U	Communication Skills I	3	36
AM003U	Business Practices	3	36

**ELECTRICAL EQUIPMENT SERVICING**

This program provides the specialized training necessary for troubleshooting, maintaining, and installing electrically operated devices. Graduates of this program will have the knowledge and skills necessary to enter an occupation in the broad field of electrical equipment servicing, such as general plant maintenance, large appliance repair, or to work as an entry-level model shop technician or electric motor repairman.

A diploma is awarded to those who successfully complete this 42-week program.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program.

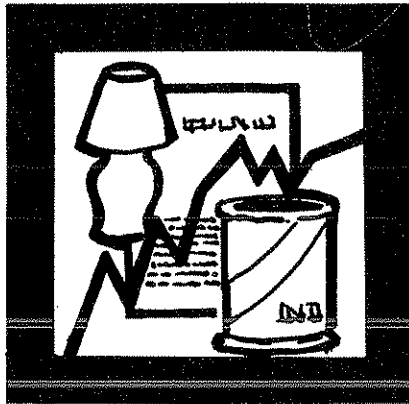
**TECHNICAL COURSES**

		Credits	Hrs.
EL008V	Electrical Principles	11	180

EL010V	Electrical Circuits	10	180
EL009V	Shop Processes	2	60
EL011V	Diagram Interpretation	3	60
EL012V	Electro-Mechanical Systems I	4	60
EL014V	Electro-Mechanical Systems II	7	120
EL015V	Control Circuit Devices	5	84
EL016V	Control Circuits and Systems	8	288
EL018V	Principles of Refrigeration	7	120

**RELATED COURSES**

MA011U	Mathematics I	5	60
MA003U	Mathematics II	5	60
PH001V	Mechanisms	4	60
PY004U	Human Relations	3	36
CM002U	Communication Skills	3	36



# MARKETING AND DISTRIBUTION

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## FASHION MERCHANDISING

Fashion Merchandising provides technical training for individuals interested in the field of retailing fashion products. Career opportunities for trained persons include

the areas of fashion coordination, fashion promotion, fashion buying, and departmental and specialty shop management.

The Fashion Merchandising program is seven quarters in length and features a curriculum designed to develop managerial abilities, decision-making skills, retail knowledge, and to provide the specialized knowledge necessary in the fashion market. Practical experience compliments classroom theory during the supervised business internship phase of the program.

Graduates receive an Associate of Applied Science degree.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 17 to 19 credit hours per quarter.

**TECHNICAL COURSES**

		Credits	Hrs.
MK007U	Principles of Fashion Merchandising	3	36
MK014U	Merchandising	4	48
HE002U	Fashion History	3	36
MK008U	Fashion Show Procedures	5	84
HE003U	Textiles I	3	36
HE004U	Textiles I Laboratory	1	24
HE019U	Textiles II	2	24
AT004U	Fashion Analysis and Coordination	2	24
MK022U	Employment Seminar	1	24
MK024U	Business Internship Seminar	1	48
MK043U	Trends and Practices: Fashion Merchandising I	1	24
MK044U	Trends and Practices: Fashion Merchandising II	1	24
MK045U	Problems in Fashion Merchandising	1	24
AM003T	Business Internship	24	864

**RELATED COURSES**

AM032T	Introduction to Business	4	48
AM001U	Merchandise Analysis and Control	3	35
MK002T	Principles of Retailing	4	48
EC015T	Principles of Business Economics	4	48
MK018U	Visual Merchandising	2	36
MK019U	Small Business Organization/Management	3	36
MK001T	Principles of Marketing	4	48
MK025T	Principles of Advertising	4	48
AM022U	Principles of Supervision	3	36
AM006U	Credit Procedures	3	35

LW005T	Business Law I	4	48
DP046U	Elements of Data Processing	3	35
AM020U	Retail Management	4	48
AC001T	Principles of Accounting I	4	48
CM201T	Speech I	3	36
PY004U	Psychology of Human Relations I	3	35
MA002U	Basic Mathematics	0	arr.
CM002U	Communication Skills I or	3	36
CM101T	Composition I	4	48
CM003U	Communication Skills II or	3	36
CM117T	Composition II	4	48
MK003T	Principles of Selling	4	48
	Electives	10	

EC015T	Business Economics	4	48
LW005T	Business Law I	4	48
CM201T	Speech I	3	36
MK019U	Small Business Organization	3	36
	Elective	3-4	36-48
AM005T	Principles of Management	4	48
AC001T	Principles of Accounting	4	48

## FOOD SERVICE MANAGEMENT

The Food Service Management program is designed to prepare people for careers in restaurant or institutional food management. Through specialized training, students are provided with the background and skills necessary for meeting the requirements of this rapidly growing industry.

The Food Service Management program is six quarters in length and features instruction in technical, related and general education courses, including on-the-job training in which the student gains actual work experience in commercial or institutional food services. Instruction also includes quantity meal preparation and service in the kitchen-cafeteria area operated by Food Service students.

Graduates receive an Associate of Applied Science degree.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 17 to 21 credit hours per quarter.

### TECHNICAL COURSES

		Credits	Hrs.
AM052U	Dining Room Management I	5	108
AM053U	Dining Room Management II	5	108
HE012U	Equipment and Design	4	60
HE013U	Gourmet Foods/Catering	3	72
HE018U	Food Service Internship II	6	216

### RELATED COURSES

CM003U	Communication Skills II	3	36
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## FOOD SERVICE TRAINING

Food Service Training is a specialized, three-quarter (36-week) program designed to prepare men and women with the technical and specialized knowledge and skills required to enter the quantity food preparation and service industry.

The program for food production personnel includes a combination of classroom instruction in general education, related food service subjects, food preparation skills, and on-the-job training. During the internship period, the student gains actual work experience in commercial or institutional food service establishments throughout Iowa. The graduate is prepared to be employed in restaurants, hotels, motels, schools, institutions, hospitals, nursing homes, industrial cafeterias, delicatessans and other facilities.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 17 to 21 credit hours per quarter.

### TECHNICAL COURSES

		Credits	Hrs.
HE001U	Introduction to Food Service/ Hospitality Careers	1	12
HE010U	Nutrition and Food Composition I	4	48
HE011U	Nutrition and Food Composition II	4	48
HE009U	Food Service Sanitation and Safety	3	36
HE005U	Food Production I	6	144
HE006U	Food Production II	6	144
HE007U	Food Production III	5	120
MA017U	Related Food Service Math	3	36
HE008U	Menu Planning and Servicing Fundamentals	3	36
HE016U	Quantity Food Purchasing	3	36
HE017U	Food Service Internship I	6	216

**RELATED COURSES**

MA002U	Basic Mathematics	0	arr.
CM002U	Communication Skills I	3	36
PY004U	Psychology of Human Relations I	3	36
	Elective	3-4	36/48

AC006U	Management Accounting	4	48
CM002U	Communication Skills I, or	3	36
CM101T	Composition I	4	48
CM003U	Communications Skills II, or	3	36
CM117T	Composition II	4	48
PY004U	Psychology of Human Relations I	3	36
MA002U	Basic Mathematics	0	arr.
CM201T	Speech I	3	36
EC015T	Principles of Business Economics	4	48
DP046U	Elements of Data Processing I	3	36
	Electives	16	168

**FOOD STORE MANAGEMENT**

The Food Store Management program is designed to prepare students for careers in the retail or wholesale food industry. Through specialized training, students are provided with the background and skills necessary for meeting the requirements of this vast and rapidly expanding career field.

The Food Store Management program is six quarters in length and features a combination of general education, business education and technical food marketing study. The program also provides on-the-job training periods in which the student gains actual work experience in retail or wholesale food businesses throughout Iowa.

Graduates receive an Associate of Applied Science degree.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 17 to 22 credit hours per quarter.

**TECHNICAL COURSES**

		Credits	Hrs.
MK012U	Introduction to Food Store Marketing	4	48
MK011U	Food Store Seminar	6	144
MK041U	Food Store Merchandising I	3	36
MK042U	Food Store Merchandising II	3	36
MK013U	Food Store Planning and Layout	3	36
AM005U	Checkout Management	3	36
AM012U	Food Store Management	5	60
AM003T	Business Internship	24	864

**RELATED COURSES**

MK003T	Principles of Selling	4	48
AM032T	Introduction to Business	4	48
LW005T	Business Law I	4	48
MK001T	Principles of Marketing	4	48
AC001T	Principles of Accounting I	4	48
MK025T	Principles of Advertising	4	48
AM022U	Principles of Supervision	3	36

**FLORICULTURE**

The Floriculture program is designed to prepare students for careers in the floral industry. This program provides the student with classroom and laboratory instruction in all phases of floriculture and two five-week periods of business internship in a floral shop.

Classroom and laboratory time is devoted to commercial flower forcing (greenhouse growing and operation), retail florist shop operation and business management. During this time, the student gains actual growing experience in a greenhouse, learns the construction of all types of floral pieces, and studies the basic principles and procedures for the successful operation of a retail florist business. During the two business internship periods, each student has the opportunity to apply what he has learned to an actual job situation. Graduates receive a diploma.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 16.5 to 22 credit hours per quarter.

**TECHNICAL COURSES**

		Credits	Hrs.
AT008V	Floral Design (Special Projects) or	1	25
CS005V	Greenhouse Construction	1	12.5
BY009V	Diagnosing Plant Disorders	2	28
AG012V	Plant Identification and Care I	2	24
AG013V	Plant Identification and Care II	2	28
AG014V	Plant Growth	3	42
AM005V	Retail Flower Shop Operation I	5	60
AM006V	Retail Flower Shop Operation II	3	35
AM007V	Retail Flower Shop Operation III	3	35



AM008V	Retail Flower Shop Operation IV	4	60
AT001V	Floral Designing I	5	120
AT002V	Floral Designing II	2	52.5
AT003V	Floral Designing III	2	52.5
AT004V	Floral Designing IV	1.25	30
BY004V	Basics of Plant Growth	3	36
AC005V	Floriculture Bookkeeping	4	50
MK002V	Floriculture Seminar	1	20
AM003T	Business Internship	12	440

#### RELATED COURSES

MK003T	Principles of Selling	4	48
MK001T	Principles of Marketing	4	48
MA002U	Basic Mathematics	0	arr.
CM002U	Communication Skills I	3	35
PY004U	Psychology of Human Relations I	3	35
MK001V	Retail Advertising and Display	4	50

## GRAPHIC ARTS

The Graphic Arts program introduces the student to the basic fundamentals of the graphic arts industry, beginning with the history of graphic arts, printing processes, functional typography, lithography, layout and design, mathematics and bindery operation.

Advancing through the program, the student will learn more about lithography, including camera and darkroom, photo-composition, paste-makeup, theory of color, stripping and plate-making, and offset presswork. In the final stages the student will become familiar with management problems, estimating, production control, plant organization and layout, industrial relations and related technical data.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will be 360 clock hours per quarter.

#### TECHNICAL COURSES

		Credits	Hrs.
GR007U	Layout and Design	4	96
GR009U	Typography	3	60
GR011U	Copy Preparation I	7	144
GR012U	Copy Preparation II	8	180
GR030U	Copy Preparation III	8	180
GR019U	Platemaking I	1	20
GR020U	Platemaking II	3	60
GR021U	Process Camera I	2	32
GR022U	Process Camera II	4	96
GR023U	Process Camera III	2	32
GR024U	Stripping I	2	32
GR025U	Stripping II	3	60
GR026U	Stripping III	2	32
GR027U	Offset Presswork I	4	96
GR028U	Offset Presswork II	7	144
GR029U	Offset Presswork III	4	96
GR031U	Bindery/Operations	1	20
EC001U	Printing Economics	1	12
OE006T	Typing	2	48
OE039T	Individually Prescribed Instruction	1	24

## HOME FURNISHINGS

The Home Furnishings program is seven quarters in length and combines general education, business education and technical courses. It is designed to prepare students for careers in merchandising as a decorator, sales director, consultant, department manager, specialty shop manager, buyer and other management positions in furniture, drapery, wallpaper, paint, floor coverings and home accessories areas of retail stores.



Graduates receive an Associate of Applied Science degree.

All veterans must take the required number of hours per quarter in order to graduate within the approved number of quarters for this program. This will vary from 20 to 24 credit hours per quarter.

#### TECHNICAL COURSES

		Credits	Hrs.
AT003U	Survey of Interiors I	3	36
AT006U	Survey of Interiors II	2	28
MK032U	Home Furnishings I	3	36
MK033U	Home Furnishings II	4	48
MK046U	Home Furnishings Trends/Practices I	1	24
MK047U	Home Furnishings Trends/Practices II	1	24
MK048U	Window Design Treatment	2	28
MK049U	Professional Practices	2	24
HE003U	Textiles I	3	36
HE004U	Textiles Laboratory I	1	24
HE019U	Textiles II	2	24
HE020U	Interior Analysis and Design	5	72
AT007U	Design Relationships	2	24
AT002U	Decorative Accessories	2	48

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AT008U	Color in Interiors	2	24
AM003T	Business Internship	48	864

#### RELATED COURSES

MK003T	Principles of Selling	4	48
AM032T	Introduction to Business	4	48
AM001U	Merchandise Analysis and Control	3	35
MK002T	Principles of Retailing	4	48
EC015T	Principles of Business Economics	4	48
MK001T	Principles of Marketing	4	48
MK025T	Principles of Advertising	4	48
AM022U	Principles of Supervision	3	35
AM006U	Credit Procedures	3	35
LW005T	Business Law I	4	48
DP046U	Elements of Data Processing I	3	35
AM020U	Retail Management	4	48
AC001T	Principles of Accounting I	4	48
MK014U	Merchandising	4	48
PY004U	Psychology of Human Relations I	3	35
MK019U	Small Business Organization/Management	3	36
CM201T	Speech I	3	36
CM002U	Communication Skills I	3	36
CM003U	Communication Skills II	3	36
MA002U	Basic Mathematics	0	arr.
MK022U	Employment Seminar	1	24
MK024U	Business Internship Seminar	1	48
	Electives	8	96

## RETAIL MANAGEMENT

The Retail Management program prepares students for careers in the retailing industry. The program stresses an understanding of business procedures and a knowledge of retailing principles.

The program is seven quarters in length and consists of a combination of classroom instruction and on-the-job training. During on-the-job training periods, the student gains actual work experience in retail firms throughout Iowa.

Graduates receive an Associate of Applied Science degree.

All veterans must take the required number of hours per quarter in order to graduate within the approved number



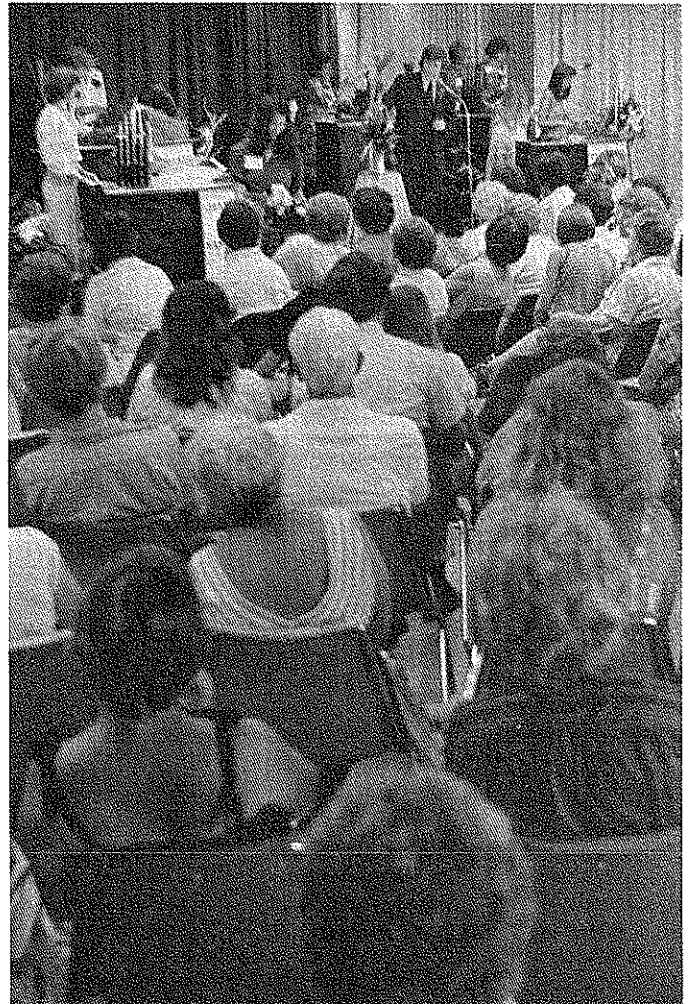
of quarters for this program. This will vary from 17 to 19 credit hours per quarter.

**TECHNICAL COURSES**

		Credits	Hrs.
MK010U	Retail Marketing Seminar	6	144
MK002T	Principles of Retailing	4	48
MK025T	Principles of Advertising	4	48
AM020U	Retail Management	4	48
AM003T	Business Internship	24	864

**RELATED COURSES**

MK003T	Principles of Selling	4	48
MK001T	Principles of Marketing	4	48
MK014U	Merchandising	4	48
AM032T	Introduction to Business	4	48
AM022U	Principles of Supervision	3	36
HE003U	Textiles, or Elective	3	36
AM006U	Credit Procedures	3	36
CM002U	Communication Skills I, or Composition I	3-4	36-48
CM003U	Communication Skills II, or Composition II	3-4	36-48
MA002U	Basic Mathematics	0	arr.
AM001U	Merchandise Analysis and Control	3	36
PY004U	Psychology of Human Relations I	3	36
MK019U	Small Business Organization/ Management	3	36
EC015T	Principles of Business Economics	4	48
CM201T	Speech I	3	36
AC001T	Principles of Accounting I	4	48
AC006U	Management Accounting	4	48
LW005T	Business Law I	4	48
DP046U	Elements of Data Processing I	3	36
MK016T	Counselor Selling Electives	4 6/12	48 60/244



# COMMUNITY EDUCATION DIVISION

## COMMUNITY EDUCATION COURSES

In keeping with its philosophy of lifelong learning, the Community Education Division of Kirkwood Community College has developed a wide variety of credit and non-credit courses for persons who want to continue their education. These are designed for personal growth as well as for career preparation or skill upgrading. Many of these courses are offered for the recreational opportunities they provide and the personal enjoyment they bring, while others provide a chance to learn a skill with which to earn supplementary income.

Instructors for these classes are sought out from among civic, business, industrial and cultural leaders throughout Kirkwood's seven-county area to make available their expertise to the entire community. All classes are conducted with the philosophy of Community Education in mind—that "learning is enjoyable and should be the means to individual growth for every citizen of this area." Sociability and sharing are integral parts of this facet of Kirkwood's educational offerings.

New classes are offered on a quarterly basis. Information regarding specific class offerings is available from the Community Education Office on Kirkwood's main campus or from any of the college's Community Education centers.

## COMMUNITY EDUCATION CENTERS

Kirkwood has Community Educations at seven locations. The centers offer High School Completion classes, Adult Basic Education instruction, high school refresher courses, G.E.D. preparation, tutoring, vocational classes for high school students (KEY program), and general interest/part-time supplemental courses. The six centers are:

Center Point Community  
Education Center  
915 Main Street  
Center Point, Ia.  
Phone: 849-1495

Iowa City Community  
Education Center  
1816 Lower Muscatine Rd.  
Iowa City, Ia.  
Phone: 338-3658

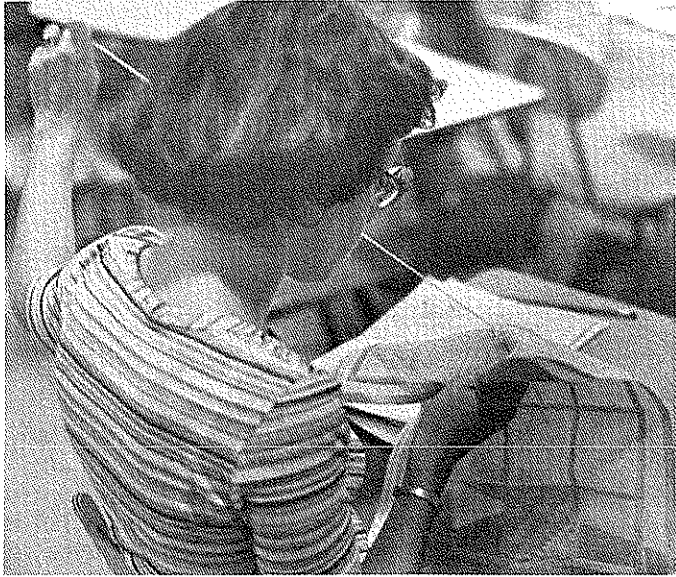
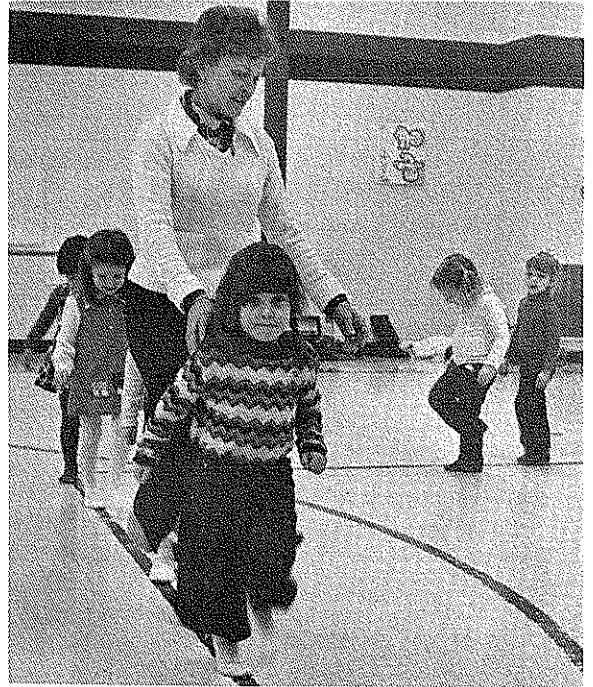
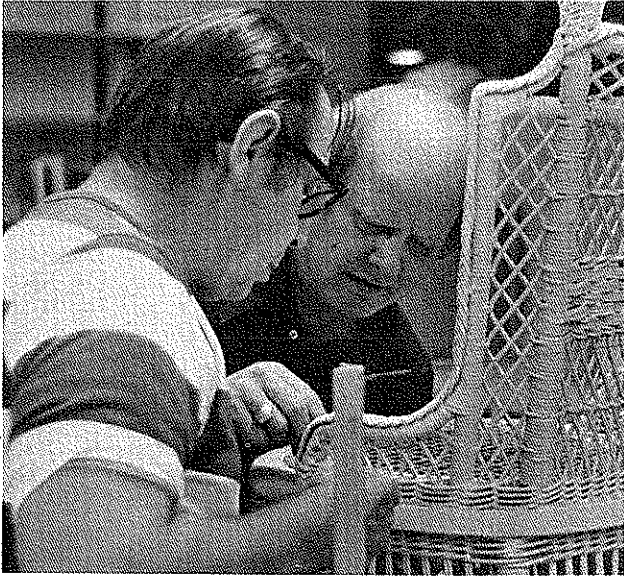
Lincoln Community  
Education Center  
9th St. and 18th Ave. S.W.  
Cedar Rapids, Ia.  
Phone: 398-5437

Marion Community  
Education Center  
6th St. and 10th Ave.  
Marion, Ia.  
Phone: 398-5547

Monticello Community  
Education Center  
Plastic Lane  
Monticello, Ia.  
Phone: 465-5669

Washington Community  
Education Center  
W. Madison and So. Ave. D  
Washington, Ia.  
Phone: 653-4655

Williamsburg Community  
Education Center  
600 West Street  
Williamsburg, Ia.  
Phone: 668-2461



# PROGRAMS TO MEET THE VARIED NEEDS OF PEOPLE

## KEY PROGRAM

KEY (Kirkwood Exploration, Experience, Exposure for Youth) is a cooperative program involving area high schools at central locations to supplement the high school curriculum in vocational preparatory programs. Students are transported from their local high school to the nearest KEY center for a portion of a school day.

The KEY program enables the student to acquire and demonstrate the skills necessary for entry-level vocational careers in: welding, data processing, electronics, auto mechanics, health occupations, child care, building trades, horticulture and agriculture.

For more information contact your local high school counselor or the nearest Kirkwood Community Education center.

## GENERAL INTEREST AND RECREATIONAL CLASSES

General Interest and recreation classes are designed for adults who are not interested in earning academic credit, but who wish to informally further their education, enrich their cultural lives, improve their physical fitness, or improve their personal efficiency.

These types of classes are self-supporting and offered as a community service in cooperation with local school districts. Classes are available in the following areas:

AREAS	EXAMPLES
Arts and Crafts	Batik, Pottery, Macrame
Special Interest	Foreign Language, Astrology
Recreation	Ballroom Dance, Volleyball

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## SUPPLEMENTARY VOCATIONAL CLASSES

These classes are designed to help persons seeking job enrichment or upgrading. Classes are held in business

and industrial locations as well as on the Kirkwood campus and in local high schools. The time and location of the classes depend upon the preferences of the students. The subject areas include:

AREAS	EXAMPLES
Health Occupations	Nurse Aid, Anatomy and Physiology, EMTA
Trade and Industry	Woodworking, Auto Mechanics
Business and Office	Shorthand/Typing, Office Skills
Home and Family	Microwave Cooking, Tailoring
Personal Development	Assertiveness Training, Communication
Agriculture	Houseplants, Animal Nutrition, Gardening

## IN-SERVICE, SEMINARS, WORKSHOPS

Kirkwood provides in-service, seminars, and workshops to meet the varied needs of people, businesses, industries and communities. Many courses have been developed and are now available. Others tailored to individual needs are developed as requests arise. Current program areas include:

Trades and Industry  
Business—Office and Retail  
Recreation  
Small Business Administration  
Management Development  
Health Occupations  
Women and the World of Work  
Agriculture and Natural Resources  
Home and Family

## MANAGEMENT DEVELOPMENT

The Management Development program is designed to develop and improve management skills for those persons currently in management or those seeking advancement into supervisory positions. The program provides an extensive selection of general and technical management courses and seminars offered on either a credit or non-credit basis. The program is described more fully under Business and Office Careers in the Vocational-Technical section of this catalog.



The college's Telenetwork System utilizes telephone transmission lines to make it possible to offer courses at the college's Community Education centers in various communities.

## TRANSFER CREDIT (ARTS AND SCIENCES EXTENSION)

The Community Education Division in cooperation with the Arts and Sciences Division of the college offers credit extension courses in locations throughout Kirkwood's seven counties. Open to adults with a high school diploma, these courses include classes in English, mathematics, foreign language, fine arts, the humanities and social science.

Most of the courses are offered through college's Telenetwork System at Kirkwood's various Community Education centers. In addition, the college's Off-Campus College Degree program makes it possible to complete an associate degree in several subject areas, including liberal arts, through a combination of Telenetwork and television courses offered each quarter.

## HIGH SCHOOL COMPLETION

The Community Education Division provides the opportunity for persons of all ages to work toward the completion

of their high school education. Kirkwood offers classes at various locations in the seven-county area and individualized programs are available at Kirkwood's Community Education centers. These programs are free to adults. A high school graduation ceremony takes place each spring.

## CORRESPONDENCE STUDIES

High school completion by correspondence is made possible by the Community Education Division of Kirkwood through a variety of courses. There is no limit on the number of courses a student may take. However, the transfer of such credit to institutions other than Kirkwood is an optional matter for the accepting institution.

Enrollment for students who are considered actively enrolled in their local high schools is subject to the consent and approval of those schools. Prospective correspondence students who are not enrolled elsewhere, may enroll in this program at any time.

The following courses are available through the Kirkwood high school correspondence program:

Algebra I	Health for Young Adults I
Algebra II	Health for Young Adults II
American Government I	Literature I
American Government II	Literature II
Applied Business Law I	Modern Earth Science I
Applied Business Law II	Modern Earth Science II
Consumer Economics I	Modern Life Science I
Consumer Math I	Modern Life Science II
Consumer Math II	Physics I
Essentials of English I	Physics II
Essentials of English II	Sociology I
General Business I	Sociology II
General Business II	Understanding the Newspaper
General Mathematics I	U.S. History I
General Mathematics II	U.S. History II
General Mathematics III	World History I
Geometry I	World History II
Geometry II	

## ADULT BASIC EDUCATION /RIGHT TO READ

This area of learning is offered to help persons improve their basic academic skills up to the eighth-grade level.

The classes are located throughout Kirkwood's seven-county area and are scheduled at times convenient to students. Students may continue their work to prepare for the General Education Development Test (GED) or earn credit toward a high school diploma. Community Education Centers located in Cedar Rapids, Iowa City, Marion, Monticello, Washington and Williamsburg provide flexible hours and individualized instruction for those who prefer this approach to learning.

The Right to Read program is unique, in that adults desiring to read better are assigned a tutor, who is a volunteer from the community. The participant and tutor are supplied the necessary learning materials and make their own arrangements and plans for achieving various reading goals. Participants receive approximately two hours of reading assistance per week. The program is operated through coordinators at Kirkwood's Community Education centers in Cedar Rapids and Iowa City.



## SEMI-TRAILER TRUCK DRIVING

The Semi-Trailer Truck Driving program is designed to prepare men and women for entry employment in the trucking industry. The five-week curriculum includes classroom instruction, individualized student laboratory learning, driving range instruction and supervised practical experience driving on highways and interstates, and in towns and cities.

Graduates of the program are awarded a certificate, 15 college CEUs (Continuing Education Units), and the opportunity to take the state driving examination on campus.



## INSTITUTIONAL PROGRAMS

Programs of learning which include all or a selection of the previously mentioned areas have been set up in such institutions as the Iowa State Men's Reformatory, Veteran's Hospital, county homes and halfway houses.

Instructional services, consultant services and curriculum guidance may be arranged for these types of programs through the Community Education Division.

# STUDENT LIFE



# STUDENT AFFAIRS

## COUNSELING SERVICES

The college provides a staff of professional counselors to assist students in vocational and educational planning and in solving problems of a personal or social nature.

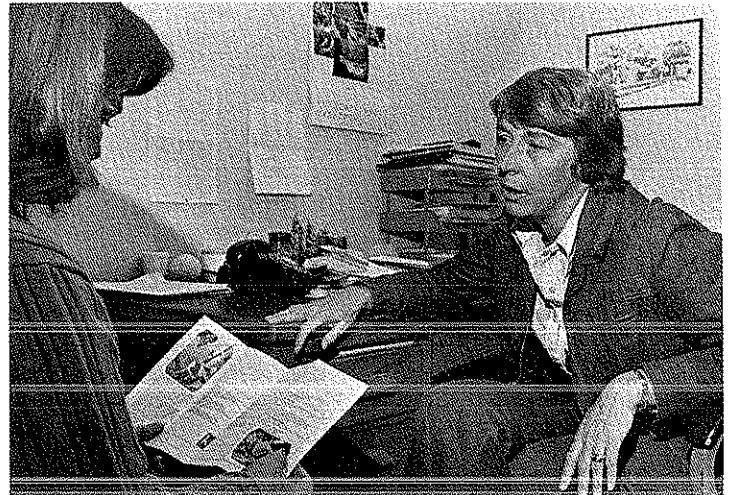
The counselors seek to help students make decisions and plan for their future. Upon application to the college, students have an opportunity for an individual conference with a member of the counseling staff to consider their high school background, appropriate test results, interests, aptitudes and goals. They are assisted in selecting an appropriate curriculum and in determining their course of study.

A student who experiences difficulty or dissatisfaction with a particular curriculum that he or she has selected is encouraged to use the counseling service for further discussion with the counselor and/or for individualized aptitude, interest and personality testing.

Assistance is also available to all students who desire help in acquiring better study habits, developing satisfactory personal and social relationships, solving financial problems, selecting a transfer school, and learning about employment possibilities. The counseling service maintains a file of occupational information as well as catalogs of representative colleges and universities.

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Counselors are available in several locations on campus. Students in all programs have access to counseling services, including those students enrolled in evening classes. In addition to providing services to enrolled students, counseling is available to any individuals from 7:30 a.m. to



8:30 p.m. Monday through Thursday and 8 a.m. to 5 p.m. on Friday.

## HUMAN POTENTIAL LABS

Human Potential Laboratories are offered by the Counseling Department. Over 5,000 persons have participated in these labs since 1971. The laboratories are led by a member of the professional counseling staff and carry two hours of pass-fail transfer credit. Some students may find



it advantageous to enter one of the labs prior to, or concurrently with, enrollment in a regular academic program. The laboratories are based on the principle that everyone operates with underdeveloped strengths, and that individuals are capable of aiding themselves and others in the realization of these strengths. Other credit course offerings include a two-credit-hour course in a life-style planning and assertiveness training and a three-credit-hour course in career decision making.

## REHABILITATION SERVICES

Within the Counseling Department, specialized counseling services on educational, vocational and personal matters are provided by two full-time rehabilitation counselors to students who meet the eligibility requirements for assistance from the Iowa Rehabilitation Education and Services Branch (RESB). In addition, financial assistance may be arranged. Students who have physical or mental disabilities which prevent them from getting or keeping certain jobs may apply for these services which also include diagnosis and treatment through community agencies and medical personnel. Further information can be obtained from the RESB counselors.

## PLACEMENT SERVICES

The Placement Office fulfills the following functions:

- Helps students to find part-time employment.
- Assists graduates to secure full-time employment.
- Helps to locate suitable work for students who leave school prior to graduation.
- Assists former Kirkwood Community College students to find employment.
- Conducts follow-up studies of former students.
- Endeavors to maintain an accurate picture of employment needs and trends in the community.

In order to utilize the services of the Placement Office, students should complete the appropriate forms for either part-time or full-time employment. Registration forms are available in the Placement Office. The Placement Office should be notified promptly of job acceptances.

## PERSONAL ACHIEVEMENT DEPARTMENT

Kirkwood Community College is committed to the "open-door" philosophy of education. That is, the college is concerned foremost with meeting the needs of the community it serves. A great part of this commitment lies in providing educational opportunities to a diverse student body. The Personal Achievement Department has played a major role in making the "open-door" concept a functioning and effective policy at Kirkwood.

The purpose of the Personal Achievement Department is to provide an opportunity for all students to diagnose, develop and strengthen their skills in the areas of reading, writing, mathematics, and study skills. In addition to, and as a result of this skill development, we hope also to help students develop a sense of self-confidence in their abilities in these areas.

## TYPES OF ASSISTANCE

An individual may enroll in Personal Achievement courses for a variety of reasons, both personal and academic in nature. Some of these reasons may include the following:

- High school graduates who did not gain the skills necessary to succeed in college-level work may wish to improve their basic skills before entering a college program.
- Students who have been away from school for awhile may wish to review their basic skills either before or along with taking other courses at Kirkwood. These students may lack the self-confidence they could have.
- Currently employed individuals might need to improve themselves in any or all of these areas to remain competitive in their career areas.
- Those individuals who have been recommended to Personal Achievement by the results of the Self Assessment tests or by an instructor or counselor, may decide to take any one or any combination of courses to assist them in succeeding in their academic pursuits at Kirkwood.

## COURSES AVAILABLE

The Personal Achievement Department offers courses in

reading, writing, mathematics, basic study skills, punctuation review, and grammar review. All courses are offered on either an individualized, one-to-one basis with an instructor, or on a small group basis. Upon enrollment, the student's current skill level is determined through diagnostic testing for the purpose of identifying his or her strengths and weaknesses in these academic areas. Then, based on the results of these tests, a plan of instruction is developed with each student.

Students may enroll in the reading, writing, and math courses at any time during the quarter, provided space is available. These courses are offered for one to three hours of developmental credit, depending upon the recommendation of the instructor involved and his or her interpretation of the student's diagnostic test. The remaining three courses in study skills, punctuation review and grammar review are offered at specific times according to the course schedule.

A unique feature of Personal Achievement courses is that their curriculum and content is related to the specific subject matter or vocational interest of the student being served.

## CREDIT

Personal Achievement course credit generally is not accepted by four-year colleges as transfer credit, nor can it be applied toward graduation at Kirkwood. However, the Personal Achievement courses may be extremely valuable in terms of achieving success in other courses and in terms of personal enrichment. Students have the option of taking any of the Personal Achievement courses for a grade or on a pass/no-pass basis. The courses do count in computing the grade point average of the student.

## 80 OTHER DEVELOPMENTAL SERVICES

For those students who want to find out what their current skill strengths and weaknesses are, the Self Assessment program as described in the counseling section of this catalog is offered on a weekly basis.

A Student Tutor Bureau is operated under the auspices of the Student Activities Center and the Personal Achievement Department. The purpose of the Tutor Bureau is to match on a one-to-one basis, students who are having difficulty in a specific subject with a student tutor who has some expertise in that particular area. This service is provided free to Kirkwood students.

## SKILLS CENTER

The primary objective of the Skills Center is the preparation of handicapped and disadvantaged persons for vocational training or placement in jobs. Personal and vocational goals are established through counseling between the student and the center's staff.

A trained staff of vocational evaluators, instructors, production supervisors, vocational counselors and job placement personnel are available. Psychologists, psychiatrists, and physicians are available on a referral basis, as well as services offered through the Linn County Mental Health Center, residential care facilities, public health nursing and social service agencies.

The center provides opportunities for career exploration; vocational evaluation, work adjustment training, academic upgrading, and skill development, with the objective of making appropriate recommendations for job placement or vocational training.

## FINANCIAL AID

The financial aid program at Kirkwood Community College exists to make possible a college education for qualified students. Each *student* and his or her *family* is expected to make a maximum effort to meet college expenses. However, if it is determined that a family cannot meet the full costs for a year, assistance will be provided to the greatest extent possible from the following sources.

**Basic Educational Opportunity Grants:** Grants to needy students.

**Supplemental Educational Opportunity Grants:** \$200 to

\$1,000 grants to students of *exceptional financial need*.

**National Direct Student Loans:** Low-interest loans through the college; long-term repayments.

**College Work-Study Program:** Fifteen to twenty hours of work per week, built around the student's class schedule.

**Guaranteed Student Loans:** Borrowing from a bank or credit union. Students may borrow up to \$2,500 a year, but interest cannot be more than 7 per cent. Repayment and interest payments delayed until after graduation.

**State of Iowa Scholarship Program:** Upper 15 per cent of high school seniors.

**Iowa Vocational-Technical Tuition Grants:** Full-time Vocational-Technical students.

**Veterans educational benefits:** Provided under provisions of the G.I. bill and war orphans legislation, etc.

**Rehabilitation services:** See Rehabilitation Counseling under Counseling Services.

**ADN Nursing Scholarships:** Limited funds are available to students in the Associate Degree Nursing (ADN) program. These scholarships are based on need.

**Short-term loans and scholarships.**

## KIRKWOOD SCHOLARSHIPS

The following scholarships are awarded through Kirkwood Community College:

**The Kirkwood Scholar:** This scholarship is awarded to applicants that have demonstrated outstanding career and leadership potential. Awards are made to Vocational-Technical and Arts and Sciences students. Competition is held each spring for these awards.

**The Community Scholar:** This award is given through local service clubs and organizations throughout the seven-county area. Information on criteria and participating communities may be obtained from the Financial Aids Office.

**The Departmental Scholar:** Departmental scholarships are awarded in certain programs that have obtained sponsors from business and industries that support Kirkwood. The Financial Aids Office has information on these scholarships.

**General Mills Minority Scholarships:** Each year the General Mills Foundation provides several scholarships for minority students applying to Kirkwood. Application forms may be obtained by contacting the Financial Aids Office.

**Kirkwood Alumni Scholarship:** Kirkwood alumni sponsor a scholarship program for the purpose of financially assisting needy students. Students must be full time and have completed at least one quarter at Kirkwood.

## GENERAL REQUIREMENTS

Any student seeking financial aid at Kirkwood must:

- Be enrolled or accepted for enrollment in an approved program, (one that is at least six months in length and leading to a degree or other objective, and must maintain satisfactory progress toward their program objective.
- Be a citizen or permanent resident of the United States.
- Be pursuing at least six credit hours of course work per quarter. (Some programs require full-time attendance, such as the Basic Educational Opportunity Grant program, for the larger financial aid awards.)

## WHEN TO APPLY

The dates for requesting financial aid at Kirkwood are **January 1 to June 1** for aid funds to be awarded for use in the next fiscal year (July 1 to June 30). Applications received after June 1 will be processed if funds are available. Applications are processed in the order in which they are received, so students should apply as early as possible after January 1.

## WHEN AID IS AWARDED

Students who will receive aid will be notified by letter in June or earlier as funds become available. At that time the student also will learn the amount of aid to be awarded. Within 10 days after the award letter is received, a student must notify the Financial Aids Office that he or she has accepted the aid. This is necessary so that funds not accepted can be redistributed to other students. Dates for awarding of scholarships vary depending upon the scholarship involved.

## HOW TO APPLY

The necessary forms and instructions may be obtained by writing or visiting the Kirkwood Financial Aids Office in Room 123 of Linn Hall. The address is:

Financial Aids Office  
Kirkwood Community College  
Box 2068  
Cedar Rapids, IA 52406

Application forms are available after January 1 of each year. **It is considered the student's responsibility to make sure all the necessary documents have been submitted to be considered for financial aid.** Remember, grants are gifts, but loans must be repaid.

## GENERAL STUDENT INFORMATION

### STUDENT ACTIVITY COUNCIL

The Student Activity Council (SAC) exists to provide students with the opportunity to plan, organize, promote, implement and participate in student activities at Kirkwood. The council's motto is: "We do it on the Hill."

Membership in SAC is open to any interested student or staff member. To join, interested persons may sign up at the Student Activities Office (located "on the hill" in Iowa Hall). Students may choose which of the council's seven activity committees they would like to join. The committees are: Performing Arts, Coffeehouse Service, Visual Arts, Special Events/Travel, Publicity and Promotion, Residential Programs, and People Interested in People.

### STUDENT HOUSING

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The college does not provide on-campus housing. Therefore, all student housing is located in private facilities off campus.

The college itself does not directly place students in off-campus housing. However, the Student Activities Office in Iowa Hall does maintain a limited listing of housing to as-

sist students in locating rooms and apartments. A copy of the housing list can be obtained by writing or calling the Student Activities Office. If at all possible, housing arrangements should be made prior to the date of registration.

### STUDENT ACCIDENT AND HEALTH INSURANCE

Students may participate in an optional accident and health insurance plan. The plan is based on a group policy. Students may choose between comprehensive accident and health coverage or accident coverage only. Students may enroll in these plans at registration or by contacting the Student Activities Office.

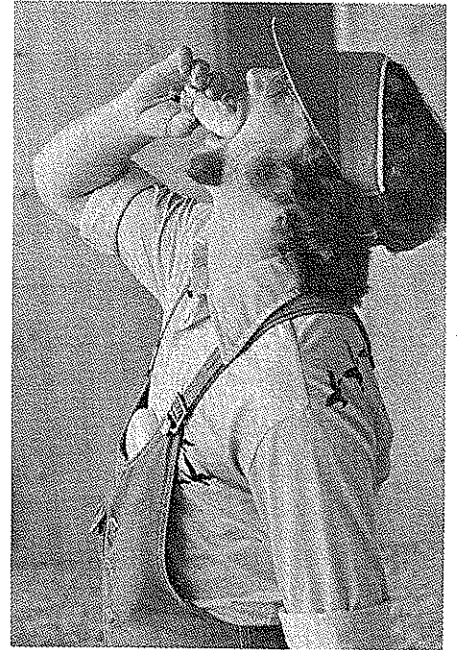
### HEALTH SERVICE

Kirkwood's student health service, located in Iowa Hall, is staffed daily by a registered nurse under the direction of a consulting college physician. The service offers emergency treatment for injury and illness, and assistance in obtaining the services of local physicians if necessary. It will cooperate in every way possible to administer medical care or carry out instructions of the student's personal or family physician. Confidential counseling on a variety of health-related problems is available. Cost of hospitalization, doctor's appointments, prescription medicine, x-rays and laboratory fees must be covered by the student.

### INFANT/CHILD CARE CENTER

Licensed, quality infant and child care is available at a minimal fee to all persons attending Kirkwood classes or activities. Kirkwood's infant/child care center is designed to provide care in a warm, nurturing environment. Kirkwood students are entitled to use the center on a full-time or part-time basis and are not limited to using the center only while attending classes. The center is open day and evening, depending upon the needs of the parents.

Professional staff workers qualified in early childhood education operate the center. They are assisted by students in Kirkwood's preparatory programs in education, nursing and social services. The center is located at



Kirkwood's Lincoln Community Education Center, Sixteenth Avenue and Ninth Street S.W. in Cedar Rapids.

## **PARKING**

All cars must be registered with the Student Activities Office and display a Kirkwood parking decal. Parking regulations and vehicle registration are strictly enforced and fines assessed for all violations. Parking regulation handbooks may be obtained by contacting the Student Activities Office located in Iowa Hall.

## **BUS SERVICE**

Bus transportation around Cedar Rapids and to Kirkwood is provided by the city bus company. The bus stops in front of Linn Hall and also at the East Campus. Special rates are available to Kirkwood students and bus schedules may be obtained in the Student Activities Office.

## **FOOD SERVICE**

Cafeteria service is available in Iowa Hall from 10:30 a.m. to 1:30 p.m. weekdays. An array of a la carte, grill and deli-bar selections, as well as salads, desserts and beverages are available. Vending machines are available in the Iowa Hall Coffeehouse, Linn Hall lobby and the East Campus lounge during all hours that the buildings are open.

## **BOOKSTORE**

The College Bookstore is located in Iowa Hall. It is owned and operated by Kirkwood Community College with all of its assets, obligations and policies under administrative control. All earnings are returned to student-related functions.

Besides maintaining a sufficient supply of textbooks needed for all courses at Kirkwood Community College, the bookstore carries a full complement of supplies, soft goods, gift items, greeting cards and paperback books.

To help reduce textbook costs, the bookstore operates a used book facility which allows a student to sell back a previously purchased book. This also affords other students the opportunity of purchasing these used copies at reduced prices. A representative of a reputable used-book

company is on campus at the end of each quarter during final week for several days. He will buy back those books being dropped from course schedules, providing no new edition is pending and providing the book has a market value.

Bookstore hours are 9 a.m. to 4 p.m. Monday through Friday and 5:30 to 7:30 p.m. Tuesday and Wednesday evenings during the school year. Evening hours are subject to change during registration days and summer quarter.

## **CO-CURRICULAR ACTIVITIES**

### **STUDENT CONGRESS**

Each spring a Student Congress is elected by the student body. The Congress is composed of a president, vice-president, secretary, treasurer, and other officers. Much of the responsibility for the success of the student activity program at Kirkwood depends upon the representatives of the student body. The purpose of the Student Congress is:

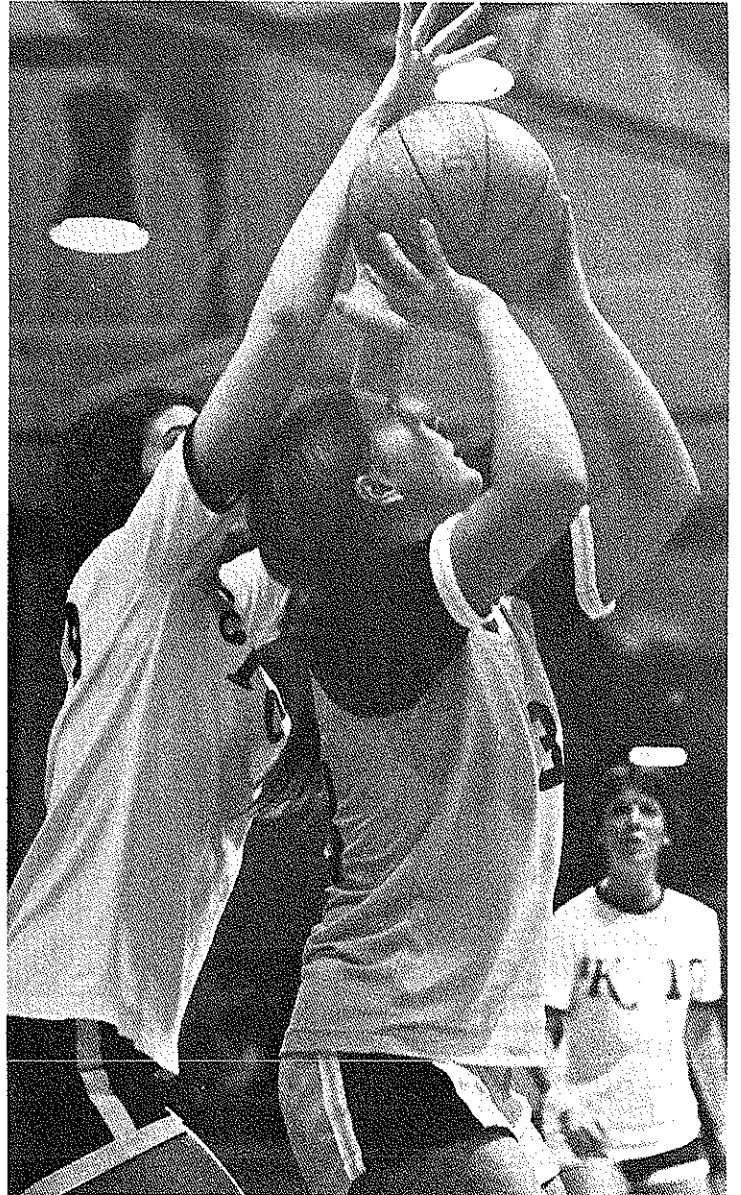
- 1) To provide a means of organized student expression in college.
- 2) To encourage and promote interest in college affairs and activities.
- 3) To provide a means whereby the administration of the college may be made aware of student needs, opinions, and attitudes.
- 4) To develop and promote activities that will enrich the social, cultural and academic life of students at Kirkwood Community College.

The Student Congress office is located in the Student Activity Center in Iowa Hall.

### **PUBLICATIONS**

Student Newspaper: *Communique*, a bi-weekly community college newspaper is written and edited by a student staff with the consultation of a faculty advisor. Any student interested in working on the staff, or in submitting material for publication, should contact the Student Activity Center in Iowa Hall.

College Magazine: The College Magazine, *Fingerprints*, is



published by a student staff with the consultation of a faculty advisor. Any student interested in contributing or working on the staff should contact the Student Activity Center.

**Registration Bulletin:** This bulletin is published prior to the start of each quarter and includes all information on registration procedures, classes to be offered, and other pertinent information regarding college policies that pertain to new or continuing students.

**Activities Calendar:** The Activities Calendar is published monthly by the Student Activity Center. The calendar lists dates for various college events, including athletic contests, meetings, concerts, films, special programs, as well as community events.

## **CLUBS AND ORGANIZATIONS**

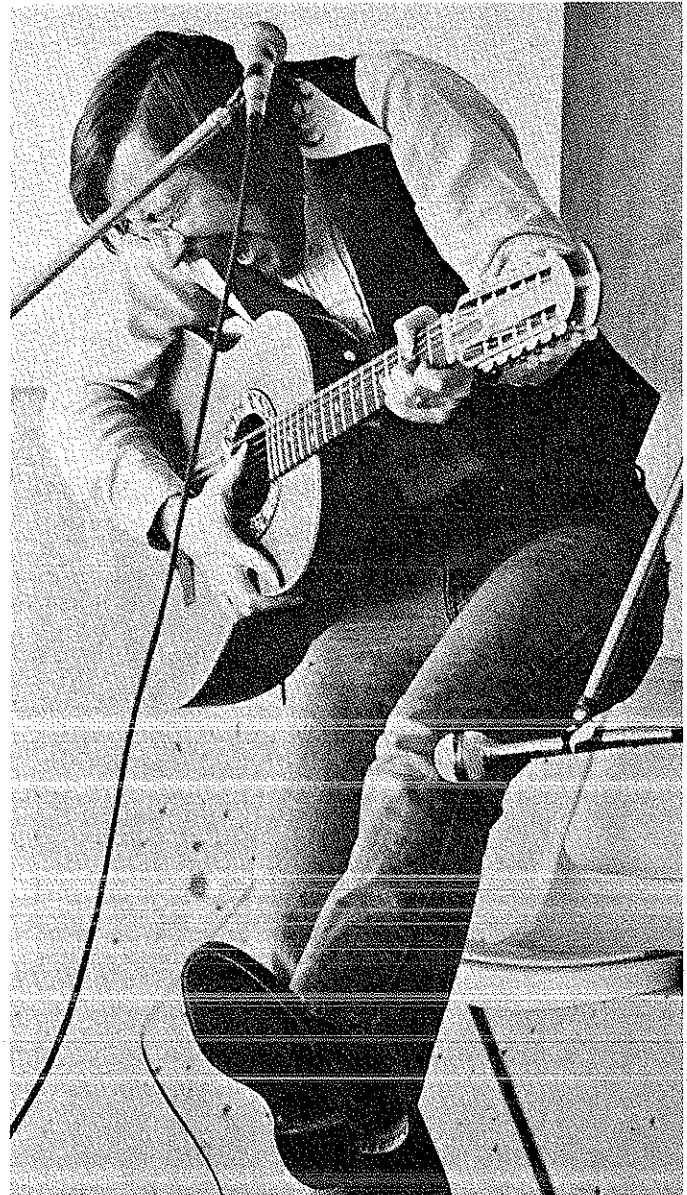
Many clubs and organizations are available on campus for students to join. Recognition of such clubs may be arranged by obtaining an application form from the Student Activities Office and petitioning the Student Congress for recognition. Faculty advisors are designated as sponsors upon request of the club. Such groups participate in the areas of art, music, political and international affairs, departmental or professional areas, and religious activities. Co-curricular activities are an integral part of student life at Kirkwood.

## **SOCIAL AND SPECIAL EVENTS**

Social and special event activities are coordinated by the Student Activities Office and the Student Congress. A program of social and special events is offered by both the college and local communities. These programs include music, art, drama, concerts, plays, films and other events. Use of any campus facilities by student groups is arranged through the Student Activities Office.

## **INTRAMURALS, RECREATION**

All full-time Kirkwood students may take Community Education general interest classes or participate in recreational leagues without paying any tuition charge. A validated student I.D. card will be required at the time of registration as proof of student status. This privilege has been





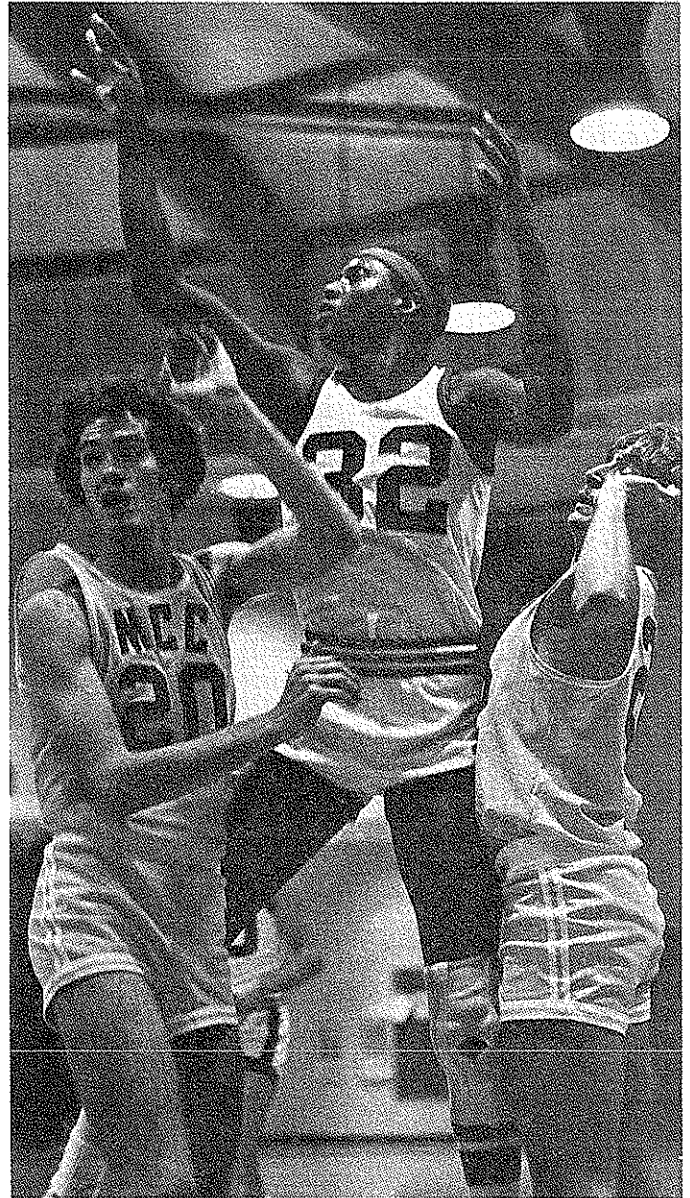


instituted to make recreational extracurricular activities more geographically accessible to all Kirkwood students.

## **INTERCOLLEGIATE ATHLETICS**

Kirkwood offers an intercollegiate athletic program for both men and women in a variety of sports. The college has women's teams in basketball, softball, and volleyball, and men's teams in basketball, baseball and golf. Kirkwood competes with teams from community and junior colleges in Iowa and bordering states, as well as with freshman and junior varsity teams of four-year institutions.

Kirkwood belongs to the Iowa Area Community College Athletic Association and participates in tournaments sponsored by the association.



# POLICIES AND REGULATIONS

## ADMISSION

It is the policy of Kirkwood Community College to accept for admission into its Arts and Sciences and Vocational-Technical Divisions all individuals with either a high school diploma or its equivalent, as determined by the General Education Development testing program. Mature adults who have not completed high school may be admitted, on an individual basis, to various programs offered by the college.

Admission to the college does not, however, ensure admission to all programs offered. The college reserves the right to guide the placement of students on the basis of counseling, examination, pre-enrollment interviews, and past academic achievement.

It is the policy for the college to consider the total individual in admission to the various programs. There are, therefore, no absolute admission standards. Each person possesses multi-potentialities and, as an applicant, must be viewed in the broadest way in relation to admission to any and all of the college's programs.

Generally, admission to programs is granted on a continuous basis as applicants complete required admissions procedures. Applicants will, therefore, find it to their advantage to apply as soon as they have decided to seek admission to a program. Prospective students may apply at any time after beginning their senior year in high school. Applications are accepted up to the day of registration in many college programs; however, if the college staff is to be of maximum assistance with pre-enrollment matters, an applicant should complete his or her application well in advance of the expected entrance quarter.

## AFFIRMATIVE ACTION

It is the policy of Kirkwood Community College not to discriminate on the basis of race, color, creed, national origin, handicap, age, sex, or marital status in granting admission to and participation in its educational programs, college activities and services, or in its employment practices.

Inquiries regarding compliance with state and federal non-discrimination requirements may be directed to Dean of Student Affairs or Personnel Office, Kirkwood Community College, P.O. Box 2068, Cedar Rapids, Ia. 52406, or to the director of the Office for Civil Rights, Department of Health, Education and Welfare, Washington, D.C.

## ADMISSIONS OFFICE

The Office of Admissions is located in Linn Hall, 6301 Kirkwood Boulevard S.W. For admissions information, call the Office of Admissions, 398-5517.

## ADMISSION REQUIREMENTS AND PROCEDURES

Materials and procedures required for admission are listed below. All admissions materials are to be submitted to the Admissions Office, Kirkwood Community College, P.O. Box 2068, Cedar Rapids, Iowa 52406.

## ARTS AND SCIENCES

Kirkwood has an "open door" policy. This permits high school graduates or equivalent to apply and be accepted regardless of past academic achievements. The procedure includes:

- 1) Application Form  
May be obtained from the Admissions Office.
- 2) High School Transcript  
Prospective students, after submitting an application, should request their high school counselor or principal to send their final high school transcript to the Office of Admissions.
- 3) College Transcripts  
Transfer students who want to transfer credits to Kirkwood must submit an official transcript from each college or university which the student has attended previously.
- 5) Student Health Form  
The completed student health form required in some programs, is not submitted until after a student has been notified of acceptance. The form should be sent to the student health center. Applicants to programs that require a health form will be notified of the requirement.

## VOCATIONAL-TECHNICAL

Shortly after all admissions materials are received, an applicant will be notified regarding admission. The procedure includes:

- 1) Application Form  
May be obtained from the Admissions Office
- 2) High School Transcript  
Prospective students should request their high school counselor or principal to send their final high school transcript to the Office of Admissions.
- 3) College Transcripts  
Transfer students expecting to transfer credits to Kirkwood must submit an official transcript from each college or university which the student has attended previously.
- 4) Health Certificates  
A health exam is required in some programs but not

until after a student has been notified of acceptance. The health certificate should be sent to the student health center. Applicants will be notified about this requirement.

- 5) Personal Interview  
A personal interview is required before a student may be admitted to some of the vocational-technical programs. Upon receipt of all materials, applicants will be asked to schedule a personal interview as appropriate for the program to which they are applying.

## INTERNATIONAL STUDENTS (Non-immigrant aliens)

Students from foreign countries who wish to be admitted into regular credit programs and courses must submit:

- 1) Secondary school and college transcripts.
- 2) Evidence of adequate financial resources.
- 3) Health Certificate.
- 4) Information showing the degree of mastery of the English language. A minimum total score of 500 on the Test of English as a Second Language (TOEFL).
- 5) A \$100 admissions processing fee.

Students from foreign countries or refugees in the United States who wish to be admitted to the credit program in English as a Second Language must be 18 years or older and must submit the following:

- 1) Application form.
- 2) Secondary school and college transcripts.
- 3) Evidence of adequate financial resources.

Refugees in the United States who wish to be admitted in the English as a Second Language program on a non-credit basis should enroll under the procedures that apply to Adult Basic Education. Interested persons should contact the Community Education Division.

## COMMUNITY EDUCATION

Admission to adult education programs is varied and flexible. Individuals interested in admission to General

Studies, general adult education, and adult part-time vocational programs are advised to contact the Community Education Division at 398-5668 for information regarding admission and course offerings. See the Community Education section of this catalog for information on Kirkwood's Community Education programs.

## TUITION AND FEES: CREDIT PROGRAMS

The following are tuition and fees for credit programs. They are subject to change at any time.

### Residents of Iowa (See "Residence Qualifications")

Full-time study:\* \$160.00 per 12-week quarter.

Part-time study:\* \$14.35 per credit hour.

#### Audit course work:

Students "auditing" or carrying courses for "no credit" are assessed tuition at the same rates as regular credit course work.

### Non-Iowa Residents (See "Residence Qualifications")

Full-time study:\* \$240.00 per 12-week quarter.

Part-time study:\* \$21.50 per credit hour.

#### Audit course work:

Students "auditing" or carrying courses for "no credit" are assessed tuition at the same rate as regular credit course work.

### International Students (Non-immigrant aliens)

Full-time study:\* \$320 per 12-week quarter.

Part-time study:\* \$28.70 per credit hour.

#### Audit course work:

Students "auditing" or carrying courses for "no credit" are assessed tuition at the same rate as regular credit work.

\*Definitions of terms used above:

**"Full-time study"**—12 quarter hours credit or more in Arts and Sciences. All regular Vocational-Technical Division programs are considered full-time except those less than 12 weeks in length. In these cases, tuition is pro-rated based on the length of the program.

**"Part-time study"**—less than 12 quarter hours of credit.

## RESIDENCE QUALIFICATIONS

Students enrolling at Kirkwood Community College shall be classified as residents or nonresidents of Iowa or as international students for admission, fee, and tuition purposes by the Registrar's office. The decision shall be based upon information furnished by the student and all other relevant information. The Registrar is authorized to require such written documents, affidavits, verifications, or other evidence as are deemed necessary to establish the domicile of a student, including proof of emancipation, adoption, award of custody, or appointment of a guardian. The burden of establishing that a student is exempt from paying the nonresident tuition is with the student.

The decision of the Registrar's Office on the residence of a student for admission, fee, and tuition purposes may be appealed to a review committee. The finding of the review committee shall be final.

For further information on residence classifications, contact the Registrar's Office.

## SPECIAL FEES

Certain courses in the Arts and Sciences Division and programs in the Vocational-Technical Division carry special fees. These fees are assessed only in cases where special equipment and/or consumable supplies and materials are used and help to offset the cost of these items. Such fees are paid quarterly and are nominal. Students should check individual program brochures for the latest figures on fees for courses and programs they plan to enter.

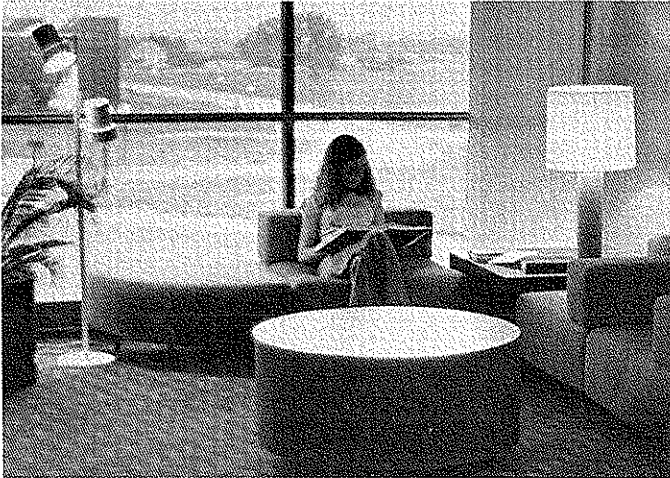
All students pay a student fee each quarter according to the schedule below:

Seven or more enrolled hours .....	\$10
Less than seven enrolled hours .....	\$ 2

This fee covers a variety of items and services, e.g., activities, ID card, student newspaper, etc.

## REGISTRATION FEE

All students are required to pay a registration fee each



quarter as follows:

Full-time (12 or more hours) .....	\$8.25
Part-time (less than 12 hours) .....	\$4.25

This fee covers parking, changes in course registration, graduation, and a variety of other items usually charged separately at other colleges.

### OTHER FEE ARRANGEMENTS

Part-time Vocational: Tuition for part-time vocational programs depends upon the length and nature of the course. Normally, books and materials are not included in tuition.

### REFUND OF TUITION

Students who withdraw from the college will receive a tuition refund according to the following schedule:

Time of Withdrawal	Percentage of Refund
—1st through 5th day of term:	75%
—6th through 10th day of term:	50%
—11th through 15th day of term:	25%
—16th through last day of term:	5%

Refunds will be made only when an "Exit Interview Form,"

signed by a Kirkwood counselor, is filed in the Registrar's Office. Refunds will be computed based on the date that the forms are received by the Registrar's Office.

Full refunds will be made only for students who: (a.) withdraw for reasons of personal health as certified by a licensed physician on a form provided by the Registrar's Office, (b.) are inducted, but not enlisted, into the nation's services, (c.) are forced to do so by college-initiated action, i.e. cancellation of a course. Fees other than tuition are non-refundable.

## ACADEMIC REGULATIONS AND POLICIES

### UNIT OF CREDIT

A unit of credit is a quarter hour. A quarter hour of credit is normally given for one hour in class each week for a period of twelve weeks. A unit of credit awarded in the adult high school is based on the student's ability in relation to his achievement.

### COURSE LOAD

#### ARTS AND SCIENCES DIVISION:

Individuals pursuing 12 quarter hours or more during any quarter will be considered full-time students. To earn a degree in six quarters, students should plan to enroll for an average of at least 15 hours per quarter.

Students may not carry more than 18 hours of credit in any quarter without approval of their advisor and the director of credit programs.

Students may not take a course for more or less credit than that assigned in the college catalog or the schedule of courses.

#### VOCATIONAL-TECHNICAL DIVISION:

A student in the Vocational-Technical Division normally enrolls for the number of credit hours required in each

program of study. Refer to the section on vocational-technical programs of study in the latter part of this catalog for information concerning credits and/or course load. Part-time course work may be undertaken in some programs. Students with an interest in attending part-time in the Vocational-Technical Division are advised to contact the Office of Admissions for details.

## GRADING SYSTEM

The Kirkwood grades or marks and their meanings are given below:

A Excellent	I Incomplete
B Above Average	X Course repeated
C Average	L **Credit for prior education or experience (11/24/76)
D Below Average	F **Failing (8/26/72)
P Passing-Credit	FW **Failure to withdraw (3/1/71)
T Credit by examination	NI **Irresponsible Audit (3/1/71)
E Excused without credit	
N Audit	
Q No credit	
W Withdrew from course	

\*\*Discontinued grades. Discontinuation date shown.

The grades A, B, C, D, are included in computing the grade point average.

Credit toward graduation is granted for A, B, C, D, P and L.

## GRADE REPORTS

Grade reports are mailed to students approximately one week after the close of a quarter. Grades will not be given out over the phone.

## REPEATING COURSES

Students who achieve a personally unsatisfactory grade in a course may, according to procedures described below, repeat the course in an attempt for a better grade and have the original grade removed and replaced by "X".

Students wishing to take advantage of this policy must file a notification with the Office of the Registrar. Forms for this purpose are available in that office.

Provisions of this policy are as follows:

- 1) Students may repeat a course as many times as they wish in an effort for a better grade.
- 2) Students must file notification of their repeat of a course for a better grade with the Office of the Registrar for each course repetition.
- 3) The original grade will be changed automatically to an "X". (The "X" carries no credit nor does it affect a student's grade point average.) A student may not repeat a course and then choose the better of the two grades. The repeat grade is always the one that will be computed as part of the student's record.
- 4) Students who withdraw from a course which they are repeating for a better grade under this policy will have the original grade re-entered on their record.

This policy in no way prevents a student from repeating a course and retaining both the original and the repeat grade. Where no notification of repeat is filed, the original and repeat grades are averaged; however, the student may not receive credit for the same course twice.

In any case, students who fail to successfully complete a required course must repeat the course until a passing mark is achieved if they expect to graduate. Students are not required to repeat elective courses that they do not successfully complete.

Students who have questions regarding how this policy applies to their own situation should discuss it with a member of the counseling staff.

## INCOMPLETE GRADES

A student who fails to complete the assigned work of a course during a quarter or session will be assigned the mark "I" ("incomplete"). The length of time a student will be permitted to complete the course work must be worked out with the instructor assigning the "I". The "I" may be changed to a "Q" if the student hasn't, after a period of time deemed reasonable and sufficient, made up the incomplete work.

## AUDITING COURSES

Audit enrollment in courses provides students the oppor-

tunity to attend a class as a non-credit participant, usually as a listener-observer. This kind of enrollment may have value for the student who wants an introduction to a subject outside his major field, a review or refresher in a subject, or other purposes where credit and grade either are not needed or would pose an unnecessary academic threat.

With the permission of the instructor and/or the department head, a student may enroll in any course on an audit basis. It is required of audit enrollments that the student and instructor agree about what portion(s) of the course the student plans to audit and the requirements the instructor has about the student's class attendance and participation in class work. If the student fulfills the agreement for the audit, he or she will receive the grade of "N" ("audit") for the course and it will be entered on the student's academic transcript. If the student does not fulfill the audit agreement, the Registrar, upon request of the instructor, will delete the course from entry on the student's academic transcript.

Audit enrollments and grades carry no credit nor grade point value. No inference is made, nor should conclusions be drawn, about the quality or quantity of a student's mastery of the course subject matter.

Standard tuition and lab charges apply to all audit enrollments regardless of the length or scope of the audit.

## **CREDIT ASSIGNMENTS IN EMERGENCY SITUATIONS**

Upon request of the student and at the discretion of the instructors involved, after the two-thirds point of a quarter a student may be given a grade and, therefore, credit for all courses he or she has in progress at the time of:

- His or her induction but not enlistment into the Armed Forces;
- Serious personal or family illness requiring the student to discontinue his or her studies;
- A death in the immediate family;
- Other "emergency circumstances" that preclude a student finishing the quarter.

## **ADDS AND DROPS**

Students may add a course at any time through the fifth class day of a quarter or session, subject to the course load conditions and tuition schedule listed earlier.

Students may drop individual courses from their schedule any time up to 8 p.m. of the last drop day of the quarter or session as indicated in the official college calendar. After these times, students must remain in courses. Students who quit attending a class without officially dropping it will receive, at the discretion of the instructor, an "I" or a "Q" grade.

A change in registration is not official until it is received in the Office of the Registrar, and all deadlines as stated herein apply to the day by which it must be received in that office. It is the responsibility of the student to see that all necessary forms reach that office and that they carry signatures as indicated on the form.

Dates, as indicated herein, are listed on the college calendar.

"Change in Registration" forms are available from counselors and the Office of the Registrar.

## **WITHDRAWAL POLICY**

Students may withdraw, that is, cancel their entire registration, at any time up to the final exam period. Students officially withdrawing through the Office of the Registrar will be assigned a "W" for all courses for which they are then registered. In all cases of withdrawal, except in cases of physical or circumstantial impossibility, a student must secure the "approval" of a counselor. In cases of tragedy (death, disability, etc.), the Office of the Registrar can initiate a withdrawal for the student, even retroactively when the situation becomes known.

Students failing to withdraw officially will receive, at the discretion of the instructor, either "I" or "Q" for all courses for the quarter.

## **CHANGE OF MAJORS**

Vocational-technical students who change their major or arts and sciences students who change to a major in the Vocational-Technical Division will be accountable in

terms of graduation requirements only for work done in the new major. The course work and grade point average earned in the initial major will continue as part of their transcript and record, but will not affect them in meeting graduation requirements of the new major. If course work successfully completed in the initial major is applicable to the new major, a student may petition the division director or the department head for permission to apply these credits toward graduation requirements of the new major. Where permission is granted, the courses and the earned grades for those courses would be credited toward the new major.

As a prerequisite to taking advantage of this policy, students must complete certain forms in the Office of the Registrar. This should be done in advance of making the change in majors.

Students who contemplate a change of major under this policy are advised as an initial step to discuss their plans fully with a member of the counseling staff.

## ACADEMIC PROBATION AND SUSPENSION

A student may be placed on academic probation for either or both of two reasons: 1) low grade point average; or 2) failure to maintain satisfactory progress.

**Low grade point:** Any student who does not achieve better than a 1.5 grade point in a given term may be placed on academic probation for the next term in which the student is enrolled. The academic record of such students will be referred to an appropriate staff committee. This committee will make a recommendation to the Dean of Student Affairs regarding possible probationary status. The student's academic work for previous terms will be taken into consideration. A student who continues to have academic difficulty as evidenced by a cumulative grade point at or below 1.5 may be recommended for suspension from the program or the college as described below. Action other than suspension also may be recommended or mandated for persons in this category.

**Unsatisfactory progress:** In some cases, students may be placed on probation by the Dean of Student Affairs be-

cause of failure to maintain satisfactory progress in course work required for completion. This could be the case regardless of a student's grade point average. Such a recommendation would be made by an appropriate staff committee to the Dean of Student Affairs for action. Suspension from a program, but not the college, can be directed by the Dean of Student Affairs upon recommendation of the appropriate faculty/staff committee and with the concurrence of the appropriate instructional branch dean.

**Suspension** from the college is the prerogative of the college superintendent/president upon the recommendation of the Dean of Student Affairs and the appropriate instructional dean.

**Permanent dismissal** from the college can be ordered only by the board of directors, upon recommendation of the superintendent/president.

## DISCIPLINARY PROBATION AND SUSPENSION

Disciplinary probation and suspension from the college is managed under the procedures described in the Code of Student Rights and Responsibilities in the Board Policy Manual of the college. In general, such matters are handled by the Student Activities Department, with procedures for due process and appeal made available as appropriate.

## RE-ADMISSION

Students who have been suspended for academic reasons may petition the Office of the Registrar for re-admission. There is a mandatory period of one quarter before petitions for re-admission will be considered.

Students who have withdrawn from the college in good standing, and who desire to be re-admitted, should apply to the Office of Admissions. If they have attended another college or university, they must file an official transcript from that institution. Students who are re-admitted after absence from the campus and who desire an associate degree will be required to fulfill the current graduation requirements.



## **ACADEMIC HONORS**

Graduates who have maintained a 3.0 grade point average during their work at Kirkwood are granted recognition by inclusion of their names on the list of those who have graduated with honors. Graduates who have maintained a 3.5 or better grade point average are given recognition by inclusion of their names on the list of those who have graduated with high honors. Grades which are accepted by Kirkwood for transfer from other institutions are also included in the computation of grade point averages for these honors.

## **ASSIGNMENTS AND EXAMINATIONS**

Students are expected to complete all class assignments and examinations on time. It is the student's responsibility

to contact his or her instructor to make up any work missed during absence from each class. In cases where a test is given during the absence of a student, it is sometimes possible for the instructor to substitute another test at a later date. There may be occasions, however, when substitution of a test may not be feasible. When a student anticipates missing a test, a telephone call in advance to the instructor may save a great deal of difficulty later and prevent a possible lowering of the grade for that course in cases when a test is of a type that is difficult to make up.

A student must be present as scheduled for the final examinations. In cases of illness or emergency during examination times, a student may be excused and re-scheduled by the instructor. In cases where such illness or emergency may extend more than a few days, the procedure for incomplete course work should be followed.

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## **NOTICE TO STUDENTS REGARDING FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT OF 1974**

In accordance with provisions of Public Law 93-380 as amended (P.L. 93-568), the Family Educational Rights and Privacy Act of 1974, commonly known as the "Buckley Amendment," notice is hereby given to Kirkwood Community College students and their parents as follows:

It is the intention of the college to comply with provisions of this law. The college rules and regulations to implement compliance procedures are available to interested parties, and may be reviewed during normal business hours in the following campus locations: Registrar's Office, Student Affairs Office, and the Learning Resources Center. Students who believe the college is not complying with this law are hereby informed of their right to file a complaint with the U.S. Department of Health, Education & Welfare.

The college maintains only those "Education Records," within the definition of this law, which are essential to the process and procedures required to develop and maintain an accurate academic record for each student and to support such student accounting needs and requirements as are imposed by law, state and federal regulations, and

college operational procedures. These records may be found in some or all of the following offices: Registrar, divisional, departmental, major program, Student Activities and advisors. Subject to provisions of the college rules, they may be reviewed by students upon request.

This law permits the college to make public certain "directory information" about students. It is the intention of the college to do so, within the scope of regular college policies and as may be appropriate to the normal course of college business and operations. The following information is regarded to be "directory" type information, and some or all of it may be made public: name, address, telephone listing, major field, class schedule, courses of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, age and/or date of birth, dates of attendance, degrees and awards received, and previous educational programs and institutions attended by the student. Any student objecting to his or her directory information being made public must file notice of such objections with the Registrar's Office.

*Dr. Bill F. Stewart, President/Superintendent*

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## **STUDENT RECORD RETENTION POLICY**

Kirkwood Community College retains the official academic record (transcript) of enrollment and credit earned in Kirkwood's credit programs in perpetuity. All other student record documents are destroyed three years after the student's last enrollment at Kirkwood.

Students who believe there is any inaccuracy in their official academic record (transcript) must notify the Registrar's Office immediately. Upon the destruction of the supporting student record documents three years after the student's last enrollment at Kirkwood, the official academic transcript is regarded to be the final accurate record of academic accomplishment.

## **DEGREE AND GRADUATION REQUIREMENTS**

### **ARTS AND SCIENCES DIVISION**

#### **TRANSFER OF CREDIT FROM OTHER INSTITUTIONS**

The Arts and Sciences Division will accept the credits given to a student who has done successful work at any properly accredited college provided that the work was part of the curriculum of a two-year associate degree—equivalent to any of the associate degrees offered at Kirkwood or a baccalaureate degree or was part of such a program. Courses in any of these degree programs will transfer even though the student may have been involved in non-degree work at that institution. In order to receive the associate degree granted by the Arts and Sciences Division the student must also fulfill the requirements for those degrees as are listed in this catalog.

In the evaluation of transfer students' transcripts from institutions previously attended, Kirkwood applies the following general policies:

- 1) \*Grades of "F" (or any other "failing" grades) of

transfer students will be ignored in the computation of a cumulative transfer grade point average if any of the following conditions are met:

- A. The courses involved were taken during or after the first session of the 1972-73 academic year (corresponding to Kirkwood's fall quarter); or
- B. The student has not been enrolled in any program of higher education leading to an associate or baccalaureate degree for a period of at least three consecutive years; or
- C. The student has served in the Armed Services of the United States for at least two years or any smaller portion thereof if discharged with a service-connected disability.

2) Grades corresponding to "D" or better will be accepted for transfer if from a properly accredited institution.

3) Decisions about the applicability of transfer courses toward Kirkwood requirements will be made by the Office of the Registrar and reported to the student. Any question regarding this should be directed to that office.

When a transfer student's credits are accepted toward the associate degree of Kirkwood, the college cannot guarantee how other colleges will treat these same credits.

\*This provision applies in equal measure to Kirkwood students.

#### **ACCEPTANCE OF VOCATIONAL-TECHNICAL CREDIT TOWARD AA OR AAS DEGREES**

Kirkwood Community College will accept, for credit toward Associate of Arts or Associate of Science degrees, vocational-technical credits earned in courses which are part of two-year Associate of Applied Science degree technical programs at Kirkwood or other accredited Iowa Area Schools. (Such credits are hereinafter referred to as "technical" credits.) These technical credits are acceptable toward Associate of Arts or Associate of Science degrees subject to the following provisions and conditions.

1) All technical credits earned in resident course work will be accepted toward Associate of Arts or Associate of Science degrees. They may not be used to satisfy core or general education requirements.

2) Kirkwood will accept for transfer (from another ac-

credited Iowa Area School) at least 29 quarter hours of earned vocational-technical credits toward Kirkwood Associate of Arts or Associate of Science degrees which the sending Area School has accepted toward their own Associate of Arts or Associate of Science degrees provided that:

A. A statement of that Area School's policy on internal articulation of vocational-technical credits toward their own Associate of Arts and Associate of Science degrees is on file with the Registrar's Office at Kirkwood.

B. The sending Area School's transcript clearly indicates which vocational-technical courses are acceptable toward their Associate of Arts or Associate of Science degrees.

After application of technical credits, a student must complete the following requirements to receive an Associate of Arts or Associate of Science degree:

1) Satisfactorily complete all general education requirements established for the degree being sought: 8 credit hours in English composition, 3 credit hours in speech, and 8 credit hours in humanities, social sciences, and math-sciences (30 credit hours in math-science for the Associate of Science degree).

2) Earn a minimum of the last 24 quarter credit hours of degree applicable course work in residence in transfer-credit courses in the Arts and Sciences Division at Kirkwood and achieve a minimum grade point average of 1.80 on all such course work.

3) Earn a minimum of 90 quarter hours of credit acceptable toward the Associate of Arts or Associate of Science degrees (as defined under this and any other applicable policies of Kirkwood).

4) Earn a minimum cumulative grade point average of 1.80 on all course work applied toward the degree sought. This cumulative grade point average will be computed using as many of the last earned technical credits as required to bring the degree applicable credit total to 90 quarter hours.

## **GENERAL REQUIREMENTS FOR THE ASSOCIATE OF ARTS OR ASSOCIATE OF SCIENCE DEGREES**

- 1) Earn a minimum of 90 quarter hours of credit.
- 2) Earn the last 24 credit hours in residence at Kirkwood in a degree program for which the degree is sought.
- 3) Maintain a minimum cumulative grade point average of 1.80.
- 4) Complete satisfactorily eight quarter hours in composition and three quarter hours in speech.

## **ADDITIONAL REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE**

- 1) Complete general requirements described earlier.
- 2) Complete group requirements as follows:<sup>1</sup>

Humanities	8 credit hours
Social Sciences	8 credit hours
Math-Science	8 credit hours
Additional core	1 credit hour (from any of above areas)
- 3) Complete satisfactorily a college parallel with major emphasis in the humanities and/or social sciences.

## **ADDITIONAL REQUIREMENTS FOR THE ASSOCIATE OF SCIENCE DEGREE**

- 1) Complete general requirements described earlier.
- 2) Complete group requirements as follows:<sup>1</sup>

Humanities	8 credit hours
Social Sciences	8 credit hours
Math-Science	30 credit hours
Additional core	1 credit hour (from any of above areas)

<sup>1</sup>For a complete definition of which courses fulfill which group requirements, see the Arts and Sciences course description section.

## VOCATIONAL-TECHNICAL DIVISION

### REQUIREMENTS FOR ASSOCIATE OF APPLIED SCIENCE DEGREE

This degree is issued to those individuals who satisfactorily complete a two-year technical curriculum. Since technical programs vary in terms of their content, each program should be checked for specific course requirements for graduation.

### GENERAL REQUIREMENTS FOR THE ASSOCIATE OF APPLIED SCIENCE DEGREE COMMON TO ALL PROGRAMS

- 1) Successful completion of all specific curricular course requirements.
- 2) Maintain a minimum cumulative grade point average of 1.80.
- 3) Satisfaction of the greater of the following two residence requirements:
  - A. Earn a minimum of the last 24 credit hours in no less than two quarters of resident course work at Kirkwood Community College in the program for which the degree is sought.
  - B. Meet, through residence course work at Kirkwood Community College, the minimal core and specialty requirements established by the major department for the degree program.

(In some cases, some credits earned toward an Associate of Applied Science degree may be transferable to some baccalaureate degree-granting institutions).

### REQUIREMENTS FOR A DIPLOMA

Diplomas are issued to individuals who satisfactorily complete full-time vocational or technical curricula of at least three quarters but less than two years (six quarters) duration. They must maintain a cumulative grade point average of 1.80.

Normally, a student must take all of the courses required

for a diploma program through course work in residence at Kirkwood. Individual exceptions to this requirement may be possible upon petition by the student to a committee composed of the program coordinator and/or the department head and the dean of career education.

### REQUIREMENTS FOR A CERTIFICATE

A certificate of completion is issued to signify that a student has satisfactorily completed a program of instruction other than those listed above. Certificates are generally issued to students at the completion of a specific short-term program of study.

A student must complete all of the courses required in a certificate program in residence at Kirkwood Community College.

## GENERAL STUDIES DEGREE

The Associate of General Studies degree is designed to meet the needs of people whose goals can not be met by traditional degree programs. It is intended for those persons—particular adults—who want to continue their education, yet seek recognition of their past experiences and assistance in developing a program of study based upon their personal interests and career goals.

Just as the curriculum for each general studies student is individualized, so also is the assistance each person receives from Kirkwood's professional staff. Assistance is provided to each student in establishing, clarifying, and stating their goals, as well as in identifying and documenting their prior experience.

The general studies student may utilize any of the educational programs and services of the college in developing his or her study plan. They may include both credit and non-credit courses or seminars offered by Kirkwood, Cooperative Education work experiences, and individualized general studies projects. Although some of the student's studies may not be accepted for college transfer credit, they will count toward the Associate of General Studies degree as long as they are a part of the student's approved study plan for the degree.

This degree program is not intended as an alternate means of preparing for careers already offered through the college's vocational-technical division or for careers requiring transfer to four-year colleges or universities.

## **OTHER GRADUATION INFORMATION**

### **FILING A GRADUATION APPLICATION**

Each student who plans to earn an associate degree, diploma, or certificate of program completion, must file a "graduation application" with the Office of the Registrar at the beginning of the quarter in which he or she plans to complete the necessary course work.

"Graduation applications" should be submitted at the time that students register for classes in the quarter that requirements for graduation will be completed. However, applications will be accepted if filed with the Registrar's Office (123, Linn Hall) within one week of the close of registration.

While students may complete their requirements for graduation during any quarter, commencement exercises will be held at the end of the spring and summer terms. Students completing requirements in the fall or winter terms are encouraged to participate in the spring commencement exercises.

### **TRANSCRIPTS**

Official transcripts are available through the Office of the Registrar. Students may pick them up there or request that they be mailed to another institution. Transcripts sent to other institutions and employers are free of charge. Each transcript given or mailed to the student costs \$1.00 and must be paid for at the time it is requested.

### **REQUIREMENTS FOR THE ADULT HIGH SCHOOL DIPLOMA**

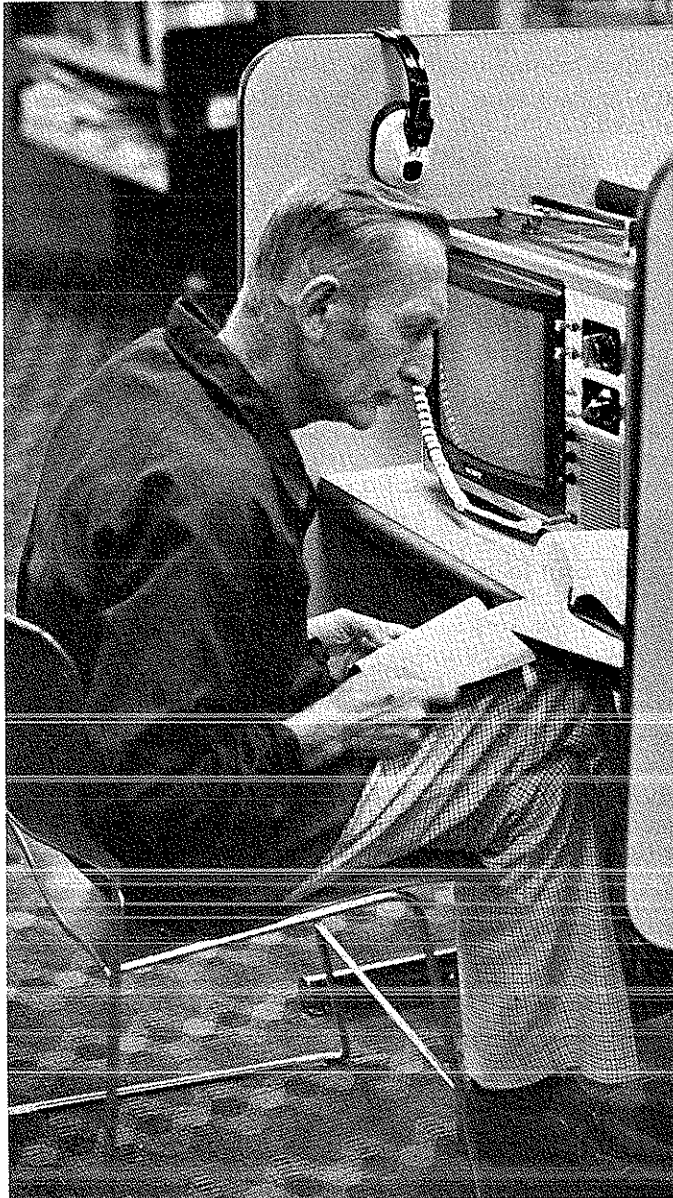
- 1) A Kirkwood high school diploma will be granted when the student meets the requirements toward graduation.
- 2) The high school completion program is operated on

both a quarter system (12 weeks) and by individualized instruction at area Community Education centers.

- 3) Students may begin at any time.
- 4) A student must earn a minimum of 48 quarter hours of credit.
- 5) Six quarter credit hours of study in residence at Kirkwood are required in the High School Completion program regardless of the number of remaining credits needed.
- 6) A student doing normal work may earn one credit for 12 weeks' work with grades A, B, C, and D. Due to a great deal of individualized instruction, students may earn 1½ maximum quarter credits in this 12-week period if the instructor feels they have achieved much more than normally achieved in that length of time. Credit for courses taken through individualized instruction is granted when a student demonstrates competency of the subject matter with no time limitations. No one fails.
- 7) Credit awarded for military school, vocational training and work experience (includes housewife) are evaluated by the counselor before credit will be given. Any questions regarding credits or grades are considered by the counselor or area supervisor.
- 8) A High School Equivalency Certificate will not be given until an applicant has reached his or her eighteenth birthday and his or her high school class has graduated.
- 9) The counselor or coordinator in each high school completion center will make out a rough work-up sheet showing credits already earned and those that will be required for graduation. Also, a new student must fill out a No. 283 form. This form will initiate a process by which a copy of the student's previous high school work will be returned to the counselor.

### **REQUIREMENTS FOR THE IOWA HIGH SCHOOL EQUIVALENCY CERTIFICATE:**

The Iowa High School Equivalency Certificate is granted on the basis of the attainment of an average standard score of 45 on the General Education Development (GED) Test. The test is offered at the Iowa City Community Education Center, Anamosa Reformatory, Monti-



cello Community Education Center, Washington Community Education Center and the Kirkwood main campus.

A high school equivalency diploma issued by the Iowa Department of Public Instruction is awarded and a permanent transcript file is maintained by the college. Local school districts may issue an adult high school diploma if they choose. Conditions for granting the local adult high school diploma will be specified by the local Board of Education. Further information is available through Kirkwood's Community Education Division.

## **STUDENT RESPONSIBILITY FOR CATALOG INFORMATION**

Each student is responsible for being familiar with the information appearing in this catalog. Failure to read the regulations will not be considered an excuse for non-compliance.

The college reserves the right to change policies or revise curricula as necessary due to unanticipated circumstances.

## **WAIVER OF REGULATIONS**

Rules and regulations in this catalog have been adopted by the faculty, administration, and board of directors of the college. When a student finds that extenuating circumstances might justify the waiver of a particular college regulation, however, the student may file a petition with the dean of student affairs, according to established procedures.

# COURSE DESCRIPTIONS



## COURSE NUMBERING SYSTEM

Each course description in this section is preceded by a course number, such as **AC001T**. Below is described what the letters and figures mean in each number:

- 1) The two-letter prefix in the number denotes the area of study in which the course may be found in this section. The area of study is the academic discipline that most nearly describes the content of the courses. (For example, "BY" is the prefix for courses that have biology as their basic subject matter.) The various areas of study and their prefixes are listed on this page. Since this section is organized alphabetically by prefixes, it is best to know the number of the course for which you are looking.
- 2) The three numerals in the body of the course number are random, and are not intended to imply any sequence for taking courses.
- 3) The letter at the end of the course number represents

the level of instruction, according to the following code:

- A — Adult Basic Education (ABE)
- D — Developmental
- G — General Adult
- H — High School
- S — Supplemental
- T\* — Transfer
- U — Voc. Tech. (Applies to AAS)
- V — Voc. Tech. (Applies to Diploma)
- W — Voc. Tech. (Applies to Certificate)
- Z — Part-time Vocational-Technical

\*T - Courses asterisked are under review by the curriculum instruction committee for permanent approval as part of the Arts and Sciences curriculum.

The credit value of each course is indicated in quarter hours following the title of the course. Where possible, the description also indicates the number of lectures and lab sessions involved. Thus, (3/1) indicates three lecture hours and one lab hour per week.

## GUIDE TO AREAS OF STUDY

The course descriptions in this section are listed according to the following prefixes assigned for each area of study:

<b>AC</b> — Accounting	<b>EA</b> — Earth Science	<b>HE</b> — Home Economics	<b>MU</b> — Music
<b>AG</b> — Agriculture	<b>EC</b> — Economics	<b>HY</b> — History	<b>NS</b> — Nursing
<b>AM</b> — Administration and Management	<b>EG</b> — Engineering	<b>IS</b> — Interdisciplinary Studies	<b>OE</b> — Office Education
<b>AT</b> — Art	<b>EL</b> — Electricity and Electronics	<b>JO</b> — Journalism	<b>PD</b> — Personal Development
<b>BY</b> — Biological Science	<b>EV</b> — Environmental Studies and Pollution Control	<b>LE</b> — Law Enforcement	<b>PH</b> — Physics/Astronomy
<b>CE</b> — Cooperative Education	<b>FL</b> — Foreign languages	<b>LS</b> — Library Services	<b>PR</b> — Philosophy and Religion
<b>CH</b> — Chemistry	<b>FS</b> — Fire Safety	<b>LT</b> — Literature	<b>PS</b> — Political Science
<b>CM</b> — Communication (including speech)	<b>GE</b> — Geography	<b>LW</b> — Law	<b>PY</b> — Psychology/Education
<b>CO</b> — Corrections	<b>GR</b> — Graphics	<b>MA</b> — Mathematics	<b>RE</b> — Recreation
<b>CS</b> — Construction	<b>GS</b> — General Studies	<b>MH</b> — Mechanics	<b>SO</b> — Sociology
<b>DP</b> — Data Processing		<b>MK</b> — Marketing	<b>SW</b> — Social Welfare
<b>DN</b> — Dental		<b>MS</b> — Medical and Surgical	<b>TH</b> — Therapy
<b>DR</b> — Drama		<b>MM</b> — Metals and Manufacturing	

A list of courses no longer taught at Kirkwood is available by contacting the Registrar's Office.



# AC: ACCOUNTING

## COLLEGE TRANSFER COURSES

- |  | <b>Credit<br/>hours</b> |
|--|-------------------------|
| <b>AC001T Principles of Accounting I</b>   | <b>4</b>                |
| Approaches accounting theory and procedures from the business entity concept. Accounting principles covered include understanding the balance sheet and income statements, matching costs and revenues, working paper development, and debit-credit relationships. (4/0) |                         |
| <b>AC002T Principles of Accounting II</b>  | <b>4</b>                |
| Emphasizes partnership and corporate entities, worksheet adjustments and asset valuation. Prereq: Principles of Accounting I. (4/0)  |                         |
| <b>AC003T Principles of Accounting III</b>   | <b>4</b>                |
| Emphasizes management uses, and studies introduction to cost accounting, cost analysis, budgeting, fund flow, and statement analysis. Prereq: Principles of Accounting II. (4/0)   |                         |
| <b>AC004T Cost Accounting I</b>  | <b>4</b>                |
| Relates principles and methods of handling materials, labor costs, and manufacturing expenses to the formulation of reports to management. Prereq: Principles of Accounting III. (4/0)   |                         |
| <b>AC005T Cost Accounting II</b>   | <b>4</b>                |
| Emphasizes standard costing and budgeting. Prereq: Principles of Accounting III. (4/0)   |                         |
| <b>AC006T Intermediate Accounting I</b>  | <b>4</b>                |
| Includes a review of accounting procedures and the reporting process. Provides an in-depth analysis of cash, receivable, and inventories. Prereq: Principles of Accounting III. (4/0)  |                         |
| <b>AC007T Intermediate Accounting II</b>   | <b>4</b>                |
| Emphasizes investment accounting, tangible and intangible assets, and liabilities. Prereq: Intermediate Accounting I. (4/0)  |                         |
| <b>AC009T Intermediate Accounting III</b>  | <b>4</b>                |
| Covers corporation accounting, consignment and installment sales, and income correction and statement changes. Prereq: Intermediate Accounting II. (4/0)   |                         |
| <b>AC010T Analyzing Financial Statements</b>   | <b>3</b>                |
| Presents management's viewpoint on cost analysis, budgeting, fund flow, and statement analysis. Prereq: Recommended AC002T. (3/0)  |                         |
| <b>AC015T Personal Income Tax</b>  | <b>2</b>                |
| Provides a basic knowledge of individual income taxation, its purposes and development, possible future modifications, and its significance for individual tax planning. (2/0)   |                         |

**AC016T Income Tax for Business** **3**  
Provides a basic knowledge of the structure of business income taxation, its purposes and development, possible future modification, and its significance for managerial decision-making. Prereq: Principles of Accounting II, Personal Income Tax or instructor's permission. (3/0)

**AC020T Tax III (Advanced)** **3**  
Studies federal and state income tax laws, and changes, with research of tax regulations and tax court decisions. Emphasis is placed on the completion of the routine, but more "advanced" forms an accountant or lawyer would normally handle. Prereq: AC015T and AC016T (3/0)

## VOCATIONAL-TECHNICAL COURSES

**AC001U Accounting Survey I** **3**  
Covers accounting for the data processor. Includes basic concepts, definitions, terminology, techniques, and characteristics of accounting and accounting systems as found in medium and large organizations. Attention is given to the functions of accounting as they might be performed by data processing systems. (3/0)

**AC003U Accounting for the Non-Accounting Manager** **2**  
Studies the various financial statements and their relation and contribution to the profitability of a business for the non-financial manager. Also covers terminology used in accounting practices. (2/0)

**AC005U Small Business Recordkeeping** **2**  
Designed to help the small businessman keep simple cash flow, expense, and receipt records. It also includes necessary recordkeeping for basic payroll and sales tax records. The assumption is made that students have not previously had any experience with bookkeeping or recordkeeping. (2/0)

**AC006U Management Accounting** **4**  
Presents management's viewpoint on cost analysis, budgeting, fund flow, and statement analysis. Prereq: AC001T (4/0)

**AC007U Dental Bookkeeping** **3**  
Covers basic principles of bookkeeping from the viewpoint of the dental assistant. Special attention is given to patient billing, preparing for audits, peg board accounting, use of data processing services, and tax forms. (3/0)

**AC008U Agribusiness Records** **3-4**  
Designed to familiarize students with farm records; accounting inventories, valuation cash flow, net worth, depreciation, and different types of record systems. (2-4/0-4)

- AC009U Accounting Problems** 2-5  
Provides the student with the opportunity to secure assistance in accounting course work and provides an opportunity for more in-depth study. Time arranged. (0/3-10)
- AC001V Accounting Fundamentals I** 5  
Introduces the complete accounting cycle for personal service and merchandising enterprises. Application of fundamental principles covered in laboratory practice. (5/0)
- AC002V Accounting Fundamentals II** 5  
Continues Accounting Fundamentals I with further study of accounting for purchases, sales, inventory, prepaid expenses, long-lived assets, and accounting for owner's equity. Prereq: AC001V (5/0)
- AC003V Accounting Fundamentals III** 5  
Continues Accounting Fundamentals II, with emphasis on corporate organizations and an introduction to cost accounting. Prereq: AC002V (5/0)
- AC004V Office Accounting** 4  
Provides an understanding of basic accounting concepts and procedures. Includes the recording of transactions, preparation of financial statements, and payroll problems. A practice set will be completed. (4/0)
- AC005V Floriculture Bookkeeping** 4  
Studies the basic theories of accounting concepts and procedures as they apply to the floral shop. Special attention is given to recording basic transactions, credit, payroll and banking. (4/0)
- AC006V Medical Bookkeeping** 4  
Covers basic principles of bookkeeping from the viewpoint of the medical assistant. Areas of study include journalizing, posting to the ledgers and taking a trial balance, and preparation of financial statement. Special attention is given to patient billing, preparing for audits, peg board accounting, use of data processing services, and insurance tax forms. (4/0)
- AC008V Income Tax Procedures** 3  
Training in the preparation of federal and state income tax returns. (3/0)

soils, their formation, classification and distribution. (2-4/0-2)

**AG002T Principles of Horticulture** 3-4  
Explores horticulture in daily living: plant growth, environment, propagation, cultivation, pruning, protection, harvesting, quality control and selection. Also covers home grounds development and maintenance. (2-4/0-4)

**\*AG004T Introduction to Agricultural Education** 1  
Reviews the agriculture teaching profession in secondary and post-secondary schools. (1/0)

**AG005T Animal Production** 4  
Focuses on basic elements of the comparative characteristics and bodily functions of farm animals, their place in animal agriculture, and the production, evaluation and marketing of their products. Includes cattle for meat and milk, horses, sheep, swine and poultry. (3/2)

**AG006T Principles of Crop Production** 4  
Introduces principles of plant-soil-climate relationships in crop production. (3/2)

**AG019T Agricultural Accounting** 4  
Appraises methods of keeping farm and farm supply business records and accounts for farm and tax management and interprets capital, credit, income accounts, production records and net worth statements. Farm income tax procedures and management are also studied. (2-4/0-4)

#### VOCATIONAL-TECHNICAL COURSES

**AG002U Forage and Oat Production** 3-6  
Involves study in the technical areas of various forages and oat production, including varieties, fertility, tillage methods and various management practices. The course also identifies and compares various pasture and forage management methods. (1-6/0-4)

**AG003U Agribusiness Procedures** 3-4  
Reviews terminology used in agribusiness, the handling of money from sales, inventory control, customer credit control, business money management and basic double-entry bookkeeping. (2-4/0-4)

**AG004U Swine Artificial Insemination** 2  
Develops skills of artificial insemination, heat detection and supportive background knowledge for swine breeding herds, and studies nutritional and genetics management practices in swine breeding. (1/2)

**AG005U Agricultural Chemicals** 2, 3, 4  
Relates pesticide terminology, labels, uses, cost and safety, and also covers establishing herbicide test plots. (2-4/0-4)

## AG: AGRICULTURE

#### COLLEGE TRANSFER COURSES

**AG001T Fundamentals of Soil Science** 3-4  
Introduces physical, chemical and biological properties of

<b>AG006U Career Planning Seminar</b>	<b>1</b>	Assists the student in managing his affairs as an employee. Includes "mini-courses" on current topics and also includes planning a student's courses and activities while at Kirkwood. (1/0)	stuffs used to fulfill required amounts of nutrients for different types of horses used under different conditions. (1-6/1-6)		
<b>AG009U Parks and Grounds Laws</b>	<b>4</b>	Examines the statutes of the Code of Iowa, games laws, law enforcement problems and governmental agencies. Field trips and resource speakers reinforce classroom exercises. (2/4)	<b>AG026U Garden Center Operation</b>	<b>4</b>	Covers purchasing, merchandising, advertising and business analysis as it pertains to the garden center. Students visit several local businesses as a means of interviewing owners. (2/4)
<b>AG010U Park Maintenance Programs</b>	<b>4</b>	Includes development and analysis of comprehensive maintenance programs for buildings, campgrounds, lake areas and related recreational facilities. Budgeting and recordkeeping are discussed. (2/4)	<b>AG027U House Plants</b>	<b>4</b>	Instructs students in the identification and cultural requirements of 150 semi-tropical to tropical plants commonly used as houseplants. Identification includes recognition of plants with both botanical and common names. Cultural requirements include such topics as soil mix, light, humidity, watering, and pest problems. (2/4)
<b>AG011U Tillage and Planting Equipment</b>	<b>3</b>	Compares and identifies various tillage and planting equipment used in modern field crop production and also includes applied equipment adjustment and set-up. (2/2)	<b>AG029U Landscape Construction</b>	<b>4</b>	Presents construction of retaining walls, mulched areas, patios, etc., and also covers proper methods for digging and planting trees and shrubs. (2/4)
<b>AG012U Employment Experience</b>	<b>1-12</b>	Offers employment arranged to give students practical full-time on-the-job training with an employer or self-employed individual.	<b>AG030U Basic Landscape Drawing</b>	<b>4</b>	Studies the landscape design process, functional and aesthetic organization of space and plant materials for pleasing effects. Site analysis, preparation of scaled drawings and lettering are practiced in laboratory exercises. (2/4)
<b>AG014U Farm and Shop Maintenance</b>	<b>3</b>	Concentrates on skills and understanding needed to keep the physical plant in repair. Areas of study include basic electricity, plumbing, concrete and general carpentry pertaining to a farm business. (1/5)	<b>AG031U Residential Landscape Design</b>	<b>4</b>	Deals with the actual development of landscape drawings for homeowner clients. Client needs and motivation are explored. Students develop scaled, formal drawings, and informal sketches. (2/4)
<b>AG015U Park and Recreation Administration</b>	<b>4</b>	Examines the planning, organizing and administering parks employees and activities involved in parks operations. (2/4)	<b>AG032U Recreational Area Design</b>	<b>4</b>	Deals with design of attractive, functional and durable areas utilized for recreational purposes. Structures, equipment and procurement techniques are analyzed. (2/4)
<b>AG016U Feed Rations</b>	<b>2-4</b>	Includes selection of ingredients, types of feeds, use of feed additives to formulate proper rations for different classes of livestock. (1-4/0-4)	<b>AG033U Grounds Equipment Management</b>	<b>4</b>	Provides skills in the development and operation of a maintenance system for grounds and equipment inventories. Bidding, purchasing, recordkeeping and inventory analysis are stressed. Field trips are taken to several area park systems. (2/4)
<b>AG017U Field Crop Production</b>	<b>1-6</b>	Develops and applies understandings and abilities in crop production covering management practices, plant growth factors, seed variety, tillage and harvesting practices. (0/2-12)	<b>AG034U Commercial Landscape Design</b>	<b>4</b>	Teaches skills in designing for industrial and institutional sites, churches, etc., including analysis of landscaping as a business and instruction on specifications, bidding and recordkeeping. Skills in customer interviewing are developed. (2/4)
<b>AG018U Wildlife Reserves</b>	<b>4</b>	Concentrates on proper wildlife management which necessitates carefully planned and maintained reserve areas. This course covers these management techniques, including plant material, cover material, location and isolation. (2/4)	<b>AG035U Commercial Plant Production</b>	<b>4</b>	Teaches production of plants for profit. Material presented
<b>AG022U Horse Nutrition</b>	<b>1-6</b>	Includes knowledge and understandings of types of feed			

includes growing techniques and scheduling, recordkeeping, and cost analysis for nursery and greenhouse businesses. (2/4)

**AG036U Fruit and Vegetable Production** 4  
Introduces the student to the production of midwestern fruits and vegetables and also provides much information on cultural practices, recommended varieties, storage, etc. Organic gardening is explored in depth. Demonstration gardens are utilized. (2/4)

**AG039U Plant Disease and Insects** 4  
Develops skills in identification and control of insects and diseases common to horticultural plant material. Special emphasis is devoted to symptom analysis. (2/4)

**AG042U Weed Identification** 2-4  
Includes material on identification, classification, and control of mid-western broadleaf and grassy weeds. Students learn to observe many individual plant characteristics as a means of identification. Much emphasis is placed on control. (1-4/0-4)

**AG044U Plant Materials I** 4  
Develops skills in the identification and cultural requirements of 100 varieties of deciduous trees and flowering shrubs common to our geographical area. (2/4)

**AG045U Plant Materials II** 4  
Studies the identification and cultural requirements of 35 evergreens, 40 deciduous ornamental trees and shrubs, vines and groundcovers. (2/4)

**AG046U Plant Materials III** 4  
Studies the identification and cultural requirements of 75 ornamental trees and shrubs including many of the exotics and named varieties. (2/4)

**AG047U Herbaceous Plant Material** 4  
Studies the identification of annual and perennial flowers and bulb plants. Cultural requirements are explained for all plants. (2/4)

**AG048U Plant Propagation** 4  
Covers methods of multiplication of plants by seed or vegetative cuttings, grafts, buddings. Students develop proper techniques in laboratory exercises. (2/4)

**AG050U Horse Enterprise, Fall** 1-6  
Includes grooming, feeding, stabling, exercising and daily husbandry problems occurring in the fall of the year and also working with a colt crop. (0-6/2-12)

**AG051U Horse Shows** 1-6  
Identifies and applies necessary requirements to prepare a horse for show and includes instruction in participation of setting up and conducting a horse show. (0-6/2-12)

**AG053U Soil Fertility** 4  
Provides a working knowledge of soils and fertilizers. This

course prepares a student for making proper amendments to an existing soil as a means of improving its productivity. (1-4/0-4)

**AG054U Horsemanship, Fall** 1-6  
Studies horse care before and after riding; initial seat position; elements of the seat; posting trot; aids; turns; leads off the cantor; equitation; and coordination of the aids. (0-6/2-12)

**AG057U Turfgrass Management** 4  
Considers the culture of turf with emphasis placed on soil, turf varieties and weed identification and control. (2/4)

**AG059U Special Projects (Natural Resources)** 1, 2, 3, 4, 6  
Offers self-planned project work in individual interest areas. (0-4/1-8)

**AG061U Ruminant Nutrition** 3-4  
Examines the anatomy and functions of ruminant digestive system along with discussions and demonstrations of feeding requirements and efficiencies of various classes of beef cattle. (1-4/0-4)

**AG062U Horticulture Equipment** 4  
Studies equipment needed to handle the multiple maintenance problems posed by widely different landscaped areas on campuses, golf courses, woodlands, paved areas, nursery proper, and in the tree service areas. (2/4)

**AG064U Beef Feed Lot Management** 2  
Analyzes, discusses and interprets specific beef finishing programs, nutrition, growth factors, health problems, economics of the beef finishing business. Students develop fundamental skills in handling and working with equipment and facilities in the beef finishing laboratory. (2/0)

**AG065U Beef Enterprise, Spring** 1-6  
Demonstrates and applies skills and relates through lecture various programs for marketing, development and husbandry of beef cattle and, in addition, demonstrates care of breeding stock through various stages of production. (0-6/2-12)

**AG071U Swine Enterprise, Fall** 1-6  
Studies breeding stock selection, fall farrowing and the preparation of facilities for winter production. Production records and early-life practices of small pigs are emphasized. (0-6/2-12)

**AG072U Swine Enterprise, Winter** 1-6  
Studies farrowing house, weaning and nursing management. Selection and breeding and records are stressed in the second half of the course. (0-6/2-12)

**AG073U Swine Enterprise, Spring** 1-6  
Studies life-cycle management practices and discusses

different breeding, farrowing schedules, and marketing practices used in swine production. Some applied laboratory work is involved. (0-6/2-12)

**AG075U Horse Enterprise, Winter** 1-6  
Includes grooming, feeding, stabling, exercising and daily husbandry problems occurring in the winter quarter. The course also includes some horsemanship. (0-6/2-12)

**AG078U Horse Health** 1-6  
Offers insight into physiology of the horse. Discussion of diseases and health problems, parasites, signs of good and bad health, digestive problems and diseases, as well as basic aid care. (0-6/2-12)

**AG079U Field Crop Planning** 1-6  
Designed to enable students to develop a corn and soybean management program. Included are units dealing with variety selection, seedbed preparation, fertilization, weed and insect control, diseases, and approved practices in raw crop production. (0-6/2-12)

**AG081U Dairy Production** 1-12  
Includes dairy selection, breeding, housing and equipment, nutrition, herd health and husbandry practices. This course is an elective; therefore, the class must be large enough to justify an instructor before offered. (1-6/1-6)

**AG094U Grain Marketing** 3, 4  
Develops skills and knowledge in marketing grain commodities with emphasis on pricing and services performed in the marketing system. (3, 4/0)

**AG103U Agricultural Finance** 2-4  
Identifies credit sources in agriculture where and how to secure credit, interest rates and repayment capacities for maximum farm income. (1-4/0-4)

**AG108U Shop Facilities and Equipment** 3  
Concentrates on the maintenance of physical plant and grounds of the farm equipment dealership in the areas of general carpentry, plumbing, electrical wiring and electric motors. (3/0)

**AG109U AG Power Unit Operation** 5-6  
Operating and maintaining various sizes of tractors, skid loaders, and single-unit and multiple-unit pickup trucks. Students may choose among twelve units, each carrying .50 credits. (0/1-12)

**AG112U Agribusiness Management** 2-4  
Involves participation in advertising and promotion, pricing of merchandise, figuring discounts and taxes, the setting up of an agricultural merchandise display and agribusiness filing systems, and simplifying work in an agriculture business. (1-4/0-4)

**AG114U Crop Enterprise, Fall** 1-6  
Studies and involves students in harvesting of corn. Prep-

aration of fall tillage and fall fertilizer application is also studied. Records are stressed. (0-6/2-12)

**AG115U Modern Corn Production** 2  
Studies and compares different types of tillage methods, seed varieties, fertilizer programs, diseases and chemical application used in modern corn production. (2/0)

**AG116U Crop Enterprise, Spring** 1-6  
Identifies and compares different tillage methods of establishing forage and oats. In addition, the course looks at seed variety, seed rates and depths of planting, inoculation of seed, and outlines steps in forage improvement and renovation of pastures. (0-6/2-12)

**AG148U Applied Livestock Husbandry** 1-6  
Employs competencies developed in supportive animal science courses in specialized laboratory skills and activities in the student's specific interest area. Laboratory competencies developed shall be pre-determined by student and instructor. The course may be repeated for credit with the instructor's consent. (0-6/2-12)

**AG150U Livestock Nutrition** 2-4  
Provides basic information needed by salesmen, herdsmen and farmers in meeting the feed requirements of livestock. It includes an understanding of biological principles and body processes of animals. (1-4/0-4)

**AG152U Land Use and Conservation** 2-4  
Studies conservation practices, such as terraces, contours and rotations in production agriculture. In addition, the course also studies soil types and their capacity to produce field crops. (1-3/2-4)

**AG179U Advanced Livestock Evaluation** 1-6  
Further develops students' potential in judging of livestock. Farm laboratory livestock and livestock farms will serve as a means for applying classroom knowledge. Students will also apply knowledge in various field trips to livestock exhibitions to judge and give reasons. The course may be repeated for credit with instructor's consent. Prereq: Animal Evaluation and Selection. (0-6/2-12)

**AG200U Animal Health Products** 2-4  
Concentrates on products used to control diseases and parasites in animals. This course deals with product recommendations, basic principles of disease prevention and control, and effect of weather and environment on disease and disease symptoms. (1-4/0-6)

**AG201U Horse Physiology** 1-6  
Discusses and identifies the conformation of the horse, the respiratory, digestive, nervous and circulatory systems plus skeletal and muscle structure. (0-6/2-12)

**AG202U Horse Enterprise, Spring** 1-6  
Includes grooming, feeding, personality, stabling, exercis-

ing, facilities and daily husbandry problems occurring in the spring of the year, and also includes show preparation. (0-6/2-12)

**AG203U Horsemanship, Winter 1-6**  
Continues Horsemanship, Fall, with emphasis placed on advance riding styles and techniques. (0-6/2-12)

**AG204U Horse Breeding 1-6**  
Covers the physiology of breeding, brood mare selection and care, and stallion management. Also breeding techniques, including artificial insemination. (0-6/2-12)

**AG205U Farmstead Planning 1-6**  
Includes the principles of farmstead planning and arrangement, particularly toward site selection, traffic and predominant selection factors. Emphasis will be placed on distance from water and other services. (0-6/2-12)

**AG206U Greenhouse Practices 4**  
Covers the design and operation of greenhouse structures, heating, cooling and watering systems. Equipment utilized in pesticide applications is also discussed. (2/4)

**AG208U Animal Science Management, Fall 1-6**  
Provides the "whys" of decision-making in farm management, financial, cash flow, budgeting analysis of lab enterprises as well as studies in genetics, nutrition and livestock production. (0-6/2-12)

**AG210U Horse Training 1-6**  
Provides instructions for obtaining the abilities and skills of training various breeds and types of horses. (0-6/2-12)

**AG211U Horse Judging 1-6**  
Provides instruction in judging various breeds and qualities of horses. Students will apply instruction by judging in competition and giving reasons. (0-6/2-12)

**AG212U Stable Management, Fall 1-6**  
Designed to provide understandings and abilities in the organization, business aspects, and operation of horse stables. Areas of study include records, care and health of horses in the management of stables. (0-6/2-12)

**AG213U Animal Science Management, Winter 1-6**  
Provides the "whys" of decision-making in animal health, genetics, facilities and equipment, and records management. (0-6/2-12)

**AG214U Agricultural Supply Management 2-4**  
Analyzes decision-making in product merchandising and purchasing, machinery costs, crop planning and various tillage methods. (1-4/0-4)

**AG215U Machinery Economics 2-4**  
Studies the economics relating to size, efficiency, maintenance, and use of farm power and machinery. Includes discussion of renting, leasing and/or purchasing equipment. (1-4/0-4)

**AG216U Stable Management, Winter 1-6**  
Continues Stable Management, Fall, with emphasis on facilities, equipment, records and money management. (0-6/2-12)

**AG218U Special Projects: Agronomy 1-6**  
Is designed as a planned individual instruction course where the student and instructor agree upon the project. Upon completion, the project is evaluated by instructor. (0-6/2-12)

**AG219U Special Projects: Animal Science 1-6**  
Is designed as a planned individual instruction course where the student and instructor agree upon the project. Upon completion, the project is evaluated by an instructor. (0-6/2-12)

**AG220U Special Projects: Horse Science 1-6**  
Is designed as a self-planned individual instruction course designed for student work in the area of horse science under the evaluation of an instructor. (0-6/2-12)

**AG221U Special Projects: Agribusiness 1-9**  
Is designed as a self planned individual instruction course designed for student work in the area of agribusiness. (0-9/2-18)

**AG222U Special Projects: Horticulture 1, 3, 4, 6**  
Is individualized study courses jointly planned by staff and student in areas of special interest. Research, lab experimentation or demonstration and other learning techniques can be involved. (0/2, 6, 8, 12)

**AG223U Hoof Care 1-6**  
Provides instruction around the care and condition of horses' legs and hoofs. (0-6/2-12)

**AG225U Animal Science Management, Spring 1-6**  
Provides the basis of decision-making in marketing, budgeting, and selecting breeding stock and breeding stock management. (0-6/2-12)

**AG227U Stable Management, Spring 1-6**  
Continues Stable Management, Winter, with emphasis on specialized areas of stable management, types of stables, specialized stations, and care and health of breeding stock. (0-6/2-12)

**AG228U Specialized Horse Training 1-6**  
Provides in-depth instruction in the specialized training of various breeds and types of horses. (0-6/2-12)

**AG229U Horsemanship, Spring 1-6**  
Continues Horsemanship, Winter, with emphasis placed on advanced riding styles. Basic principles and fundamentals in schooling a horse over preliminary jumps. (0-6/2-12)

**AG230U Animal Evaluation and Selection 3**  
Develops students' skills in livestock selection. The farm laboratory's livestock and various field trips to livestock

farms will serve as a means of applying the classroom knowledge. Some carcass evaluation will be included. (2/2)

**AG232U Swine Health 1-6**  
Studies the causes and prevention of swine diseases of economic importance in Iowa, swine anatomy and physiology. In addition it develops a swine herd health management calendar, management of purchased animals, control of external and internal parasites, veterinarian relations, and swine and animal health laws and regulations. (0-6/2-12)

**AG234U Small Animal Psychology 1-6**  
Studies dog and cat's nervous mechanism, including dog and cat senses, reflexes and conditioned reflexes, instincts, needs, drives, hormones, and their effect on behavior. The course also studies how small animals learn and how to condition small animals for training. (0-6/2-12)

**AG235U Small Animal Health 1-6**  
Includes state and federal laws regarding dogs and cats; anatomy and physiology; causes and preventions of common dog and cat diseases; veterinarian relationships; and determination of pulse, respiration, and temperature. (0-6/2-12)

**AG236U Kennel Management 1-6**  
Small animal observation techniques, nutrition, grooming and conditioning are areas of study, and also covers vocabulary of small animal health terms and budgeting and records. (0-6/2-12)

**AG237U Special Projects-Animal Health 1, 2, 3, 4, 5, 6, 9**  
Is designed as a self-planned individual instruction course for student work in the area of animal health. (0/2-18)

**AG238U Cattle Health 1-6**  
Studies the causes and prevention of cattle diseases of economic importance in Iowa, cattle anatomy and physiology, the development of a feedlot cattle and beef cow herd health management calendar, the control of external and internal parasites, skills in how to work with a veterinarian and a knowledge of cattle health laws and regulations. (0-6/2-12)

**AG239U Horse Industry Problems 1-12**  
Is a supervised, independent study course. The student, in consultation with the instructor, designs the horse industry competencies to be learned. Students generally attain these competencies off-campus in various horse industry businesses. Prereq: Horse Husbandry classes first year. (0/2-36)

**AG247U Horse Feed Rations 1-6**  
Includes selection of ingredients, types of feed, use of feed

additives to formulate proper rations for different classes of horses. (0-6/2-12)

**AG249U Beef and Dairy Cattle Artificial Insemination 2**  
Develops skills of artificial insemination, heat detection and supportive background knowledge for beef and dairy herds, and discusses recommended nutrition, management and genetics. (1/2)

**AG250U Beef Cow Management 2**  
Analyzes, discusses and interprets specific beef cow programs and studies nutrition, cattle breeding and beef cow economics. Students develop fundamental skills in handling and working with equipment and facilities in beef cow lab operations. (2/0)

**AG251U Modern Soybean Production 2**  
Studies and compares different types of tillage methods, seed varieties, fertilizer programs, diseases and chemical application as well as weed control and new harvest methods used in modern soybean production. (2/0)

**AG252U Plant Material Maintenance 4**  
Studies the pruning, spraying, fertilizing and performing related maintenance practices for trees and shrubs. (2/4)

**AG254U Grounds Management Problems 4**  
Analyzes grounds maintenance needs and teaches the development of management programs for recreational and commercial grounds. The campus laboratory is utilized as a study project. (2/4)

**AG263U AG Career Orientation 1**  
Assembles all first-year Agribusiness and Natural Resources Department students together for the purpose of further understanding their present career choice and/or perhaps pending career choices. Most career information presented is interrelated with Kirkwood Community College. (1/0)

**AG265U Specialized Dog Training 1-6**  
Applies techniques in training dogs for open, utility and hunting classes for judged shows. (0-6/2-12)

**AG266U Agriculture Leadership 1-2-3**  
Develops skills in using parliamentary procedure, business meeting agendas, techniques of delegation, communications module, organizational structure and listening skills. Determining cooperative activities, organizational funding, committee functions and leading discussion groups. (1-2-3/0)

**AG267U Beef Diseases Seminar 1-3**  
Relates causes and prevention of cattle diseases which are of economic importance in Iowa, as well as currently important cattle and sheep diseases and describes current state and federal health regulations. (1-3/0)

**AG268U Interior Plants** 1-4  
Identifies commonly grown houseplants and learns their cultural requirements for light, soil and water. The student learns insect and disease problems and relevant propagation techniques for houseplants. (1-4/0)

**AG269U Greenhouse Production** 1-4  
Investigates the growing of bedding and potted plants in the greenhouse environment. Economic considerations, space utilization and marketing patterns are analyzed. Production practices receive a heavy emphasis. (1-4/0)

**AG271U Swine Diseases Seminar** 1-3  
Relates causes and prevention of swine diseases which are of economic importance in Iowa and swine diseases of current importance. Current state and federal health regulations are also covered. This course is generally taught by a veterinarian. (0-3/0)

**AG272U Horse Breeds** 1-4  
Reviews horse breeds and their uses. Relates brood mare selection, stallion management and breeding techniques. (1-4/0)

**AG273U Rural Water Systems** 1-4  
Relates types of well and pressure pumps, plumbing plastic, copper and other fittings and situations where they are used. Reviews water system principles and economics. (1-3/0-2)

**AG274U Horticulture Pesticide Application** 1-4  
Utilizes herbicides, insecticides and fungicides to prevent and/or correct problems associated with plant material growth. Information applicable to state certification is emphasized. (1-4/0)

**AG275U Cooling and Ventilation of Rural Buildings** 1-4  
Identifies cooling and ventilation principles and applies them to decision making in building construction. Livestock confinement buildings are stressed. (1-4/0)

**AG276U Residential Planting Design** 1-4  
Utilizes native and ornamental trees and shrubs in the landscape planting. Students will practice basic drawing and design principles in preparation of design projects. (1-4/0)

**AG277U Native Trees and Shrubs** 1-4  
Focuses on identifying and learning the cultural requirements of plant material considered native to Iowa. Students will analyze trees and shrubs in their natural environment. (1-4/0)

**AG278U Ornamental Trees and Shrubs** 1-4  
Focuses on identifying and learning the cultural needs of woody plant material commonly used in landscape plant-

ings. Emphasis is placed on plant materials not considered native to Iowa. (1-4/0)

**AG279U Rural Facilities Maintenance** 1-4  
Compares principles and economics of farm and farm supply building construction. Emphasis on planning and maintenance. (1-4/0)

**AG280U Horse Diseases Seminar** 1-2  
Relates causes and prevention of horse diseases which are of economic importance in Iowa and currently important horse diseases. Current state and federal health regulations are described. This course is generally taught by a veterinarian. (0-3/0)

**AG012V Plant Identification and Care I** 2  
Teaches identification and cultural requirements of flowering plants commonly sold for Christmas and winter, plus the identification and cultural requirements of green plants all sold in the retail florist business. (2/0)

**AG013V Plant Identification and Care II** 2  
Teaches identification and cultural requirements of flowering and bedding plants commonly sold for spring and summer in the retail flower shop, plus a continuation of the identification and cultural requirements of green plants. (4/0)

**AG014V Plant Growth** 3  
Studies the environmental factors of light, light intensity, temperature, moisture and aeration needed to produce bud setting and optimum growth. Explores the practical use of sexual and vegetative propagation, and also studies bulb and root growth, sterilization, growth chemicals, and bedding plants and their sales in the retail business. (4/2)

## AM: ADMINISTRATION AND MANAGEMENT

### COLLEGE TRANSFER COURSES

**AM001T Agriculture Finance** 3  
Reflects the rapid growth of the off-farm agribusiness sectors, emphasizes general principles associated with the evaluation of management and the use of capital. An understanding of agricultural finance should help the banker in satisfying the credit needs of modern agriculture. (3/0)

**AM002T Principles of Finance** 3  
Includes basic methods and principles concerning such topics as financing, working capital and fixed capital needs, stocks and bonds, the marketing of securities and the operation of financial institutions. (3/0) Recommended: Principles of Accounting III.



- AM003T Business Internship** 1-12  
Provides an opportunity to receive practical experience through on-the-job training in an approved business establishment. Valuable learning experiences are structured by the program coordinator and the training sponsor. (0/3-36)
- AM005T Principles of Management** 4  
Covers basic concepts, behavior, practices and principles applied to the functions of planning, organizing and controlling the business enterprise. The course will include readings of leading management theorists. Prereq: Sophomore standing. (4/0)
- AM025T Independent Study in Business** 1-4  
Is taken concurrently with a standard course in the student's area of specialty. Special projects and/or individual readings are assigned by the program coordinator or an individual staff member. Projects must be approved before the beginning of the quarter in which the work is to be done. Prereq: Consent of instructor and department head before registering. (1-4/0)
- AM029T Bank Management** 3  
Presents new trends which have emerged in the philosophy and practice of management. The study and application of the principles outlined provide new and experienced bankers with a working knowledge of bank management. (3/0)
- AM030T Installment Credit** 3  
Presents the techniques of installment lending. Emphasis is placed on establishing the credit, obtaining and checking information, servicing the loan, and collecting the amounts due. Each phase of a bank's installment credit operation is carefully scrutinized. Other topics discussed are inventory financing, special loan programs, business development and advertising, and the public relations aspect of installment lending. (3/0)
- AM031T Supervision and Personnel Administration** 3  
Is designed to enable students to understand human relations at the management level and the methods of getting things done through people. Basic principles and current practices of personnel administration are studied. (3/0)
- AM032T Introduction to Business** 4  
Surveys American business and the environment in which it operates a study of the economic, social, and political influences, and business organization functions and responsibilities. (4/0)
- AM034T Interstate Commerce Law and Practice I** 3  
Prepares the student for the Interstate Commerce Commission's examination to practice, or the Number 4 examination of the American Society of Traffic and Transportation in: a) basic concepts, b) structure of the act, c) operating authority, and d) exemptions. (3/0)
- AM035T Interstate Commerce Law and Practice II** 3  
Prepares the student for the Interstate Commerce Commission's examination to practice, or the Number 4 examination of the American Society of Traffic and Transportation in: a) causes of action, b) civil liability, c) statute of limitations, d) the I.C.C., e) statutory provisions, f) economics, and g) tariff interpretations. (3/0) Prereq: Interstate Commerce Law & Practice I.
- AM036T Interstate Commerce Law and Practice III** 3  
Prepares the student for the Interstate Commerce Commission's examination to practice, or the Number 4 examination of the American Society of Traffic and Transportation in: a) leading cases, b) rules of evidence, c) code of ethics, d) rules of practice, e) drafting the complaint, and f) judicial review. (3/0) Prereq: Interstate Commerce Law II.
- AM045T Human Behavior in Organizations** 3  
Explores problems of human behavior in organizations through lab exercises, cases and readings. Human relations problems and relationships with peers, subordinates, and supervisors and the dynamics of effective group interaction are discussed. Theories of contemporary behavioral scientists and industrial psychologists are reviewed. (3/0)
- AM052T Introduction to Management** 2  
Explains the evolutionary development of management styles and philosophies. Studies will be made of the various authors of influential management techniques. Included, also, will be an examination of societal attitudes and their effect on the management process. (2/0)
- AM077T Organizational Behavior** 3  
Examines groups in relation to organizational effectiveness. Focuses on factors that improve work group functioning. (3/0)
- AM078T Management Communications** 3  
Based on a unified communications concept and built around the technical principles common to oral, written and visual communications. Includes aspects of listening, interviewing, writing, reading, speaking and briefing techniques. (3/0)
- AM079T Techniques of Supervision** 2  
Emphasizes the managerial directing function. Necessary supervisory qualities are examined along with duties and responsibilities. Emphasis on maximization of worker potential and application to achievement of individual and organizational goals. (2/0)

**AM080T Bank Investments** 3  
Analyzes the nature of primary reserves and loanable funds and how their uses are determined. (3/0)

**AM081T Personal Finance** 3  
Approaches the financial problems of families. Explores decision making relative to acquiring and allocating income. Focuses on management of consumer credit, savings and investment, insurance, home ownership and estate planning. (3/0)

**AM082T Law and Banking** 3  
Introduces basic American law, presenting the rules of law which underlie banking. Topics include jurisprudence, the court system and civil procedure, contracts, quasi-contracts, property, torts and crime, agencies, partnerships, corporations, sales of personal property, commercial paper, bank deposits and collections, documents of title, and secured transactions. Emphasis is on the Uniform Commercial Code. (3/0)

**AM083T Elements of Farm Management** 3  
Applies farm accounts, economic principles and budgeting to the organization and management of a farm business including risk and uncertainty, precautions and adjustments, size of business, capital acquisition and control, as well as crop, livestock, machinery and labor management considerations. (3/0)

**AM084T Bank Cards** 3  
Presents an overview of the bank card industry with the dual objectives of helping the student understand the role of the bank card in the economy as well as the basic operational problems involved in the successful management of a bank card plan. This course also discusses the evolution of credit cards into electronic funds transfer, legal developments affecting credit cards, and the regulatory environment. (3/0)

**\*AM086T Business and Society** 4  
Examines the role of business as world society's institution for creating the goods and services which fulfill society's needs. It examines at length the two major inducement systems of business formation and operation; *i.e.*, government systems and profit systems. Students taking the course will get involved in political, cultural and economic variables of world societies as these variables are related to the function of business in creating goods and services. (4/0)

#### VOCATIONAL-TECHNICAL COURSES

**AM001U Merchandise Analysis and Control** 3  
Deals with techniques and procedures of determining profits, pricing of goods, inventories and merchandise control. Some of the problems faced by merchandisers are

presented, analyzed and solved. Prereq: Basic Mathematics. (3/0)

**AM003U Business Practices** 2-3  
Includes basic bookkeeping, purchasing, inventory records, employee-employer relations, advertising and customer relations. (2-3/0)

**AM004U Agriculture Foremanship** 2-3-4  
Is designed to provide students with the opportunity to study and apply skills of supervision and personnel management in agribusiness. Projects will be developed according to the students' enterprise. Management techniques will be stressed. (1-4/0-4)

**AM005U Checkout Management** 3  
Teaches proper cash register operation and checkout procedures for the modern supermarket. Emphasis is placed on checker training, supervision, and control of the checkout function. (3/0)

**AM006U Credit Procedures** 3  
Presents economic and sociological aspects of credit from a managerial viewpoint, the nature of credit, credit instruments, the role of credit in our economy, management of the credit and collection function. (3/0)

**AM012U Food Store Management** 5  
Offers a comprehensive study of problem areas encountered in food marketing management. Policies and procedures in retail and wholesale food distribution are considered, and decision making or problem solving are explored through the use of case problem situations. (5/0)

**AM013U Implement Business Procedures** 3  
Studies profit sources of a farm implement dealership and the business procedures which contribute to developing maximum profit from each source. (2-3/0-3)

**AM019U Office Management** 4  
Examines in detail the following aspects of office management: the impact of automation; organizing and planning office work; controlling people, forms, and machines that do the work; and creating proper human relations. (4/0)

**AM020U Retail Management** 4  
Studies managerial principles as they apply to retailing and analyzes the functions of planning, organizing and controlling in relationship to managerial policy and human relations. Decision-making skills are developed. (4/0) Prereq: Sophomore standing.

**AM022U Principles of Supervision** 3  
Covers the development of supervision as a managerial directing function. Necessary skills and personal traits are explored. The proper motivation and cooperation attitudes, as they pertain to both individual and groups, are

discussed. How company goals are best achieved by coordinating the requirements and needs of employees and management also is examined. (3/0)

**AM023U Management and Medical Ethics 3**  
Provides an introduction to supervisory techniques, interviewing for jobs, budgeting, services, methods for making change, job descriptions, defining roles and organization. Includes ethical practices, relationship between ethics and law, legal processes, malpractice, PSRO's and liability. (3/0)

**AM025U Agribusiness Practices 3-4**  
Distinguishes job requirements, business organization, personnel policy and product knowledge techniques in the agriculture supply industry. Insurance also is covered. Field trips are a large part of this course. (2-4/0-4)

**AM029U Wage and Salary Administration 3**  
Is designed to provide a rational approach to the various elements of a compensation program: job description, job evaluations, salary surveys and administration policies. (2/0)

**AM030U Sales Management 2**  
Includes a discussion of sales organizations, policies for sales, merchandising and distribution, layout of territories, and selection and training of a sales force. (2/0)

**AM031U Management Information Systems 3**  
Covers nature of systems, parameters for the business system, measurement problems, information theory, models for management, decision making and control of systems. (2/0) Prereq: AM052T

**AM032U Introduction to Quality Control 2**  
Introduces the techniques and principles of statistical quality control within industry. Various techniques of sampling will be utilized. Charting and graphing for observer results will be accomplished. (2/0)

**AM033U Dental Office Management I 2**  
Provides instruction for the student relative to dental business office management, traffic flow in office design, appointment control, office policies, job interviews, ethical conduct and proper terminology used in office procedures. (3/0)

**AM034U Dental Office Management II 3**  
Provides instruction for the student relative to dental business office management, handling mail, supplies, invoices, filing and storage, case management, financial arrangements and taxes. (3/0)

**AM035U Industrial Engineering 2**  
Considers management uses of industrial engineering techniques to plan, control and evaluate manufacturing projects. Also covers appropriation control, scheduling

networks and economic lot sizes. (2/0)

**AM036U Traffic and Transportation Management I 3**  
Examines the history of transportation. Provides an introduction to classification of freight and the principles of freight rates and tariffs. (3/0)

**AM037U Traffic Transportation Management II 3**  
Covers shipping documents and their applications, freight claims, tariff circulars, construction and filing of tariffs. Also introduces freight rates and tariffs in practical application. (3/0)

**AM038U Traffic Transportation Management III 3**  
Continues study in freight rates and tariffs, terminal facilities and switching, demurrage, reconsignment, stop-off, transit, routing, warehousing and distribution, materials handling and packaging. (3/0)

**AM039U Traffic Transportation Management IV 3**  
Covers rates, import-export rates and procedures, further in-depth study of rates and routes, milling-in-transit, loss and damage, overcharges and undercharges. (3/0)

**AM040U Traffic Transportation Management V 3**  
Reviews classification and rate committee procedures, tariff and rate interpretations and provides an introduction to the Interstate Commerce Act. (3/0)

**AM041U Traffic Transportation Management VI 3**  
Studies the Interstate Commerce Act and other acts pertaining to transportation, plus a study of the rules of practice before the Interstate Commerce Commission. (3/0)

**AM042U Management Tools for Decision Making 2**  
Designed as a discussion of management decision making tools. Topics will include such areas as use of breakeven analysis, statistics, PERT and others. (2/0)

**AM044U Work Simplification 2**  
Designed for everyone in business, industry and education interested in the philosophy of work simplification. (2/0)

**AM047U Human Resources Management 4**  
Includes managerial philosophy of personnel administration, emphasizing study of personnel techniques of recruiting, interviewing, selecting, placement, training and evaluating. (4/0)

**AM048U General Inventory and Production Control 3**  
Designed to present the basic concepts and techniques of

production planning and inventory control. The course stresses the influence which all usual departments within an industrial organization have upon the production planning and control function. (3/0)

**AM049U Labor and Management Relations** 2  
Designed to expose participants to an objective view of how labor "feels" and how management "views" each other within total institutional objectives. (2/0)

**AM050U Management by Objectives** 2  
Concentrates on developmental perspectives as a managerial philosophy with emphasis on MBO's expanding use and popularity. Included are the "how to" aspects of developing a MBO philosophy and subsequently measuring the success of such effort. Institutional objectives. (2/0)

**AM051U OSHA: An Understanding** 2  
Is designed to familiarize management personnel with the rules and regulations of the Williams-Stuger Occupational Safety and Health Act. This course is an introduction of OSHA with a review of general implications of the law. It does not emphasize industrial or construction standards specifically. (2/0)

**AM052U Dining Room Management I** 5  
Provides experiences in mid-management supervisory skills. Emphasizes development and implementation of production schedules, employee training, menu planning, ordering of supplies, production assignments and meal costing. (1/8)

**AM053U Dining Room Management II** 5  
Continues experiences in mid-management supervision skills. Emphasizes meal service types of table service, waiter/waitress training, order taking, customer relations and guest checks. Students compute daily "sales and income" and, in cooperation with the kitchen production report, determine profit/loss. (1/8)

**AM054U Public Administration Management** 3  
Is designed to give the student a basic understanding of principles and concepts underlying the generic field of public administration in federal, state and local government; line-staff, span of control responsibility, accountability. (3/0)

**AM055U Current Topics in Management** 1-2  
Is designed for discussion and review of contemporary issues in the changing field of management. Course may be repeated for a maximum of four credit hours. A short-term course. (1-2/0)

**AM057U Transactional Analysis for Managers/Supervisors** 2  
Is a course in practical transactional analysis for managers

and supervisors. Emphasis is on the development of skills to facilitate working with people and getting them to work together with greater effectiveness in a variety of organizational settings. (2/0)

**AM058U Effective Work Behavior** 2  
Raises the level of personal efficiency in a work environment by reviewing the personal, social and institutional relationships which exist. The skills and information presented are primarily for the benefit of the individual, and secondarily for the benefit of the employer. (2/0)

**AM059U Parts Room Management** 1-8  
Practices purchasing, invoicing, transporting, billing, inventorying, storing, displaying and advertising as they relate to an Ag Supply Parts Department, as well as records and record-keeping systems and sales. (1-8/2-10)

**AM005V Retail Flower Shop Operation I** 5  
Introduces the florist business and efficient shop layout. Studies expediting floral orders, purchasing and pricing, and selling floral products, including use of a cash register. (5/0)

**AM006V Retail Flower Shop Operation II** 3  
Studies the floral business: etiquette and sales of all types of floral products (except wedding flowers), credit and collections, and floral terminology. 7 weeks. Prereq: AM005V (5/0)

**AM007V Retail Flower Shop Operation III** 3  
Studies the floral business, holiday sales, diversification, floral shop sales, finding and holding a job, and floriculture terminology. 7 weeks. Prereq: AM006V (5/0)

**AM008V Retail Flower Shop Operation IV** 4  
Studies the floral business: etiquette and sales of wedding flowers, business records and cost analysis, shop management and policies. Prereq: AM007V (4/0)

## AT: ART

### COLLEGE TRANSFER COURSES

**AT001T Art Appreciation** 4  
Provides an overview of art from a historical, contemporary and aesthetic frame of reference. Recommended for non-art majors. (3/2)

**AT002T Art History: Pre-fifteenth Century** 3  
Studies architecture, sculpture and painting from pre-history to Rome. (3/0)

**AT003T Art History: Fifteenth Century to Nineteenth Century** 3  
Studies architecture, sculpture and painting from the medieval period through the eighteenth century. (3/0)

**AT004T Art History: Twentieth Century** 3  
Studies architecture, sculpture and painting in the nineteenth and twentieth centuries. (3/0)

**AT005T Fundamentals of Ceramics I** 2  
Introduces high-fire, hard-built and wheel-thrown pottery, and fundamental glaze and clay experimentation. (0/4)

**AT006T Fundamentals of Ceramics II** 2  
Continues Ceramics I. (0/4) Prereq: AT005T or permission of instructor.

**AT007T Fundamentals of Ceramics III** 2  
Continues Ceramics I and II with emphasis on form, throwing, and advanced glaze techniques. (0/4) Prereq: AT006T or permission of instructor.

**AT008T Fundamentals of Design I** 2  
Introduces basic design concepts utilizing contemporary concepts of the visual experience. (0/4)

**AT009T Fundamentals of Design II** 2  
Continues Design I. Explores problems of design form and structure. (0/4) Prereq: AT008T or permission of instructor.

**AT010T Fundamentals of Design III** 2  
Continues Design I and II with emphasis on the third dimension, motion and space. (0/4) Prereq: AT009T or permission of instructor.

**AT011T Fundamentals of Drawing I** 2  
Practices basic elements of perspective drawing, analytical drawing and figure drawing. (0/4)

**AT012T Fundamentals of Drawing II** 2  
Continues Drawing I. Analysis of subject matter and accurate descriptive visual drawing. (0/4) Prereq: AT011T or permission of instructor.

**AT013T Fundamentals of Drawing III** 2  
Emphasis is placed on the figure, using the various media of drawing. (0/4) Prereq: AT012T or permission of instructor.

**AT014T Fundamentals of Lettering** 2  
Studies basic letter forms and the use of reed pens, problems in page design, and manuscript writing. (0/4)

**AT015T Fundamentals of Painting I** 2  
Introduces oil painting. (0/4)

**AT016T Fundamentals of Painting II** 2  
Continues Painting I. Includes oil and various water color methods. (0/4) Prereq: AT015T or permission of instructor.

**AT017T Fundamentals of Painting III** 2  
Continues Painting I and II with emphasis on composition and color. (0/4) Prereq: AT016T or permission of instructor.

**AT018T Creative Photography I** 2  
Studies photography as an art form including the theory of photography with an introduction to contemporary pho-

tography methods. The student must provide his or her own camera. (0/4)

**AT019T Creative Photography II** 2  
Continues Creative Photography I. (0/4)

**AT020T Creative Photography III** 2  
Continues Creative Photography II. (0/4)

**AT021T Fundamentals of Printmaking I** 2  
Introduces wood cut, engraving, dry point and silk screen techniques in contemporary and traditional methods of art reproduction. (0/4)

**AT022T Fundamentals of Printmaking II** 2  
Introduces basic methods of Intaglio printing and etching. (0/4) Prereq: AT021T or permission of instructor.

**AT023T Fundamentals of Printmaking III** 2  
Continues Fundamentals of Prints and Composition I and II with emphasis on advanced composition and technical methods. (0/4) Prereq: AT022T.

**AT024T Fundamentals of Sculpture I** 2  
Introduces carving, modeling and casting. (0/4)

**AT025T Fundamentals of Sculpture II** 2  
Continues Sculpture I with emphasis on welding and combining media in the sculpture area. Explores form and color as they relate to sculpture. (0/4) Prereq: AT024T or permission of instructor.

**AT026T Fundamentals of Sculpture III** 2  
Emphasizes advanced techniques and form with a concern for applying construction methods in a major sculpture project. (0/4) Prereq: AT025T.

#### VOCATIONAL-TECHNICAL COURSES

**AT001U Fashion Art** 3  
Develops sketching skill for quick illustrative purposes through a study of body proportion, design presentation, rendering techniques, motion studies and principles of illustration. Student assignments include independent projects, development of fashion training aids, newspaper illustrations and seminar presentations. (3/0)

**AT002U Decorative Accessories** 2  
Is an analysis of the selling points, and use and coordination of accessories in the home. Knowledge is developed in artwork, flowers, table arrangements, porcelain and ceramics, and lighting and lighting theory. (2/0)

**AT003U Survey of Interiors I** 3  
Surveys the development of architecture, ornament, decorative arts, interiors and furniture styles from prehistoric times to the 1800s. Projects require students to create their interpretations of a traditional interior through use of furniture, accessory selection and a color materials board. (3/0)

**AT004U Fashion Analysis and Coordination** 2  
Studies the elements of art and visual perception for application of design to merchandising and the aesthetic application of selection and coordination of clothing and accessories. (2/0)

**AT006U Survey of Interiors II** 2  
Continues Survey I to provide a study of the period from 1800 through the twentieth century. (2/0) Prereq: Survey of Interiors I.

**AT007U Design Relationships** 2  
Covers the basic fundamentals of interior design. A study of the principles and elements of design and visual perception and their relationship and application to home furnishings. (2/0)

**AT008U Color in Interiors** 2  
Is a study of the principles and psychology of color and their application to designing environments. Includes a study of the characteristics of paints and pigments for residential decorating. Includes lab projects in color planning, coordination and execution, oriented to sales and customer decorating services. (2/0) Prereq: AT003U, AT006U, AT004U.

**AT009U Interior Plant Design** 1-4  
Is a course in developing plant material designs for small containers such as terrariums and dish gardens as well as major installations in atriums and other indoor gardens. (1-4/0)

**AT001V Floral Designing I** 5  
Introduces basic floral design principles and rules. Studies geometric design of bouquets, corsages, Christmas arrangements, memorial flowers and potted plants. Studies the care of cut flowers and foliage, use of tools and supplies, identification of flowers and foliage, and pricing and expediting of a floral gift. (1/9)

**AT002V Floral Designing II** 2  
Studies floral designing and geometric forms including cut flowers, corsages, funeral and memorial flowers, plastic arrangements, potted plant decoration, cost pricing and expediting of floral gifts. Prereq: Floral Designing I. (7 weeks) (0/7.5)

**AT003V Floral Designing III** 2  
Studies floral designing of geometric forms including cut flowers, funeral and memorial flowers, and basic wedding design. Prereq: Floral Designing II. (7 weeks) (0/7.5)

**AT004V Floral Designing IV** 1.25  
Studies geometric forms of wedding designs using dried grasses, silk, foliage and cut flowers including cut flower and corsage designing. Identification of flowers and foliage in season. (0/6) Prereq: AT003V.

**AT008V Floral Design Special Projects** 1  
Studies the planning, pricing and designing of special design projects. (0/5) Prereq: AT003V.

## BY: BIOLOGICAL SCIENCE

### COLLEGE TRANSFER COURSES

**BY019T General Botany I** 4  
Studies the general anatomy and physiological processes of plants. Initial studies are of plant cells which is followed by a study of the vegetative organs and, finally, the reproductive organs. Such physiological processes as photosynthesis, transpiration, absorption, conduction, respiration, pollination, and fertilization accompany the anatomical studies. Prereq: BY030T. (3/2)

**BY020T General Botany II** 4  
Is a continuation of General Botany I. The emphasis, however, is on the various taxonomic groups of plants beginning with those subcellular particles and progressing through the seed bearing plants. Morphologic characteristics, life cycles, and methods of reproduction are among the topics studied for each group. Field trips are conducted during the study of the gymnosperms and angiosperms. Prereq: BY019T (3/2)

**BY030T Principles of Biology** 4  
Stresses the organization of plant and animal life at the molecular and cellular level: microscopic techniques, origin of life, cellular structure and function, plant and animal development, and genetics. (3/3)

**BY031T Biology of Organisms** 4  
Emphasizes animal structure and function. Covers dissection of two representative vertebrates (the frog and fetal pig). Includes a study of the osmoregulatory, transport, digestive, skeletal, muscular, nervous, endocrine and reproductive systems, as well as the evolutionary significance of each. Prereq: BY030T or departmental approval. (3/3)

**BY032T Environmental Biology** 4  
Emphasizes living systems and their environmental interactions. Includes a study of basic ecological concepts, energy, nutrient and mineral cycling, animal behavior, and population and community ecology. Includes several field trips to terrestrial and aquatic habitats and a specialized applied ecological project. Prereq: BY030T, BY031T or one quarter of Man and the Environment and departmental approval. (3/3)

**Audio-tutorial Lab for Principles, Organisms, and Environmental Biology**

Uses audio-tutorial approach. The student meets in a lecture session one hour per week, in a clarification seminar two hours per week and in a scheduled lab three hours per week—the third hour of which is optional. Emphasis in the courses is on the lab. Single-concept films, demonstrations, and individual experimentation are integrated with taped information to provide an opportunity for the student to approach the subject matter at his own pace. Instructions are always available in the laboratory, and student-instructor discussions are encouraged.

**BY033T Independent Study in Biology** 1  
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairman is required before registering. (Hours arranged.)

**BY034T Invertebrate Zoology I** 4  
Surveys the classification, diversity, morphology, physiology, development, behavior, ecology and evolutionary relationships of the major invertebrate phyla. Emphasis will be on living forms, both freshwater and marine. Field work will stress adaptations and ecological relationships. Prereq: BY030T, (BY031T may be taken concurrently) or consent of instructor. (3/2)

**BY035T Invertebrate Zoology II** 4  
A continuation of Invertebrate Zoology I. Groups covered will include the mollusks, annelida, arthropoda, echinodermata, in addition to numerous minor phyla. Laboratory work will stress both morphology and physiology, in addition to ecological distribution. Prereq: BY034T (3/2)

**BY036T Vertebrate Zoology I** 4  
Introduces the principles of vertebrate zoology, emphasizing such topics as vertebrate morphology; taxonomy and systematics; evolution, phlogenetic relationships and diversity. Fishes, amphibians and reptiles are covered. Laboratory work supplements the lectures. Prereq: BY030T, (BY031T may be taken concurrently) or consent of instructor. (3/2)

**BY037T Vertebrate Zoology II** 4  
A continuation of Vertebrate Zoology I with emphasis on birds and mammals. In addition, ecological relationships and population dynamics also are stressed. Field trips as well as in-lab experiences supplement the material in this course. Prereq: BY036T (3/2)

**BY039T Human Anatomy and Physiology I** 4  
Designed primarily for the medically oriented student in health occupations and prospective majors in pharmacy,

medical technology, baccalaureate degree nursing, zoology and other natural science fields. Integrates the study of mammalian anatomy and physiology with emphasis on structure and function of the human body. Gross and microscopic aspects of the interdependency of the functional body systems are stressed. Includes the study of the body as a whole, its organization and appearance of the cells and tissues as basic structural-physiological units. Emphasis will begin with a study of basic body structure, in addition to a concentrated study of body fluids, blood, R-E systems, and the endocrine system with applications to homeostasis. Lab work is based on current topics of study. (3/3)

**BY040T Human Anatomy and Physiology II** 4  
Further studies of the structure and function of systems such as nervous, skeletal, muscular and cardiovascular are continued. Laboratories are designed to show basic phenomena such as cardiology, muscle response and acid-base balance as well as dissection to integrate overall structure. Prereq: BY039T (3/3)

**BY041T Human Anatomy and Physiology III** 4  
Studies of the structure and function of systems such as respiratory, digestive, excretory and reproductive are continued. Laboratory work is based on current topics of study with emphasis on homeostasis. Lectures and laboratories are designed to complement each other. Prereq: BY040T (3/3)

**BY042T Microbiology I** 4  
Emphasizes pathogenic bacteria and viruses: Their morphology, cultural characteristics and pathogenicity, along with epidemiology, transmission, diagnostic test and an introduction to immunology. Laboratory emphasis on culturing, identification, staining, sterilization, disinfection and asepsis. (3/3)

**BY043T Microbiology II** 3  
Continues Microbiology I with continued emphasis on immunology, diagnostic test, viruses and viral diseases and with studies in the rickettsia and fungi. Prereq: BY042T or instructor permission. (2/4)

**BY044T Avian Wildlife** 4  
Presents a practical study of life habits, migration, protection laws, habitats and general information about avian (birds) wildlife and is designed for students in the Parks and Natural Resources program. (4/0)

**BY045T Aquatic Wildlife** 2  
Covers fish and fish management including identification, habitat and reproduction. In addition, management technique is stressed and is designed for students in the Parks and Natural Resources program. (2/0)

**BY046T Mammalian Wildlife** 4  
Presents an exhaustive study of the natural life habitats as well as identification of lowa mammals. Special attention is devoted to conservation practices that are recommended for each individual species and is designed for students in the Parks and Natural Resources program. (4/0)

**BY047T Introductory Genetics** 4  
Introduces the mechanisms of inheritance, the molecular basis of inheritance, and the concepts of mutation and potential change. The lecture approach will present material from the classical (historical) position. Provides an introduction in the laboratory to genetic procedures, sample and problem matings, and other investigative techniques considered of major importance in such a course. (3/2)

### VOCATIONAL-TECHNICAL COURSES

**BY001U Dental Anatomy II, (DLT)** 2  
Continues the study of dental anatomy through waxing techniques in restoring individual characteristics of each tooth in the permanent dentition as it relates to prosthetic dentistry. (2/0)

**BY002U Dental Anatomy I, (DLT)** 3  
Introduces terminology, identification, description and individual characteristics of the teeth and surrounding structures found in human dentition. Includes the drawing of various views of individual teeth, and the formation of required surfaces in wax on stone casts. (2/2)

**BY003U Oral Anatomy** 3  
Specifies the anatomical and physiological features, structures and function of the human head that must be considered in the fabrication of dental prosthesis. (3/0)

**BY006U Basic Anatomy and Physiology** 4  
Is designed and required for students enrolled only in the following health occupation careers: Nursing Education, Orthopaedic Physicians Assistant, Medical Assistant, Medical Secretary, and Occupational Therapy Assistant. A systems approach to human structure and function is covered in one quarter. (3/2)

**BY009U Homeostatic Physiology** 4  
Is designed specifically for associate degree nursing students. Major emphasis will consist of integrating mechanisms of the nervous, muscular, endocrine, cardiovascular, respiratory, digestive and excretory systems used in maintaining homeostasis and their deviations in pathophysiology. Lectures, discussions and demonstrations are used in the course. Prereq: BY006U or equivalent. (4/0)

**BY011U Functional Anatomy** 4  
Is designed only for Occupational Therapy and Orthopaedic Physicians Assistant students for a detailed presentation of applications of functional neurology, skeletal and muscular structure and function, and regional functional anatomy of the limbs and back. Course will include lectures, group study, seminars and discussions. Prereq: BY006U or equivalent. (4/0)

**BY013U Cardio-pulmonary Physiology** 4  
Is a detailed study of human cardiovascular and respiratory functions for respiratory therapy students. The makeup, functions, control, and interdependency of the two systems in other organ systems is stressed. Concepts are applied to clinical situations. Prereq: BY006U (4/0)

**BY109U Oral Microbiology** 2.5  
Emphasizes micro-organisms of the oral cavity, their morphology, growth characteristics pathogenicity and transmission. Laboratory emphasis is on basic microbiological techniques, sterilization, disinfection and asepsis in relation to the dental office/clinic and patient treatment. (2/1)

**BY110U Dental Anatomy** 3.5  
Examines the structure, function and form of the teeth, individual teeth and their supportive structures. (3/1)

**BY111U Head and Neck Anatomy** 3  
Examines general plan of the body as an integrated whole. Emphasising on the structure and function of the head and neck. (2/1)

**BY003V Introduction to Pathology** 4  
Covers basic concepts and terminology associated with major cellular, metabolic, genetic, and general systemic disorders and specific disorders associated with human body systems. The course is specifically designed for students enrolled in the Medical Record Technology program. Prereq: BY006U and BY009U (4/0)

**BY004V Basics of Plant Growth** 3  
Introduces the parts of plants, their functions and how they work together to perform the basic process of growth. Explores the technique of plant propagation by sexual methods including cutting, grafting and budding. Introduces soils, physical properties and the effect these have on fertility. (3/0)

**BY009V Diagnosing Plant Disorders** 2  
Introduces plant disorders caused by improper control of environmental conditions, soil elements and fertility, common plant diseases, insects and other pests found on retail florist crops. Studies safety and use of chemicals used to eradicate plant diseases and pests. (4/0)

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Physical Ed majors may take this & counts as Math-Sciences credits



## CE: COOPERATIVE EDUCATION

### CE001T Cooperative Education Experience 1-8

Offers a structured work experience providing career education on the job for Arts and Sciences students in a field related to their major academic interest. Prereq: Instructor approval. Must be taken with CE002T. May be repeated for credit. (0/3-24)

### CE002T Cooperative Education Special Topics 1-4

Offers a learning experience in conjunction with a structured work situation. Instruction and readings will relate to and supplement the particular job experience. Prereq: Instructor approval. Must be taken with CE001T. May be repeated for credit. (0/4-14)

### \*CE004T Career Decision Making 3

Is designed to provide a grasp of the process of making a career decision. This is to be accomplished by identifying the individual's desires, relating these to the requirements of various career fields, and developing an understanding of the trade-offs involved in making a career decision. (3/0)

## CH: CHEMISTRY

### COLLEGE TRANSFER COURSES

### CH001T Principles of Chemistry 3, 4

Is designed for students who have not taken high school chemistry or those with otherwise deficient backgrounds. It covers the basis of inorganic chemistry requiring a working knowledge of introductory algebra. Topics include: introduction to measurement, atomic structure, chemical bonding, chemical reactions, kinetic molecular theory, chemical periodicity, and acids, bases and salts. The course may be taken as lecture only or lecture and laboratory.

### CH002T Fundamentals of Organic Chemistry 4

Provides a survey of organic chemistry as a continuation of Principles of Chemistry and is designed to give the student an introduction to the structures of organic compounds, nomenclature, physical and chemical properties, and organic reactions. Based primarily on the functional group approach. Prereq: Either high school chemistry or CH001T. (3/2)

### CH003T Fundamentals of Biochemistry 4

Continues Fundamentals of Organic Chemistry to provide a survey of the chemistry of living organisms, including basic chemistry of carbohydrates, lipids, proteins and nucleic acids, and an introduction to metabolism. Prereq:

CH002T, or CH008T, or departmental approval. The three courses CH001T, CH002T, and CH003T are a normal sequence for students in nursing. (3/2)

### CH004T Quantitative Analysis 6

Introduces methods of chemical analysis stressing gravimetric, volumetric and spectrophotometric approaches. Emphasis is placed on fundamentals of measurement, treatment of data, and error analysis. Prereq: CH006T (3/6)

### CH005T General Chemistry I 5

Studies the basic principles of inorganic chemistry with emphasis on such concepts as measurements and problem solving, chemical reactions and equations, stoichiometry, atomic structure and nuclear chemistry, periodicity, chemical bonding, kinetic molecular theory and gas laws, and the structure and properties of matter. Prereq: CH001T or high school chemistry, and a working knowledge of algebra. (4/2)

### CH006T General Chemistry II 5

Studies colligative properties along with thermodynamics and kinetics, chemical equilibrium, electrochemistry, acids, bases, and complexions, and an introduction to organic chemistry. Prereq: CH005T. (4/2)

### \*CH007T Nutrition 4

Is designed to show the relationship between sound nutrition and good health. Topics studied are: energy requirements, carbohydrates, lipids, proteins, vitamins, minerals, metabolism physical exercise, dieting, weight problems, evaluation of nutritional claims, vegetarianism, and proper nutrition during pregnancy and lactation. (3/2)

### CH008T Organic Chemistry I 4

Introduces theory and practice of organic chemistry with emphasis on structure and nomenclature. Areas stressed are chemical bonding, functional groups, various types of isomerism, aromaticity, resonance, tautomerism and spectral interpretation. The lab includes the use of U.V.-visible, and I.R. spectrophotometers. Prereq: CH006T or departmental approval. (3/3)

### CH009T Organic Chemistry II 4

Continues Organic I with emphasis on organic reactions and reaction mechanisms. The lab includes the preparation of several organic compounds. Prereq: CH008T (2/3)

### CH010T Organic Chemistry III 4

Continues organic reactions and reaction mechanisms followed by a brief intro to Biochemistry. Prereq: CH009T (3/3)

# CM: COMMUNICATION

## DEVELOPMENTAL COURSES

**CM004D Composition Techniques I** 4  
Offers help to students who are concerned about grammar and literary skills. Emphasis on clear writing and effective expression. Part classroom work and writing lab work. This course is developmental credit and does not count toward graduation. (4/0)

**CM005D English as a Second Language** 4  
Provides instruction in English as a second language for non-English speaking persons only. Students will be tested for English proficiency and will be placed at elementary, intermediate or advanced levels. Course may be repeated for credit until the student reaches the desired proficiency level in communication skills. (4/0)

## COLLEGE TRANSFER COURSES

**CM101T Composition I** 4  
Studies expository writing, including the rhetorical techniques of description, exemplification and definition, the organization of a coherent and unified paper, and critical thinking for the purpose of dealing with propaganda and persuasive techniques. Required of all students for AA or AS degree. (4/0)

**CM106T Effective Reading and Study** 3  
Provides instruction in college study skills including techniques for improving concentration, comprehension and retention of information from textbooks, graphic materials, lectures and seminars. The course includes diagnostic testing of each student's reading, listening and other basic education-related skills as a guide to individualized work in Reading Laboratory. Prereq: Must be concurrently enrolled in CM107T. (3/0)

**CM107T Reading Laboratory** 1  
Provides practice and instruction for the improvement of specific reading and study skills. Under the guidance of the instructor, students work independently with programmed materials selected to serve their individual needs. (Must be concurrently enrolled in CM106T.) (0/2)

**CM111T Creative Writing** 4  
Offers students an opportunity to be creative in writing literary art forms of fiction, poetry and drama and emphasizes structure, form and style. Also analyzes the publications market. Prereq: CM101T or consent of instructor. (4/0)

**CM112T Speeded Reading Laboratory** 1  
Offers individualized work to increase reading speeds for students with no serious deficiencies in comprehension or vocabulary skills. Under the guidance of the instructor,

students work independently using mechanical reading accelerators with self-corrected workbooks to develop the range of reading rates needed for efficient reading. (0/2)

**CM116T Composition II: Mass Media** 4  
Deals with mass media as a major societal influence and examines the technical, economic and legal aspects of the media. Emphasis is on critical evaluation and analysis. Prereq: CM101T or equivalent. (4/0)

**CM117T Composition II: Technical Writing** 4  
Deals with objective precision in the writing of business correspondence, technical briefs, proposals and articles. Especially recommended for students in law enforcement, management, science, or pre-law. Prereq: CM101T or equivalent. (4/0)

**CM118T Composition II: Contemporary Non-fiction** 4  
Deals with techniques of critical reading, thinking, and writing via contemporary non-fiction which concerns current social issues such as violence, alienation, social values and social roles. Prereq: CM101T or equivalent. (4/0)

**CM119T Composition II: Humanities** 4  
Presents an overview of artistic communication via art, music and writing. Material is thematically treated, centering on man's search for identity. Emphasis is on critical analysis and synthesis. Prereq: CM101T or equivalent. (4/0)

**CM201T Speech I: Public Speaking** 3  
Studies the fundamentals of speaking, emphasizing the development of speaking skills. (3/0)

**CM202T Speech II** 3  
Examines the theory and techniques used in discussion and group processes. The development of leadership and group skills are provided through frequent practical application in varying group sizes and opportunities. Prereq: CM201T, CM204T or CM203T (3/0)

**CM204T Speech I: Interpersonal Communication** 3  
Is the study of the research-based foundations of interpersonal communication, with laboratory activities directed toward improving communication with others. (3/0)

**CM205T Independent Study in Speech** 1-4  
Provides readings and research opportunities under the guidance of a staff member. Consent of the instructor and department chairman required before registering.

**CM212T Bank Letters and Reports** 3  
Is designed for those bank officers, supervisors and employees who dictate or review correspondence. A review of letter forms that emphasizes fundamental principles underlying modern correspondence, and examines different kinds of bank letters. (3/0)

- \*CM213T Interpretative Reading** 2  
Develops skills in the oral presentation of literature. Students will learn to interpret prose, poetry and dramatic literature through bodily action, voice and facial expression. (1/0)
- CM301T Introduction to Broadcasting** 4  
Provides a background in the origin and history of broadcasting. The course attempts to familiarize the student with the organization, operation and dimensions of the industry and to make him aware of the legal, social, commercial and artistic aspects of broadcasting. (4/0)
- CM303T Radio Reporting and Announcing** 4  
Offers skills in the delivery of news and allied information, and develops techniques in gathering, writing and editing news, features, and editorial material. (4/0)
- CM304T Radio and TV Production** 4  
Presents basic principles, procedures and techniques of TV and radio production and develops skill and creativity in various production assignments, such as camera, audio production, floor management and film editing. (4/0)
- CM305T Radio Station Operations** 2  
Is offered in conjunction with work in the Kirkwood FM radio station. A student must be actively working in the radio station as an announcer, production manager, continuity writer, programmer or director to qualify for this course. The majority of instruction comes from laboratory experience and a weekly seminar with the radio station staff. A student may take this course twice for credit. (0/4)

#### VOCATIONAL-TECHNICAL COURSES

- CM001U Business Writing** 3  
Develops the skills and knowledges necessary to write effective business letters, memorandums and informal reports. (3/0)
- CM002U Communication Skills I** 2-3  
Reviews communicative usage and mechanics of standard expression. Students apply communication skills through oral and written composition exercises. Offered for students enrolled in several occupational programs three to five periods each week depending on the program. (2-3/0-2)
- CM003U Communication Skills II** 3  
Offers additional practice and application of skills acquired in Communication Skills I, with application to the student's individual vocational needs. Emphasis will be on developing of oral skills in career situations. Prereq: CM002U (2-3/0-2)

- CM004U Communication Skills III: Technical Reporting** 3-4  
Studies principles of organization and interpretation as they apply to preparing technical reports. Research and descriptive writing skills needed for both informal and formal reports will be emphasized. Prereq: CM003U (3-4/0-3)
- CM005U Oral Communications** 4  
Stresses the necessity of proper communications. This particular course concentrates on public speaking, demonstrations and leading group discussions. (2/4)
- CM007U Medical Communications** 4  
Provides skills in oral and written reporting that include chart and treatment auditing techniques. Prereq: TH002U (4/0)

#### CO: CORRECTIONS

- CO002T Introduction to Community Corrections** 3  
Studies the correctional process as applied in the community by means of juvenile and adult probation and parole. (3/0)
- CO003T Management in Correctional Institutions** 4  
Studies the principles and methods of supervision, management, administration, and evaluation in a correctional setting. Emphasis is on staff recruitment and development, budgeting, administrative decision making and public relations as they relate to the institutional setting. (4/0)
- CO004T Penology** 4  
Surveys the history of penal institutions, examines the theories and practices relating to penal institutions, and explores prison reform in relation to various objectives of modern penology. (4/0)
- CO006T Race Relations in the Criminal Justice System** 4  
Examines race relations in the various segments of the criminal justice system. Explores social values and standards of minorities as they relate to the larger society. Looks at selected problems and possible solutions to conflict between races in the criminal justice settings. (4/0)

#### CS: CONSTRUCTION

- CS002U Facility Construction** 1-6  
Covers concrete work, carpentry and electricity which are all areas where most horticulturists need training. This

course provides basic knowledge and skill development in these areas. (0-6/2-12)

**CS007U Facilities Construction: Planning and Preparation** 9

Involves planning the construction of a turn-key farm-type facility and the site preparation and concrete work under the supervision of an instructor. (1-4/6-12) Prereq: Previous training or experience.

**CS008U Facilities Construction-Erection** 9

Completes the construction of a facility started in the Planning and Preparation course, including plumbing, heating, ventilation and electrical service. (1-4/6-10) Prereq: Previous training or experience.

**CS029U VFM Ventilation, Insulation and Heating** 2.5

Covers ventilation systems, needs and economic comparisons, and types of insulation. (2.5/0)

**CS033U Estimating** 3

Is designed for architectural draftsmen. The course includes the techniques of estimating and quantity survey. (3/0)

**CS034U Presentations** 2

Includes instruction in color, proportion, and delineation. Offered for architectural draftsmen. (2/0)

**CS035U Construction Materials** 3

Covers study of building codes, construction standards, wood, concrete, steel and unit masonry. (3/0)

**CS036U Construction Methods** 3

Covers study of floor ceiling systems, masonry walls, foundation systems and sound control. (3/0)

**CS037U Metal Fabrication** 4

Studies construction of metal buildings according to various farm usages. (3/2)

**CS038U Electrical Construction** 4

Gives students skills for building electrical power systems for rural buildings using schematics, controls, codes and references. (3/2)

**CS039U Plumbing** 5

Deals with the supply of water to rural buildings and the disposal of after-use with emphasis given to use of tools and materials to build, repair or replace these systems. (3/4)

**CS040U Job Planning and Scheduling in Carpentry** 5

Covers developing building plans and scheduling the construction of a building based on the availability and location of various building materials in the community and on local state and vocational building codes. (3/4)

**CS041U Heating and Ventilation** 4

Covers individual systems of heating, cooling and ventilation and their appropriate controls in using the many sources of energy available today. (3/2)

**CS042U Construction Techniques** 5

Provides students With experiences in building various modular buildings. (3/4)

**CS043U Masonry and Concrete** 4

Develops skills in pouring and finishing concrete structures, both flat and vertical. Laying concrete block also is practiced. (3/2)

**CS044U Excavation** 4

Studies the use of various types of earth-moving equipment. The student will work at site preparation, excavation, earth moving and grading for various types of construction. (3/2)

**CS045U Fundamentals of Carpentry I** 5

Covers the identification and use of carpentry tools and materials as related to the rural construction industry. (3/4)

**CS047U Construction Lab I** 10

Utilizes laboratory projects to emphasize blueprint reading, hand tools and equipment usage, layout, cutting, assembly and fastening. Field study includes setting batter boards, excavation, computing, construction and erecting forms, pouring footings and foundations, setting posts and beams, flooring, and wall layouts. (0/20)

**CS048U Construction Lab II** 10

Involves forming floors, subflooring, wall construction and erection, rough openings. Cutting and installation of rafters, ceiling joists, roof sheathing and shingles, cornices and ventilators, installation of windows, exterior door and frames, painting/staining of exterior wood surfaces, application of siding, and masonry work. (0/20)

**CS049U Construction Lab III** 10

Covers layout and installation of insulation, vapor barriers, sheetrock, rock lath, paneling, forming of soffits, cabinets and vanities, hanging doors, casing windows and doors, door hardware, baseboard, base shoe, chairnails, stirs, chimney, and fireplace brick work, and general adjustments. (0/20)

**CS050U Construction Lab IV** 6

Covers the final installation of concrete work (relating to sidewalks, patios, etc.) and complete interior and exterior finish work. General grading and landscaping of training project lot. (0/12.5)

**CS051U Construction Related I** 5

Presents fundamental carpentry theory and related information concerning proper care, use and safety of hand/power tools, leveling instruments, materials and practices

used in the construction of a residential building. Stress the practical use and application of tables and scales on framing square, principles of footings and foundations, construction and/or erection of concrete forms, backfilling, laying floor joists, subflooring, wall layout and erection. (5/0)

**CS052U Construction Related II** 5  
Involves identification and figuring roof framing, roof sheathings, shingles, ceiling framing, assembly and installation of windows, exterior door frames and doors. Emphasis on bracing, aligning and squaring. Planning and installation of exterior sidings, masonry work, concrete floors, slabs, and driveways. (5/0)

**CS053U Construction, Related III** 5  
Presents topics to cover selection and applying of insulation, vapor barriers, installing of sheetrock, rock lath, taping texturing, interior paneling, construction of soffits, building and or setting of vanities and cabinets, hanging doors and door hardware, casing of windows and doors, applying baseboard, base shoe, chairrails, and stairway construction. Introduction to Allied Building Trades covering methods and systems on residential wiring, heating, ventilating, air conditioning, plumbing and masonry work as related to the training project. (5/0)

**CS054U Construction Related IV** 2  
Presents instructional units relating to finishing of flooring, interior and exterior wall/ceiling finishes, papering, completing work on cabinets and vanities, and drainage systems. Review of layout on landscape plans and principles completed for the training project. (2/0)

**CS055U Greenhouse Facilities and Equipment** 1-4  
Studies construction and operating plastic, fiberglass and glass in small and large greenhouse structures. Heating, cooling, watering and ventilating systems will be evaluated for efficiency and effectiveness. (1-4/0)

**CS005V Greenhouse Construction** 1  
Studies design and construction of greenhouses and other related growing structures, including floor plants and environmental equipment needed for optimum plant growth. (2.5/0)

## DP: DATA PROCESSING

### COLLEGE TRANSFER COURSES

**DP006T Computer and Data Processing Concepts** 3  
Covers fundamentals of computers and computerized data processing, data processing concepts, computer ter-

minology, computer devices, basic systems considerations, programming techniques, and data accuracy and control. (3/0)

**DP007T Fundamentals of Bank Data Processing** 3  
Is broadly based and non-technical. Designed for the manager who uses the computer as a tool rather than the computer scientist. The courses are geared to fundamental principles, concepts, and functions on the basis of what everyone in banking must know about the characteristics of automation. Discusses computer systems and languages, the present and potential uses of computers, and societal influence of growing computer dependence. (3/0)

### VOCATIONAL-TECHNICAL COURSES

**DP001U Self-Service Aids for Programmers** 1  
Covers basic operation of keypunch machines and the use of the card sorter, reproducer and interpreter. Intended to make students self-sufficient in preparation of programs and test data. (.5/1)

**DP002U Punched-Card Data Processing** 2  
Studies functional wiring and basic operation of unit record equipment. Includes the interpreter, reproducer, sorter and collator. (1/2)

**DP003U Computer Operating Techniques** 2  
Includes study and practice of computer operating techniques, student study and performance in the areas of card/tape/disk handling, computer console control, and peripheral equipment operation. (1/2)

**DP005U Introduction to S/360-370** 3  
Presents the System 360 and System 370 architecture and hardware. Includes direct access storage devices, the techniques of file organizations and programming systems support for these devices. (3/0)

**DP007U Assembler Language I** 5  
Studies IBM Basic Assembler Language programming concepts and techniques. Includes the writing and testing of Assembler Language programs and routines. (3/4)

**DP009U Assigned Operations Projects** 3  
Assigns projects closely simulating actual operation of a data center. Provides hands-on experience in input scheduling, I/O device and console operating, and output handling. (1/4)

**DP010U Data Processing for the Managers** 2  
Articulates as completely as possible, the relationships between man and machine and the role of each in the industrial or business organization. By attempting to separate the emotional agreements from the statements of fact, this course tells, in layman's language, what the computer can do, or cannot do, not how it works. (2/0)

**DP011U Introduction to Report Program Generator (RPG)** 4  
Presents the language facilities of RPG II. Students will write and test several programs. (3/2)

**DP013U Introduction to COBOL Programming** 5  
Presents ANSI COBOL programming language fundamentals and coding techniques. This course includes the writing of COBOL programs using structured techniques. (3/4)

**DP014U Advanced COBOL Programming** 5  
Continues Introduction to COBOL Programming and extends exposure to more complex techniques including table handling, sorting and file maintenance. (3/4)

**DP016U Introduction to Fortran Programming** 3  
Introduces Fortran programming concepts and techniques, with numerical analysis and other methods for solving mathematical/scientific/business problems. Prereq: DP006T or equivalent. (2/2)

**DP018U Introduction to Programming Language I** 5  
Introduces PL/I concepts and techniques emphasizing applications of the business world. Students will write and test several programs. Prereq: DP013U or DP016U or permission of instructor. (3/4)

**DP021U Disk Operating System (DOS/VS) Concepts and Facilities** 3  
Provides an introduction to the concepts and facilities of the Disk Operating System/Virtual Storage. Includes sufficient information to allow a student to load the supervisor, initiate operation of the system in a multiprogramming environment, run programs and terminate the system using appropriate statements and commands. (2/2)

**DP022U Disk Operating System Coding** 5  
Covers all facilities of the Disk Operating System, including the job control language, supervisor services, systems maintenance, the linkage editor functions and multiprogramming facilities. Is designed for programmers who plan to use the Disk Operating System of the S/370. Prereq: DP021U or permission of the instructor. (4/2)

**DP026U Programming Systems** 4  
Presents the concepts and facilities provided by various manufacturers in their operating systems. Also includes some commercial software systems (spoolers, librarians, reporters, etc.). (4/0)

**DP027U Systems Utilities** 2  
Develops knowledge and skill in the use of various systems utilities and offers actual working experience with a sort, merge, monitor and various utilities. (1/2)

**DP036U Assigned Programming Projects** 5  
Offers supervised work experience at various data processing tasks, which serve as learning tools as the tasks

are completed. These tasks may be done within a real or simulated business organization. (1/8)

**DP037U Installation Management I** 3  
Offers seminar coverage of specialized subjects peculiar to supervising or managing a data processing department. Prereq: three quarters of data processing. (3/0)

**DP039U Records and Scheduling of Data Processing Operations** 3  
Studies types, formats and typical systems for maintaining records for a data processing installation. Prereq: DP006T (3/0)

**DP040U Related Equipment I** 1  
Includes characteristics, functions and use of equipment related to data processing: microfilm processing and handling, after-handling equipment, ledger card machines, copying equipment and key-driven equipment controlled by paper tape. (0/2)

**DP041U Program Design and Documentation** 3  
Presents the techniques to analyze a problem for solution by computer and designing and documenting the solution. Includes step-by-step documentation of solution algorithm. Techniques presented include flowcharts, decision tables, Wernier charts and structured design. (3/0)

**DP042U Program Testing** 3  
Presents the techniques of planning and documentation of the testing, modification and correction of computer programs. Includes the coding techniques required to reduce coding and logic errors to improve error detection and correction. Also includes programming considerations for program maintenance. (2/2)

**DP044U Data Management I** 4  
Presents the concepts and techniques of Data Access Methods. Storage methods presented include sequential, index sequential, direct and virtual storage access methods. Prereq: DP014U or permission of instructor. (3/2)

**DP046U Elements of Data Processing I** 3  
Explores the use of various manual and mechanized data processing systems for business applications and familiarizes the student with the functional characteristics of data processing systems. Basic business applications of order writing, billing, accounts receivable, inventory accounting and sales analysis are covered. (3/0)

**DP048U Business Applications of Data Processing I** 3  
Presents computer considerations in dealing with general financial systems. Students will be exposed to the characteristics of such areas as general register, receivables, payables, payroll, etc. (3/0)

**DP049U Introduction to Systems** 3  
Includes systems, procedures, systems analysis and sys-

tems design, purposes, responsibilities, applications and techniques of the systems activity as found in a business organization. (3/0)

**DP083U Data Management II** 5  
Continues Data Management I. Includes concepts of data base organization and management. Provides coding experience for data base using Data Language I (DL/I). Prereq: DP044U or permission of instructor. (3/4)

**DP084U Business Applications of Data Processing II** 3  
Includes computer applications of dealing with non-financial systems. Students will be exposed to such applications as personnel, inventory, etc. Prereq: DP048U or permission of instructor. (3/0)

**DP085U Data Communications** 5  
Presents the concepts and considerations for programming in an on-line environment. Presents facilities of communications controllers including CICS. Prereq: DP014U and DP083U or permission of instructor. (3/4)

**DP001V Introductory Key punch** 3  
Offers training for the occupation of key punching: punching and verifying of cards which serve as input to unit record and computer equipment. (0/6)

**DP003V Vocational Key punch** 8  
Provides extensive training in occupations of key punching. Offers training on several types of machines. (1/14)

## DN: DENTAL

**DN001U Dental Materials** 4  
Gives students an opportunity to acquire a basic understanding of the various types of dental materials, their uses and their manipulating techniques. (2/4)

**DN002U Porcelain Techniques** 4.5  
Covers basic principles of design, fabrication, and staining of restorations of porcelain, or porcelain to metal, including operation and maintenance of related equipment and use of supplies. Prereq: BY002U and BY001U (1/7)

**DN003U Orthodontics, (DLT)** 3  
Studies irregularities of teeth and the fabrication of appliances as prescribed by the dentist to correct those irregularities. Prereq: BY002U, BY001U (.5/4.5)

**DN004U Dental Terminology** 2.5  
Includes ability of student to dissect words used in dental terminology as to roots, prefixes, and suffixes. Also includes a brief introduction to dental history, ethics and jurisprudence, work authorization and professional organizations associated with the dental laboratory field. (2/1)

**DN005U Dental Equipment, (DLT)** 2.5  
Studies proper arrangement, care and maintenance, safety procedures and availability of common types of dental equipment. Includes some operation. (2/1)

**DN006U Clinical Experience and Seminar I, (DLT)** 12  
Utilizes dental laboratories or dental offices to gain practical experience relating to instructional and manipulative skills learned in the classroom. (0/32)

**DN007U Clinical Experience II and Seminar, (DLT)** 12  
Continuation of Clinical Experience I. (0/32)

**DN008U Acrylic Jacket Crown and Veneers II, (DLT)** 5  
Covers the principles, techniques of staining and curing, and fabrication of various types of acrylic jacket and veneer crowns. (2/6)

**DN009U Precision Attachments Partials, (DLT)** 4  
Studies principles and design of various types of intracoronal retention for removable partial dentures, including actual construction of removable partial dentures incorporating precision attachments. (1/6)

**DN010U Cast Metal Base Dentures** 2  
Continues complete denture construction involving the design and construction of complete dentures with cast metal bases (ticonium). (.5/3)

**DN020U Laboratory Management, (DLT)** 3  
Study in surveying potential sites for new dental laboratories, their design, bookkeeping and cost analysis, and all facets dealing with the establishment and operation of a dental laboratory. (3/0)

**DN021U Denture Techniques I, (DLT)** 6.5  
Provides an introduction to the outline and study of procedures related to denture construction. Involves the fabrication of temporary removable partial dentures and complete dentures. (3/7)

**DN022U Denture Techniques II, (DLT)** 6  
Adventures into the esthetics, phonetics and function associated with complete dentures. Working with a special advanced articulator and advanced work in tooth arrangements. (2/8)

**DN023U Articulators and Articulation** 3.5  
Introduces the study of mechanical devices used to simulate the movements of oral anatomy with relation to the construction of dental prosthesis. (2/3)

**DN024U Cast Inlay and Crown, (DLT)** 5  
Applies the technique of pouring casts, mounting techniques, recognition of gingival margin preparations, preparation and trimming of individual dies, and the actual construction of inlays and crowns. (2/6)

**DN025U Crown and Bridge, (DLT)** 10  
Studies types, designs and procedures used in constructing fixed partial dentures, including actual construction of various types of fixed partial dentures. (4/12)

**DN026U Partial Denture Techniques I, (DLT)** 4  
Examines the principles and theories of survey, design and blockout techniques for simple removable partial dentures, and actual construction of cobalt-chrome removable partial dentures. (1/6)

**DN027U Partial Denture Techniques II, (DLT)** 5  
An advanced study in the design and fabrication of special types of removable partial dentures. (2/6)

**DN028U Guided Independent Study: Orthodontics** 8  
Allows the student and instructor to prepare a contract for individualized study in orthodontics. This contract will include the phase of orthodontics that the student and instructor feel is necessary to make the student knowledgeable and competent in this field of laboratory work. Prereq: Previous modules related to this subject.

**DN029U Guided Independent Study: Fixed Bridges** 8  
Allows the student and instructor to prepare a contract for individualized study in fixed bridges. This contract will include the phases of fixed bridgework that the student and instructor feel is necessary to make the student knowledgeable and competent in this area of laboratory work.

**DN030U Guided Independent Study: Ceramics** 8  
Allows the student and instructor to prepare a contract for individualized study in ceramics. This contract will include the phases of porcelain that the student and instructor feel is necessary to make the student knowledgeable and competent in this field of laboratory work.

**DN031U Guided Independent Study: Removable Bridges** 8  
Allows the student and instructor to prepare a contract for individualized study in removable bridges. This contract will include the phase of removable partials that the student and instructor feel is necessary to make the student knowledgeable and competent in this field of laboratory work.

**DN032U Guided Independent Study: Full Dentures** 8  
Allows the student and instructor to prepare a contract for individualized study in full dentures. This contract will include the phases of full dentures that the student and

instructor feel is necessary to make the student knowledgeable and competent in this field of laboratory work.

**DN101U Dental Orientation** 2  
Provides information necessary to build a complete and knowledgeable foundation upon which to anchor a meaningful career as a dental assistant, including dental terminology, understanding of dental assistant certification and a thorough study of state practice acts. (2/0)

**DN102U Dental Materials** 3.5  
Includes the chemical and physical composition of the basic groups of dental materials. The laboratory phase offers clinical demonstration of the use of each material and individualized manipulative practice. (3/1)

**DN103U Dental Assisting** 5.5  
Provides the student with the basic principles of chairside assisting. It includes the identification, use and maintenance of equipment and instruments; sterilization and disinfection techniques, instrument transfer, oral evacuation and oral diagnosis procedures. Background material and chairside techniques concerning operative functions, crown and bridge work, and prosthetics will be included. (5/1)

**DN109U Lab Practicum I, (DA)** 4.5  
Assigns each student to clinical areas of operative, crown-bridge and prosthetics at the College of Dentistry in Iowa City for practical experience. (1/6.5)

**DN110U Lab Practicum II, (DA)** 7.5  
Provides experience in the various departments of periodontics, endodontics, orthodontics, oral diagnosis, oral surgery, and x-ray, at the College of Dentistry in Iowa City. An overview of dental assisting in all areas of dentistry. (1/13)

**DN111U Clinic I, (DA)** 3.5  
Provides overview experience in chairside assisting, business office procedures, and dental office laboratory procedure in a private dental office. (.5/9)

**DN112U Clinic II, (DA)** 3.5  
Continues Clinic I in a private dental office. (.5/9)

**DN113U Dental Radiography I** 2.5  
Presents a basic background of the production of dental x-rays, hazards and safety. Emphasis is given to exposing, processing and mounting dental films. (2/1)

**DN114U Dental Radiography II** 1.5  
Continues Dental Radiography I with emphasis on exposure angulation, evaluation of films and corrective measures. (1/1)

**DN115U Dental Lab Assisting I** 4.5  
Provides practice and application of laboratory skills commonly performed in a private dental office, such as



pouring and trimming of study casts, construction of bite-blocks, soldering and construction of removable acrylic appliances. (2/5)

**DN116U Dental Lab Assisting II, (DA)** 2  
Involves the construction of dies and wax patterns for casting crowns and inlays, and the dental assistant's responsibilities in using a commercial laboratory. (1/2)

**DN120U Dental Therapeutics** 2.5  
Provides instruction in obtaining and recording vital signs. Discusses systemic diseases, conditions and potential emergencies in addition to medications used in dentistry and for emergencies. Prereq: DN103U (2/1)

**DN121U Disease and Prevention** 3.5  
Presents concepts of prevention through an understanding of oral disorders, problems and treatment, control of bacterial plaque formation and methods of oral hygiene instruction for patients. (3/1)

**DN127U Preventive Dentistry Seminar I** 4  
Examines the oral structures (normal and abnormal) and former development and detection of dental disease, including laboratory application in the theories, philosophy and mechanics of teaching dental patients.

**DN128U Preventive Dentistry Seminar II** 4  
Continuation of Preventive Dentistry Seminar I (3/2) Prereq: Preventive Dental Seminar I.

**DN131U Dental Management Seminar I** 3  
Emphasizes improving the efficiency of routinely performed tasks by a systems approach to problem-solving for the mechanics of a total office and analysis of office operation and production. (3/0) Prereq: Dental Assistant graduates, employed dental assistants with six months of experience, or by exam.

**DN132U Dental Management Seminar II** 3  
Explores the psychological principles in communications and decision-making with a discussion of management theories and philosophies. Prereq: DN131U (3/0)

**DN133U Dental Assistant  
Advanced Placement—Set A** 8.5  
Includes Dental Orientation (DN101U), Dental Anatomy (BY110U), and Head and Neck Anatomy (BY111U) for off-campus students.

**DN134U Dental Assistant  
Advanced Placement—Set B** 8  
Includes Dental Materials (DN102U) and Dental Laboratory Assisting (DN115U) for off-campus students.

**DN135U Dental Assistant  
Advanced Placement—Set C** 5.5  
Includes Dental Assisting (DN103U) for off-campus students.

**DN136U Dental Assistant  
Advanced Placement—Set D** 4  
Includes Dental Radiography I and II (DN113U, DN114U) for off-campus students.

**DN137U Dental Assistant  
Advanced Placement—Set E** 5.5  
Includes the Dental Specialty Course (DN141U) for off-campus students.

**DN138U Dental Assistant  
Advanced Placement—Set F** 8  
Includes Oral Microbiology (BY109U), Dental Therapeutics (DN120U), and Disease and Prevention (DN121U) for off-campus students.

**DN139U Dental Assistant  
Advanced Placement—Set G** 9  
Includes Dental Office Management I and II (AM033U, AM034U) and Dental Bookkeeping (AC007U) for off-campus students.

**DN140U Dental Assistant  
Advanced Placement—Set H** 19  
Includes Laboratory Practicum I & II, (DN109U, DN110U) and Clinic I & II (DN111U, DN112U) for off-campus students.

**DN142U Dental Assistant Seminar** 1  
Is designed to provide guidance for employed dental assistants making application for the off-campus dental assistant diploma program. Includes supplemental instruction based on a student's needs, and assistance in preparation of project performance. This course is required for all students enrolled in course sets.

**DN144U Dental Laboratory Technology Core** 5  
Provides an orientation to the dental laboratory technician profession, dental laboratory technician terminology, as well as dental equipment related to all phases of dental technology. Dental and oral anatomy relevant to the fabrication of dental prostheses also is presented. (1/8)

**DN145U Full Denture Technology I** 6  
Provides instruction necessary for a technician to fabricate and repair simple dentures. Materials and equipment used in the fabrication of full dentures is followed by instruction in the construction of temporary and complete dentures. Prereq: DN144U (1/10)

**DN146U Full Denture Technology II** 11  
Studies the construction of dentures involving special techniques and instrumentation (articulators). Dentures will be constructed with special attention given to esthetics, phonetics, and function. Denture relines, rebases and duplication also will be covered. Prereq: DN145U (2/18)

**DN147U Partial Denture Technology I** 11  
Offers instruction for the design and fabrication of partial dentures. Materials and equipment used in the construction of partial dentures are studied followed by the principles and theories of survey, design and blockout. These theories are then applied in the construction of nickel base and chrome-cobalt partials. Prereq: DN144U (2/18)

**DN148U Partial Denture Technology II** 3  
Introduces designing and fabricating special types of partial dentures. Prereq: DN147U (1/4)

**DN149U Clinic Ia** 2  
Provides the student with comprehensive practical experience in a dental laboratory in full denture technology. (0/6)

**DN150U Clinic Ib** 2  
Provides the student with comprehensive practical experience in a dental laboratory to gain skill in partial denture technology. (0/6)

**DN151U Clinic Ic** 2  
Provides the student with comprehensive practical experience in a dental laboratory to gain skill in crown and bridge technology. (0/6)

**DN152U Clinic Id** 2  
Provides the student with comprehensive practical experience in a dental laboratory to gain skill in ceramics technology. (0/6)

**DN153U Clinic Ie** 2  
Provides the student with comprehensive practical experience in a dental laboratory to gain skill in orthodontic technology. (0/6)

**DN154U Clinic Ila** 12  
Assigns the student to a dental laboratory, dental office or institution which will provide the student with the opportunity and assistance needed to become skilled in all phases of full denture technology. Prereq: DN149U, DN150U, DN151U, DN152U, DN153U (0/36)

**DN155U Clinic Ilb** 12  
Assigns the student to a dental laboratory, dental office or institution which will provide the student with the opportunity and assistance needed to become skilled in all phases of full denture technology. Prereq: DN149U, DN150U, DN151U, DN152U, DN153U (0/36)

**DN156U Clinic Ilc** 12  
Assigns the student to a dental laboratory, dental office or institution which will provide the student with the opportunity and assistance needed to become skilled in all phases of full denture technology. Prereq: DN149U, DN150U, DN151U, DN152U, DN153U, (0/36)

**DN157U Clinic Ild** 12  
Assigns the student to a dental laboratory, dental office or

institution which will provide the student with the opportunity and assistance needed to become skilled in all phases of full ceramics technology. Prereq: DN149U, DN150U, DN151U, DN152U, DN153U (0/36)

**DN158U Clinic Ile** 12  
Assigns the student to a dental laboratory, dental office or institution which will provide the student with the opportunity and assistance needed to become skilled in all phases of full ceramics technology. Prereq: DN149U, DN150U, DN151U, DN152U, DN153U (0/36)

**DN159U Crown and Bridge Technology I** 7  
Applies dental anatomy in correlation with restoration of permanent dentition. Materials and equipment associated with crown & bridge restoration are discussed followed by the preparation of simulated precious and non-precious castings. Prereq: DN144U (2/10)

**DN160U Crown and Bridge Technology II** 11  
Utilizes the competencies and knowledge learned in Crown & Bridge I with additional instruction which will include pontic designs, one-piece castings, additional spruing principles, soldering, waxing units inside of clasp, types of waxing techniques, and types of occlusion. Prereq: DN159U (1/20)

**DN161U Ceramics Technology I** 11  
Provides the competencies and knowledge of materials, equipment and technique required to fabricate porcelain jackets and other types of single anterior and posterior porcelain restorations. Metal design, waxing, spruing, casting and finishing directly related to such single units will be studied. Some characterizing and stain also will be considered at this time. Study of color will be included in this course. Prereq: DN144U (2/18)

**DN162U Ceramics Technology II** 5  
Applies the knowledge of Ceramics I. Various types of bridge frameworks will be designed, constructed and porcelain fired to broaden the ceramist ability. Additional staining and characterizing will be used to develop naturalness in the esthetic qualities of the restorations. Prereq: DN161U (1/8)

**DN163U Orthodontic Technology I** 6  
Studies tooth movement and space maintenance which are applied to the construction of appliances using the necessary materials and equipment. Prereq: DN144U (1/10)

## DR: DRAMA

**DR101T Introduction to Theatre** 3  
Introduces the various methods of stagecraft with emphasis on studying a number of plays and the observation of performances to discover the relationship of the playwright to the creation of an actual performance. (3/0)

**DR102T Theatre Workshop** 2  
Provides students with experience in theatrical production. Students may work in one of a number of production areas under the guidance of experienced theatre personnel. Guidance and frequent critiques provide students with an understanding of production activities. This course may be repeated for credit once. The production schedule determines the number of hours required per week. (0/4)

**DR103T Theatre Production** 3  
Provides students with on-campus production experience. The course is responsible for presenting a series of short dramatic presentations and provides opportunities in acting, directing and staging. (3/0)

## EA: EARTH SCIENCE

**\*EA001T Introductory Geology** 4  
Presents basic concepts in geology, i.e. earth materials and processes, historical geology, and geological resources. Constructive and destructive forces involved in shaping the planet will be discussed. Plate tectonics and sea-floor spreading will serve as a unifying factor for the course. (4/0)

## EC: ECONOMICS

### COLLEGE TRANSFER COURSES

**EC007T Independent Study in Social Science (Economics)** 0, 1, 2, 3, 4  
Provides readings, papers and/or basic research, or other projects under the individual guidance of a staff member. Consent of the instructor and department chairman is required before registering.

**EC008T Money and Banking** 3  
This course stresses the practical aspects of money and banking and emphasizes the basic monetary theory needed by the banking student in a job. Emphasis also is placed on such problems as economic stabilization, types of spending, the role of gold, limitations of central bank

control, government fiscal policy, balance of payments, and foreign exchange, showing their repercussions on the banking industry in affecting yield curves and the structuring of portfolios. (3/0) Prereq: Recommend EC013T.

**EC009T Principles of Collective Bargaining** 3  
Covers problems of the industrial labor setting as applied to collective bargaining. Topics reviewed include wage determination and employment theory, internal and external problems of the labor force, union structure and government, growth and theory of labor movements and evolution of substantive labor law in the U.S. Emphasis will be placed on the historical, political, and institutional setting of the collective bargaining process. (3/0)

**EC010T Labor Law (Taft-Hartley)** 3  
An institutional and historical approach to public policy considerations in labor relations law from 1806 to the present. Topics reviewed include the "Greek" of labor law: "strikes," "picketing," "organizational," "boycotts," "unfair labor practice," "union security," "duty to bargain," etc. Relationships between the large group conflicts of labor relations and other large group conflicts (e.g. race relations) will receive attention. Attention also will be directed to the public sector. (3/0)

**EC011T Dispute Settlement and Labor Relations** 3  
Offers an analysis of problems encountered in the area of employer - employee differences with respect to the meaning and application of contract terminology. Cases in arbitration are used to illustrate problem areas in the industrial relations setting. Areas of study include: Grievance handling; arbitration of grievances; discipline; wages; vacations and holidays; work assignments; seniority; distribution of overtime; subcontracting; technological change. Additional attention will be directed to the public sector. No prior course is required. (3/0)

**EC013T Principles of Economics (Macro)** 4  
Introduces principles of the economizing problem with emphasis on national income and employment analysis. Includes national income accounting, the business cycle, money and banking, fiscal and monetary theory and policy, and economic growth. Recommended for students pursuing a baccalaureate degree program. (4/0)

**EC014T Principles of Economics (Micro)** 4  
Emphasizes markets, the price system and the allocation of resources, demand and supply, market structures, price and output determination, and income distribution. Recommended for students pursuing a baccalaureate degree program. (4/0)

**EC015T Principles of Business Economics** 4  
Acquaints the student with the business enterprise in the perspective of the modern economy, and introduces the

economizing problem and a comprehensive analysis of markets and the price system. The course also stresses the role of the business sector in examining national income and employment theory. Recommended for associate degree programs only. Transfer status uncertain. (4/0)

**EC016T Contemporary Economic Problems 4**

Offers advanced analysis of some of the topics discussed in Principles of Economics (Macro and Micro). The course will focus on one or more contemporary economic problems. Individual and group projects will be assigned. Prereq: EC013T and EC014T (4/0)

**\*EC018T Unions and the Political System 3**

Describes the structure and functions of all levels of government including separation of authority, executive privilege, and presidential appointive powers. The role of pressure groups, the union's role in our two-party system, plus recent trends in the "labor vote" also will be discussed, as will the issues which unions want enacted into law. (3/0)

**\*EC020T Labor Law (Landrum-Griffin) 3**

Continues the study of labor law using an institutional and historical approach to public policy considerations in labor relations law. Topics reviewed include: individual rights and the duty of fair representation, admission to union membership, union elections, enforcement of the agreement, union democracy, etc. Emphasis will be placed on the public sector. (3/0)

**VOCATIONAL-TECHNICAL COURSES**

**EC001U Printing Economics 1**

Covers estimating production costs, specification of equipment, materials inventory, and control, and the study of systems which expedite graphic reproductions. Application of techniques in estimating to actual job production specifications and cost. (1/0)

**EC003U American Institutions 3**

Studies of macro economics uses simple models to develop concepts of money and banking, national income, and international trade. The volume of individual businesses and the GNP are analyzed for the practical purpose of evaluating future potential. (3/0)

**EC004U Agricultural Economics I 3 or 4**

Identifies economic concepts, principles and relationships as they relate to the agricultural industry. Reviews the principle of diminishing returns, marginal costs, opportunity cost, substitution, and the concept of risk and uncertainty. (3 or 4/0)

**EG: ENGINEERING**

**COLLEGE TRANSFER COURSES**

**EG007T Engineering Graphics I 3**

Includes study of sketching, lettering, freehand drawing, use of drawing instruments and principles of projection. Also lines, perpendicularity, parallelism, revolution, topography and piercing points.

**EG008T Introduction to Engineering: Computation 3**

Emphasizes digital computer programming utilizing Fortran and time-shared BASIC programming; engineering applications using logic operations, decision and transfer, loops, subprograms, input/output and flow charts. It is a required course in engineering and is designed for undergraduate students who have had no, or only a minimum amount of experience in digital computer programming. Prerequisites are high school algebra and trigonometry or departmental permission. (3/0)

**EG009T Materials Science I 5**

Is a foundation course in materials science designed to show relationships between structures and properties of various materials at the atomic, micro and macro levels. The course is a core requirement in all engineering curriculums. Prereq: CH005T or departmental approval.

**EG010T Statics 3**

Covers such topics as vector algebra, forces, couples, equipollent force-couple systems, Newton's laws, friction, equilibrium analysis of particles and finite bodies and applications. This course principally serves both the civil engineering and mechanical engineering undergraduate engineering programs where it is a required course. Prereq: One semester or two quarters of college-level calculus. (3/0)

**EG011T Dynamics 5**

Emphasizes vector calculus, Newton's laws, dynamics of particle motion, multi-particle systems, and rigid bodies in plane motion and applications. It serves principally both the civil and mechanical engineering undergraduate programs where it is a required course. Prereq: EG010T and MA037T. (5/0)

**EG012T Thermodynamics I 6**

Includes basic elements of classical thermodynamics, including first and second laws, reversibility, irreversibility, Carnot cycle, properties of pure substances; closed simple systems and one-dimensional steady-flow open systems, and engineering applications. The course is a core course in the basic and applied science portion of the curriculum and is a required course of all engineers except those in

chemical engineering. Prereq: CH005T or equivalent and one semester or two quarters of college-level calculus. (6/0)

#### VOCATIONAL-TECHNICAL COURSES

- EG001U Statics** 8  
Studies composition and resolution of forces, equilibrium of force systems, plane trusses and structures, and friction. Prereq: Technical Math II. (6/4)
- EG002U Kinematics of Mechanisms** 7  
Studies the analysis of kinematic systems for displacement, velocity and acceleration. Graphical and analytical methods are used in the solutions. Systems include linkages, cams and gear trains. (4/6)
- EG003U Dynamics** 7  
Covers particles and rigid bodies in translation, rotation and plane motion; work and energy; and moments of inertia of mass. (4/6)
- EG004U Machine Design** 7  
Is an application course where the skills acquired during the first four quarters are focused on problems involving the size, shape and material requirements of machine parts for various loading conditions. Machine components that are analyzed are: shafts, weldments, fasteners, springs, clutches and brakes, gears and gear trains, bearings, and chain drives. (2/10)
- EG005U Engineering Materials** 2  
Studies the terminology used in describing the properties of engineering materials. Reference descriptions are reinforced with actual tests conducted on ferrous metals to determine their mechanical properties. (1/3)
- EG006U Strength of Materials I** 4  
Is an analytical study of material properties and the application with respect to joints, torsional devices and beams, including shear and moments, stresses, and beam design. (3/2)
- EG007U Strength of Materials II** 5  
Studies the deflection of beams, statically indeterminate beams, combined stresses and columns. Provide complete structural analysis. (5/0)
- EG008U Engineering Problems** 3  
Includes basic operations of scientific electronic calculators and an introduction to Fortran IV programming. (2/3)

## EL: ELECTRICITY AND ELECTRONICS

- EL001U Introduction to Electronics** 3  
Develops the student's ability to use electronic test equipment properly and provides an overview of the field of electronics. (1/5)
- EL002U Electric Circuits I** 6  
Studies resistive circuits with both constant and time-varying power sources. The first portions of the course introduce the physics of electricity, along with units, definitions, symbols and notations. The major portion of the course is a study of methods and techniques of analyzing circuits. Application of Fortran IV computer programming to circuit analysis also is introduced. (5/2)
- EL003U Electric Circuits II** 6  
Studies the steady-state sinusoidal analysis. Includes reaction, resonance, and frequency response. Prereq: Electric Circuits I. (5/2)
- EL006U Communication Electronics** 7  
Uses a systems approach to cover requirements and options relating to radio and communications, and examines modulation techniques including AM, FM, PM and SSB, as well as time division multiplexing and frequency division multiplexing. Prereq: EL015U (4/6)
- EL007U Communication Electronics I** 5  
Studies oscillator, amplitude and frequency modulation theory. A classroom and laboratory study is made of receivers and their associated circuits. Transmission of radio energy is introduced. Prereq: Electronic Circuits II. (3/5)
- EL008U Communication Electronics II** 5  
Continues the study of communication systems including antennas, transmission lines, F.M. multiplex systems, microwave systems, remote control devices and basic transmitter troubleshooting techniques. Prereq: EL007U (3/4)
- EL010U Television Circuit Analysis** 7  
Applies the general topics covered in Communications Electronics (EL006U) and Transmission Systems (EL012U) to the specific systems used for generation, transmission and reception of color television and stereo FM. Prereq: Communication Electronics and Transmission Systems. (4/6)
- EL012U Transmission Systems** 6  
Continues the systems approach initiated in Communication Electronics (EL006U). Here topics include antennas, transmission lines, propagation of EM waves, waveguides and microwave devices. Prereq: Communication Electronics. (4/4)

- EL013U Industrial Electronics** 3  
Takes a theoretical as well as a laboratory approach to the analysis of control devices and circuits. Some of the topics covered include controlled rectifiers, thyratrons, unijunction transistors and zener diodes. Prereq: Electric Circuits I. (2/3)
- EL015U Solid-State Circuit Analysis and Design** 7  
Takes an analytical approach with laboratory applications, to solid-state circuitry and basic transistor amplifier analysis and design. Topics covered include biasing techniques, equivalent circuits and their parameters, small-signal amplifiers, large-signal amplifiers, multi-stage amplifiers, feedback and oscillators. The theory and application of field-effect transistors, unijunctions and new devices also are covered. Prereq: Electric Circuits II. (4/6)
- EL018U Fundamentals of Electrical Service** 5  
Covers the generation, distribution and types of consumer power systems as they apply to rural electrical service. Use of tools, equipment, materials and fixtures as they relate to layout of electrical circuits also are studied. (3/4)
- EL022U Network Analysis and Design** 4  
Applies network analysis to such topics as filters, equalizers and tuned amplifiers. This course includes an introduction to filter network synthesis. Prereq: Transform Circuit Analysis. (3/2)
- EL026U Electricity** 3  
Studies electric circuits and machines. Emphasis is placed on the fundamentals of electricity relative to the operation of electric machines. Topics covered are basic electricity (AC and DC), magnetism, DC generators, and motors, AC generators and motors, transformers, and basic electric machine control. Prereq: Technical Math II. (2/3)
- EL027U Basic and Applied Electricity** 8  
Covers the diagnosis and repair of electrical problems as they relate to tractors, trucks and small engines. Modern test methods and equipment are stressed. (4/8)
- EL029U Electronic Circuits I** 12  
Studies the theory and application of the physics of electricity as it is applied to the field of electronics. Included are definitions, symbols; components, Ohm's law, Kirchhoff's laws, Norton's and Thevenin's theorems, and the principles of magnetics. Laboratory experiments are designed to aid learning of the theories studied. Prereq: High School Algebra. (8/8)
- EL030U Electronic Circuits II** 10  
Continues Electronic Circuits I, applying the laws from Circuits I to alternating current circuits, active devices, coupling methods, resonant circuits and radio frequency amplifiers. Prereq: Electronic Circuits I. (5/10)
- EL031U Electric Circuits III** 6  
Studies the analysis of single-time constant circuits (R-C and R-L). The S-operator is introduced in this course. Prereq: Electric Circuits II. (5/2)
- EL033U Electronic Test Methods** 3  
Covers use of test equipment in performing measurements, alignment, trouble shooting, and in gaining an understanding of the types of circuits studied in Communications Electronics (EL006U). Prereq: Communications Electronics. (2/3)
- EL034U Transform Circuit Analysis** 4  
Includes analysis of multiple-time constant circuits (R-L-C) by the use of Laplace transform techniques. Prereq: Electric Circuits III. (3/2)
- EL035U Active Devices** 7  
Provides the student with a basic understanding of how active devices work, how amplifiers amplify, and how a circuit is analyzed and designed. The course provides a background needed to progress into more complex circuits and systems. Prereq: Electric Circuits I. (4/6)
- EL058U Design Projects I** 1  
Allows the student to select, research, plan, design and make drawings of an electronics project which will be constructed in Design Projects II. This may be an individual or group project. Prereq: Solid-State Circuit Analysis & Design. (0/2)
- EL059U Design Projects II** 2  
Provides final design, breadboard construction, testing, fabricating and retesting of the project started in Design Projects I. Prereq: Design Projects I. (0/4)
- EL060U Microprocessors/Microcomputers** 2-10  
Studies microcomputers based on the 8080A microprocessor. Includes interfacing device select pulses, instruction set, data bus techniques, input/output techniques, flags and interrupts. Lab work provides experience in programming a microcomputer, and designing and constructing computer circuits. Prereq: EL061U (2-10/2-8)
- EL061U Digital Circuits and Systems** 4-5  
Will apply basic digital principles to more complex digital circuits including the basic microprocessor. Includes registers, encoders, decoders, converters, counters, memory elements and arithmetic circuits. (3/2-4)
- EL062U Digital Principles** 3-4  
Introduces the basic digital concepts. This course covers number systems, Boolean expressions, logic circuits, gates, and the operation of flip-flops. (3/0-2)

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**EL001V Electronic Shop Methods** 1  
Covers the shop skills needed by technicians in a modern electronics service center. Topics included are soldering techniques, wiring, parts placement, and the use and care of hand tools. (0/3)

**EL002V Audio Systems** 8  
Covers basics of solid-state amplifiers including the various amplifier types and bias configurations. Other topics covered include hi-fi and recording systems, distortion, decibels, and signal characteristics. Prereq: Introduction to Electronics. (4/8)

**EL003V Broadcast Systems** 4  
Includes a study of the complete systems for generation, transmission and reception of color television and broadcast FM stereo. Prereq: Audio Systems (3/2)

**EL004V Television I** 11  
Includes a study of the TV broadcast system, transmitter systems, receivers, troubleshooting techniques and alignment procedures. (5/12)

**EL005V Television II** 4  
Extends the student's experience into color television, covering such topics as transmitters, receivers and receiver servicing. Prereq: Television I. (2/5)

**EL006V Troubleshooting** 5  
Offers practical experience in troubleshooting electronic equipment in a service shop atmosphere, with student responsibility in the areas of supervision, scheduling of work, safety, showroom displays, technical testing, measuring and troubleshooting. Prereq: Communication Electronics I. (1/9)

**EL008V Electrical Principles** 11  
Studies the theory and application of the physics of electricity, included are definitions, symbols, components, Ohm's law, Kirchhoff's laws and the theory of magnetism. Laboratory experiments are designed to enhance the learning of the theories studied. (8/7)

**EL009V Shop Processes** 2  
Develops skills in the use of hand tools, drill press, oxy-acetylene welding and brazing. Also covered are care of tools, inventorying, soldering and wiring techniques. (0/5)

**EL010V Electrical Circuits** 10  
Studies electrical circuits including motors, circuit breakers, controls, three-phase systems, transformers, relays and the proper use of special measuring instruments. Prereq: Electrical Principles. (5/10)

**EL011V Diagram Interpretation** 3  
Develops skills in reading schematics, wiring diagrams and blueprints. (2/3)

**EL012V Electro-mechanical System I** 4  
Studies real systems, both mock-up and actual equipment. Included are such things as motor control panels, appliances such as automatic washers, dryers and dishwashers. Prereq: EL008V (3/2)

**EL013V Digital Circuits** 2  
Introduces the service technician to electronic computer circuits. Some of the topics studied are logic gates, number systems, arithmetic circuits, flipflops, counters and converters. (1/2)

**EL014V Electro-mechanical Systems II** 7  
Continues Electro-mechanical Systems I; this course also includes refrigerator, electric ranges, garbage disposers, small appliances, as well as industrial systems. Prereq: EL0012V (5/5)

**EL015V Control Circuit Devices** 5  
Introduces vacuum and gas tubes and solid-state devices. Use of these devices in control circuits is stressed. Emphasis also is placed on silicon-controlled rectifiers, diodes, transistors, phanotrons and thyratrons. Prereq: EL010V (4/3)

**EL016V Control Circuits and Systems** 8  
Studies the types of control circuits and systems found in industry and in home appliances. Some of the topics covered include welding controls, motor controls, automatic door openers, temperature controls, humidistats and warning devices. Prereq: EL015V (5/7)

**EL017V Equipment Troubleshooting** 10  
Offers the student the opportunity to troubleshoot all types of electro-mechanical equipment. It provides an opportunity for the student to practice all of the troubleshooting techniques learned during the course. Prereq: EL014V (5/10)

**EL018V Principles of Refrigeration** 7  
Familiarizes the student with basic refrigeration terms and the major components, tubing and fittings in a refrigeration system. Also acquaints the student with the principles of heat quantity measurements, and the theory of refrigeration and refrigeration systems. Prereq: EL012V (5/5)

**EL019V Basic Electricity** 2  
Addresses the basic concepts of electricity including definitions, voltage and current measurements, and energy consumption. Circuit and equipment protection devices and personal safety also are discussed. (2/0)

# EV: ENVIRONMENTAL STUDIES AND POLLUTION CONTROL

## COLLEGE TRANSFER COURSES

**EV001T Man in the Environment: Atmosphere** 4  
Is one of three non-sequential courses in the interdisciplinary area of man and the environment. All three quarters are taught cooperatively by a social scientist, a biologist and a physical scientist with subject matter coming from a variety of disciplines. Environmental problems and challenges resulting from the interaction of man with the environment are treated from underlying principles and a social scientific perspective. Three hours science credit, one hour core social science credit. (4/0)

**EV002T Man in the Environment: Hydrosphere** 4  
(See Man and the Environment: Atmosphere) This quarter includes interaction of atmosphere hydrosphere and lithosphere biology of a closed ecosystem, ecology, water environment, pollution of waters, power and energy, thermal pollution, wastewater treatment, control technology, humanity and water, legislation and pollution control. Three hours core science credit and one hour core social science credit. (4/0)

**EV003T Man in the Environment: Lithosphere** 4  
This quarter emphasizes land based problems of environmental interactions. Topics are: the urban environment, transportation, population, food, solid waste, national priorities, economics of pollution, legal aspects of pollution, control enforcement, conservation and comparative social and political systems responses to environmental issues. Two hours core science credit and two hours core social science credit. (4/0)

## VOCATIONAL-TECHNICAL COURSES

**EV004U Introduction to Environmental Health** 2  
Includes an understanding of the history and philosophy of the environmental health profession and the development of a professional code of ethics. The basic elements of environmental control of water, air, food, insects, rodents, and waste materials are included. (2/0)

**EV009U Recreational Sanitation** 2  
Examines the application of sanitation principles to recreational facilities. The study of sanitation control at mass gatherings, swimming pools, and parks included. Recreational sanitation programs are developed and evaluated. Prereq: EV004U, EV015U or approval of department head. (1/2)

**EV010U Solid Waste Management** 2  
Examines the principles of collection, handling, storage, and disposal of solid wastes by landfilling, incineration, and composting. Developing community solid waste control programs and codes are studied. The course includes studies of techniques for nuisance investigations and solid waste problem solving. (1/2)

**EV013U Supervised Field Studies** 12  
Offers supervised on-the-job training in inspection procedures, complaint investigations, food, water and milk sampling, report writing, and administration in a typical work environment. (0/36)

**EV014U Seminar: Environmental Health** 2  
Studies problems encountered during the student's field learning experience. (2/0)

**EV015U Insect and Rodent Control** 2  
Includes identification of insects and rodents of public health significance. The course explores techniques of surveying for insects and rodents. Special consideration is given to the techniques involved in the control methods for flies, mosquitoes, and household insects and rodents. (1/2)

**EV018U Air Quality Management** 4  
Considers the sources of air pollution, the classification of pollutants, the meteorological aspects, the effects of atmospheric pollution, the prevention and control of air pollution, and the monitoring of pollutants. (4/0)

**EV024U Diseases of Man** 2  
Develops an understanding of terms associated with disease transmission. The course examines various chains of transmission and the cause and effect relationships of diseases associated with the environment. It studies the investigation of disease outbreaks caused by a breakdown of sanitation. (2/0)

**EV025U Water Supply I** 2  
Considers the various sources of water, the physical characteristics of water, and sources of water contamination. The types, construction, and protection of water wells are studied. Techniques of water well inspection and code enforcement are emphasized. (1/2)

**EV026U Wastewater Systems I** 2  
Defines the terms associated with wastewater disposal. The sources of wastewater and the relationship to public health are studied. Soil percolation tests, designing and inspecting septic tanks are practiced. Study of the sewage disposal code and its enforcement is included. (1/2)

**EV027U Food and Milk Sanitation** 6  
Includes a basic understanding of milk and food microbiology. Techniques for inspecting milk sanitation on



dairy farms and milk processing plants are investigated. Restaurant inspection and food manufacturing plant inspection are studied. Techniques for sampling and testing of milk and foods are presented. Prereq: EV004U, EV024U, or approval of department head. (4/4)

**EV028U Shelter Environment** 6  
Examines planning, zoning, and proper land use. Techniques for housing and institutional inspection are included. Housing and sanitation surveys are made and evaluated. Studies of code enforcement of laws involving housing, nursing homes and schools are included. Prereq: EV004U, EV024U, EV015U or approval of department head. (4/4)

**EV029U Water Supply Systems II** 3  
Examines methods of water acquisition and water treatment methods as applied to small and large water systems. Sampling and analysis procedures for water quality are presented. Water distribution methods are discussed. Prereq: EV025U (2/2)

**EV030U Wastewater Disposal Systems II** 3  
Offers additional knowledge in private wastewater system design and investigation. A study of methods of collection and disposal of sewage employed by municipalities and other public entities is included. Laboratory and field testing techniques are introduced. Prereq: EV026U (2/2)

**EV027V Water and Wastewater Plant Administration** 2  
Offers instruction and practice in planning and conducting an organized system of plant record keeping and report writing. An introduction to personnel procedures, public relations, and municipal management responsibilities in water and wastewater processing is included. (2/0)

**EV030V Water Treatment** 3  
Offers instruction in water treatment methods, equipment, maintenance, and plant control. Hands-on pilot plant operation of coagulation, softening, sand filtration, and chlorination units is included. Prereq: Introduction to Water and Wastewater (1/5)

**EV034V Wastewater Collection** 2  
Covers the collection of wastewaters by gravity and pumping. Discussion of design, installation, maintenance, and repair of wastewater collection systems is included. Man-hole safety is emphasized. (1/2)

**EV035V Introduction to Water and Wastewater Treatment** 2  
Introduces the basic concepts and principles of water and wastewater treatment. Emphasis is placed on terminology and unit process identification. (2/0)

**EV036V Basic Laboratory Skills** 2  
Emphasizes the use and care of basic laboratory glassware and equipment including laboratory safety procedures. Discussion of basic chemical equations, solutions, and acid/base titrations is included. (1/3)

**EV038V Water Analysis** 2  
Covers basic principles of approved chemical and microbiological analyses of potable water. Laboratory techniques include hardness, iron, alkalinity, fluoride, chlorine, turbidity, and coliform determinations. Discussion and demonstration of advanced analytical procedures are included. Prereq: EV036V (0/4)

**EV039V Pumps** 1  
Includes instruction in basic operating principles, maintenance, and repair procedures of pumps typically found in water and wastewater treatment facilities. (0/2)

**EV040V Basic Environmental Science** 3  
Addresses cycles of nature with emphasis on ecological and microbiological theory as it relates to water and wastewater treatment. An introduction to the organic chemistry and physics of wastewater treatment is included. (2/2)

**EV041V Wastewater Treatment I** 3  
Focuses on the operation and maintenance of wastewater treatment processes. Pretreatment, sedimentation, trickling filters, and basic solids handling are covered. Hands-on operation of the pilot wastewater treatment plant is included. Prereq: EV035V (0/6)

**EV042V Wastewater Analysis I** 2  
Provides instruction in the basic parameters of wastewater analysis with emphasis on approved BOD, solids, and ammonia analysis procedures as required by state and federal discharge permits. Prereq: EV036V (1/3)

**EV043V Operations Reports** 1  
Presents instruction in the proper method for completing state and federal discharge permit reports. (1/0)

**EV044V Water Resources** 2  
Surveys the hydrologic cycle and its relationship to water as a resource for human consumption, agricultural and industrial usage. Includes discussion of water pollution and its effects on man and the environment. (2/0)

**EV045V Wells** 2  
Provides instruction on ground water movement, general design, construction, and maintenance of water wells, and calculation of well performance. (2/0)

**EV046V Water Distribution** 2  
Focuses on design principles, installation, repair, and operation of water distribution and storage components, such as hydrants, meters, and cross-connection preven-

tion devices. Includes discussion of basic hydraulics and flow measurement devices. Prereq: Introduction to Water and Wastewater Treatment. (1/3)

**EV048V Wastewater Analysis II 2**

Covers advanced wastewater analysis procedures such as oils and grease, COD, seeded BOD, fecal coliform, and phosphorus determinations. Discussion and demonstration of other advanced procedures are included. Prereq: Wastewater Analysis I (0/4)

**EV049V Lagoons 2**

Discusses principles and concepts of operation and maintenance of waste and stabilization lagoons, series flow, parallel flow, fill and draw operations, loading, detention time, and drawdown are covered. (2/0)

**EV050V Special Projects 2**

Offers special investigative projects related to water or wastewater plant operations selected by the student with approval of the department advisor. Prereq: approval of instructor (0/4)

**EV051V Internship 4/8/12**

Offers a supervised training period in a water or wastewater treatment plant. The student participates in the routine daily operation and maintenance of the host water or wastewater treatment facility. Prereq: approval of instructor (0/40)

**EV052V Sludge Treatment and Disposal 2**

Discusses principles and concepts of operation and maintenance of sludge treatment and disposal unit. Topics include: anaerobic digestion, aerobic digestion, dewatering and drying techniques. (1/2)

**EV053V Wastewater Treatment Plant Troubleshooting 1**

Focuses on process control for plant operation. Identify selected problems in plant processes and develop viable approaches to problem solving. (0/2)

**EV054V Activated Sludge and Rotating Biological Contactors 2**

Emphasizes the operation and maintenance of activated sludge and rotating biological contactors treatment units. Hands on operation of the activated sludge plant and rotating biological contactors is included. (1/2)

## 136 FL: FOREIGN LANGUAGES

### Individualized Foreign Language Program

All courses in the Department of Foreign Languages are on a modular system of individualized instruction. Instructors, native consultants and paraprofessionals assist the student. Students who have had previous language study

should consult the department head for correct placement.

**FL001T Elementary French I 4**

Develops fundamental skills in the French language. The emphasis is on acquiring the proficiency to communicate with the native speaker in everyday situations. Includes activities that promote an understanding and knowledge of French speaking peoples and their culture. (4/0)

**FL002T Elementary French II 4**

Continues Elementary French I. Prereq: Elementary French I or equivalent. (4/0)

**FL003T Elementary French III 4**

Continues Elementary French II. Prereq: Elementary French II or equivalent. (4/0)

**FL004T Intermediate French I 3**

Develops fundamental skills in the French language. The emphasis is on acquiring the proficiency to converse easily with the native speaker on general topics and to read contemporary materials. Includes activities that promote an understanding and knowledge of French speaking peoples and their culture. Prereq: Elementary French III or equivalent. (3/0)

**FL005T Intermediate French II 3**

Continues Intermediate French I. Prereq: Intermediate French I or equivalent. (3/0)

**FL006T Intermediate French III 3**

Continues Intermediate French II. Prereq: Intermediate French II or equivalent. (3/0)

**FL007T French Civilization I 3**

Provides readings on France, the French people, and their way of life, and the provinces. Course is conducted in French. May be taken as independent study. Prereq: Intermediate French III or equivalent. (3/0)

**FL008T French Civilization II 3**

Provides readings on French history, politics, unions, education, and the economy. Course is conducted in French. May be taken as independent study. Prereq: Intermediate French III or equivalent. (3/0)

**FL009T French Civilization III 3**

Provides readings on the cultural heritage of France from the Middle Ages to the present. Units include literature, music, art, drama. Course is conducted in French. May be taken as independent study. Prereq: Intermediate French III or equivalent. May be repeated for credit. (3/0)

**FL010T Elementary German I 4**

Develops fundamental skills in the German language. The emphasis is on acquiring the proficiency to communicate with the native speaker in everyday situations. Includes activities that promote an understanding and knowledge

of the people of Germany and their culture. (4/0)

**FL011T Elementary German II** 4  
Continues Elementary German I. Prereq: Elementary German I or equivalent. (4/0)

**FL012T Elementary German III** 4  
Continues Elementary German II. Prereq: Elementary German II or equivalent. (4/0)

**FL013T Elementary Spanish I** 4  
Develops fundamental skills in the Spanish language. The emphasis is on acquiring the proficiency to communicate with the native speaker in everyday situations. Includes activities that promote an understanding and knowledge of the Spanish speaking peoples and their culture. (4/0)

**FL014T Elementary Spanish II** 4  
Continues Elementary Spanish I. Prereq: Elementary Spanish I or equivalent. (4/0)

**FL015T Elementary Spanish III** 4  
Continues Elementary Spanish II. Prereq: Elementary Spanish II or equivalent. (4/0)

**FL016T Intermediate Spanish I** 3  
Develops fundamental skills in the Spanish language. Emphasizes acquiring the proficiency to converse easily with the native speaker on general topics and to read contemporary materials. Includes activities that promote an understanding and knowledge of Spanish speaking peoples and their culture. Prereq: Elementary Spanish III or equivalent. (3/0)

**FL017T Intermediate Spanish II** 3  
Continues Intermediate Spanish I. Prereq: Intermediate Spanish I or equivalent. (3/0)

**FL018T Intermediate Spanish III** 3  
Continues Intermediate Spanish II. Prereq: Intermediate Spanish II or equivalent. (3/0)

**FL019T Spanish Civilization** 3  
Provides readings on Spain, the people and the land, their history and way of life. Students may choose to emphasize a special interest area. Conducted in Spanish. May be taken as independent study. Prereq: Intermediate Spanish III or equivalent. May be repeated for credit. (3/0)

**FL020T Spanish-American Civilization** 3  
Provides readings on the Spanish speaking countries of the Western Hemisphere. Student may choose a special interest area: Mexico, Central America, South America, or some common aspect of all or several of these countries. Conducted in Spanish. Prereq: Intermediate Spanish III or equivalent. May be repeated for credit. (3/0)

**FL023T Intermediate German I** 3  
Develops fundamental skills in the German language. Emphasizes acquiring the proficiency to converse easily with

the native speaker on general topics and to read contemporary materials. Includes activities that promote the understanding and knowledge of German people and their culture. Prereq: Elementary German III or equivalent. (3/0)

**FL024T Intermediate German II** 3  
Continues Intermediate German I. Prereq: Intermediate German I or equivalent. (3/0)

**FL025T Intermediate German III** 3  
Continues Intermediate German II. Prereq: Intermediate German II or equivalent.

**FL031T Advanced German I** 3  
Provides for improvement of speaking, reading and writing skills through multi-media materials on contemporary German civilization. Prereq: Intermediate German III, or equivalent. (3/0)

**FL032T Advanced German II** 3  
Continuation of Advanced German I. Prereq: Advanced German I, or equivalent. (3/0)

**FL033T Advanced German III** 3  
Continuation of Advanced German II. Prereq: Advanced German II, or equivalent. (3/0)

## FS: FIRE SAFETY

### COLLEGE TRANSFER COURSES

**FS001T History and Philosophy of Fire Science** 2  
Provides a basic description and explanation of the core courses required for the associate degree. Discusses history and philosophy of fire protection; organization at the local, state and national level; relationships with the insurance industry, governmental bodies and other agencies. Includes a study of how our fire services are organized, an introduction to basic fire problems, and an evaluation and survey of fire protection. (2/0)

**FS002T Fire Protection Systems and Equipment** 4  
Examines the in-house devices and systems utilized to support the role of the fire service in the detection and suppression of fire. (4/0)

**FS003T Industrial Fire Protection and Security** 2  
Develops the precautions and safeguards essential for protection of lives and property in various types of occupational establishments. (2/0)

**FS004T Fluid Flows** 4  
Involves application of the laws of hydraulics, design features, flow characteristics and tests needed to ensure adequate water supplies on the fire ground. Flow testing is an integral part of this course. (4/0)

**FS005T Strategic Planning for Fire Protection 3**

Designed to help the student understand the overall fire problem at the area, community, multiple building complex, or the individual building levels. The course provides the student with the ability to identify overall and specific fire problems. It describes the management tools (systems analysis) and data collection systems from which the student can then develop solutions and alternatives. (3/0)

**FS006T Fire Investigation 2**

Studies technical matters in a clear and useful manner, permitting the individual to go to the scene of a fire and come back with some answer as to what caused it, who set it, what defect was responsible, or generally, what happened. (2/0)

**FS007T Hazardous Materials 4**

Discusses the properties of chemically active and hazardous materials, such as flammable liquids, combustible solids, oxidizing and corrosive materials and radioactive compounds, as they are related to materials and processes connected with transportation, storage, usage and fire potentials. (4/0)

**FS008T Tactics for Fire Protection 3**

Includes organization for major fires, including preplanning, command post operations, utilization of manpower and equipment for large scale operations, supply and communication. (3/0)

**FS009T Fire Protection Administration and Management 2**

Includes application and implementation in the fire service: relationship of administration at various levels of the organization including communications, legal aspects, budgeting, and evaluation of fire data for statistical purposes. Provides an in-depth study of management as it is defined: a dynamic process which effectively utilizes all resources, human and material, in the achievement of policy and goals established for the department. (2/0)

**FS010T Building Design for Fire Protection 4**

Studies building construction as it relates to its reaction under fire conditions. Interpretation and application of fire prevention in building codes as they are related to the structural strengths of a particular design. (4/0)

**FS012T Fire Behavior 4**

Involves a qualitative study of chemical and physical aspects of fuels, the combustion process and the products of combustion as these aspects apply to the causes, spread and the extinguishing of a fire. A combination lecture, demonstration and class participation course designed to teach the basic facts necessary to understand fire behavior. The latter part of the course will include the principles of fire suppression. (4/0)

**FS013T Fire Insurance 3**

Presents basic concepts of how fire insurance industries operate. Discusses insurance contracts, basic insurance terminology, basic rate structures, how rates are set, how debits and credits are assessed, and discusses buying an insurance contract. (3/0)

## **GE: GEOGRAPHY**

**GE001T Human Geography 4**

Studies the geography of population and the principle ways of life with consideration of the capacity of the earth for future population growth. (4/0)

## **GR: GRAPHICS**

**GR001U Electronic Drawing 3**

Studies the theory of orthographic projection, familiarization with drawing instruments, materials and drafting practices as applied to electronics. Students do a block diagram and a schematic of a selected system. (1/5)

**GR002U Engineering Drawing I 6**

Deals with the following topics: the use of drawing instruments, geometric constructions, orthographic projection, freehand drawing, isometric and oblique pictorial drawing, auxiliary and sectional views. (2/8)

**GR003U Engineering Drawing II 6**

Studies dimensioning and tolerancing practices. Weldments and structural assemblies, and assemblies utilizing the more commonly used fasteners are drawn. A major part of the quarter is spent in drawing a complete set of working drawings including assemblies, details and bills of materials. (2/8)

**GR004U Engineering Drawing III 5**

Covers more specialized areas of drawing such as the graphing of engineering data, and the drawing of gears, profiles, motion diagrams, and linkages. Intersections and developments of sheet metal parts are drawn. (0/10)

**GR005U Design Problems I 2**

Concentrates on design principles, design procedures, design problem observations, design problem solutions, layouts, working drawings, design collateral, specifications and vendor research. (2/3)

**GR006U Design Problems II 6**

Includes instruction in design principles and procedures, problem observations and problem solutions. (1/11)

- GR007U Layout and Design** 4  
Studies two-dimensional design and its relationship to graphic reproduction in terms of balance, contrast, color, form and texture for specified communications. Covers the application of design theory to actual production work in a laboratory environment. (1/7)
- GR009U Typography** 3  
Studies typefaces as related typographic design and layout. Historical evaluation of type is traced from the origins of the alphabet to the present. Discusses terminology, including the several ways in which type is composed. A prerequisite for this is a typing course. (1/4)
- GR011U Copy Preparation I** 7  
Presents an introduction to cold-type composition. Basic elements of simple strike-on, paste-up and an overview of high-speed typesetting systems. (2/10)
- GR012U Copy Preparation II** 8  
Covers advanced elements of cold-type composition, including photo-mechanical typesetting, preparation of artwork with intent for color, photo-mechanical transfer techniques, and line and halftone considerations. (2/13)  
Prereq: Copy Preparation I or consent of instructor.
- GR019U Platemaking I** 1  
Presents an introduction to the kinds of lithographic plates, nomenclature and specific applications for each in the printing cycle. Exposure and development of plates is stressed. (.50/1.16)
- GR020U Platemaking II** 3  
Surveys the chemistry involved in preparing plates as related to problems encountered on the press, running life, additions, deletions, and proper application of preservatives. Prereq: Platemaking I or consent of instructor. (1/4)
- GR021U Process Camera I** 2  
Studies high-contrast photography as it relates specifically to the lithographic process. Emphasis is placed on the production of line negatives and positives with an introduction to contact printing. (1/1.66)
- GR022U Process Camera II** 4  
Presents advanced techniques of line and halftone negatives including an introduction to the theory of special effects. Related darkroom operations and nomenclature. Prereq: Process Camera I or consent of instructor. (1/7)
- GR023U Process Camera III** 2  
Offers advanced theory and practical application of photographic sensitized materials applicable to the lithographic printing processes. Attention is given to special effects, photographic techniques and an introduction to the theory of color separation. Prereq: Process Camera II or consent of instructor. (1/1.66)
- GR024U Stripping I** 2  
Covers simple stripping of negatives and positives to layout specifications for duplicator size presses. (.50/2.16)
- GR025U Stripping II** 3  
Covers advanced stripping techniques, including multiple impositions, color register and pin register systems. Introduces to step-and-repeat and multiple-burn stripping applications. Prereq: Stripping I or consent of instructor. (1/4)
- GR026U Stripping III** 2  
Offers a systematic application of advanced stripping techniques for single color and multiple color runs on duplicator and larger lithographic presses. Prereq: Stripping II or consent of instructor. (1/1.66)
- GR027U Offset Presswork I** 4  
Emphasizes the practical and technical aspects of offset printing including all machine parts and operations in the "make-ready" cycle related to duplicator size presses. (1/7)
- GR028U Offset Presswork II** 7  
Emphasis is placed on tone control and the press as related to line and halftone reproduction. Fountain solutions and formulae related to inks, paper, plates, pH control and associated techniques are studied. Prereq: GR027U or consent of instructor (2/10)
- GR029U Offset Presswork III** 4  
Advanced study of theory and practical aspects relating to color reproduction and plating, includes operation of presses larger than duplicator. Consideration is given to troubleshooting and maintenance of large and small presses. Prereq: GR028U or consent of instructor. (1/7)
- GR030U Copy Preparation III** 8  
Studies advanced principles of preparing artwork for commercial offset, including newspaper, magazine and book publication techniques. Practical applications of high-speed phototypesetting systems. Prereq: GR012U or consent of instructor. (2/13)
- GR031U Bindery Operations** 1  
Offers practical application of the various binding operations including fastening and covering printed materials, folding, stitching, cutting, trimming, punching and other associated finishing operations. (1/.66)
- GR032U Architectural Drafting I** 13  
Covers sheet layout, orthographic projection, dimensioning, line quality, sketching, perspective and lettering. (2/22)
- GR033U Architectural Drafting II** 13  
Teaches the proper procedures in developing site plans, plan views (footing plans, floor plans and framing plans), elevations and wall sections. Prereq: GR032U (2/22)

- GR034U Architectural Drafting III** 11  
Covers the development of a set of working drawings for a commercial or institutional type building. Students learn to use manufacturer's reference materials. (2/18) Prereq: GR032U, GR033U (2/18)
- GR035U Architectural Drafting IV** 14  
Enables student teams to develop a set of working drawings for an addition to an existing building. Prereq: GR032U, GR033U, GR034U (2/27)
- GR036U Related Disciplines** 2  
Covers graphic application of electrical, plumbing and mechanical work as related to architectural working drawings. (2/0)
- GR037U Blueprint Reading I** 5  
Is designed to develop skills in reading actual blueprints of residential construction regarding placing of window and door openings, roof openings, stair wells, double joists, partitions, closets, hallways, and roof plans. Provides an introduction to materials estimating, the basic process of determining the amount of a specific material needed for a particular plan. Also covers price estimating, material planning and estimating delivery needs. (5/0)
- GR038U Blueprint Reading II** 3  
Is an introduction to the construction relationship between various allied trades by means of residential/commercial blueprint interpretation. It stresses the usage of instruction manuals, catalogs, graphic conversions or written instructions in actual application. (3/0)
- GR039U Principles of Drafting and Sketching** 4  
Introduces the student to general drafting techniques such as lettering, lines and symbols, dimensioning practices, orthographic projection, pictorial drawings, section views, floor plan views and elevation views. (Introduces "pencil talk," a vital part of communication-related crafts and technologies.) Covers interpreting of blueprints, and plans, and the reading of specifications basic to the building trades. Also reviews basic arithmetic, fractions, decimals, percentages, and formulas, necessary to solve construction problems. Emphasis will be placed on calculation of concrete projects, lumber measurements, footings, and flat work, labor cost and estimates. (3/2)
- GR040U Ag Drawing and Blueprinting** 1-4  
Prepares accurate scale drawings commonly used in horticulture, livestock, farm grain, soil conservation and agricultural mechanics occupations. Measurements, drawing principles, and copy reproduction are emphasized. (1-4/0)
- GR001V Graphic Skills** 2  
Develops basic drafting skills, both freehand and with layout instruments. (1/2)

## GS: GENERAL STUDIES

- GS001G Introduction to the Associate of General Studies Degree** 3  
Introduces the goals, components, and policies of the Associate of General Studies Degree program. The student will determine the appropriateness of this degree for achieving their educational goals, acquire skills for developing a portfolio, securing available learning resources, writing learning objectives, developing evaluation procedures, and developing a preliminary plan. (3/0)
- GS002G Portfolio Development** 1-4  
Emphasizes the portfolio which is the formal written communication in which the student defines and documents his or her learning experiences and requests college recognition towards the attainment of an Associate of General Studies degree. The process of developing a portfolio is for persons who have prior learning which cannot be easily measured through CLEP or proficiency exams. (1-4/0)
- GS003G Final Plan Development: Associate of General Studies** 1  
Provides an opportunity for students to consult and receive direction and assistance from a mentor in the development of a final plan. Prereq: GS001G May be repeated with permission of department chairman and mentor. (1/0)
- GS004G Independent Projects: Associate of General Studies** 1-12  
Provides readings, papers, and/or basic research or other projects under the individual guidance of a staff member. The course will allow students to explore and experience material not offered in other Kirkwood class offerings. Independent projects may be taken each quarter to a maximum of 12 credit hours. Prereq: Permission of department chairman. (1-12/0)
- ## HE: HOME ECONOMICS
- HE001U Introduction to Food Service/Hospitality Careers** 1  
Introduces students to careers in hospitality/food service industry, training requirements and personal characteristics desirable for employment in the industry. Guidance is offered in developing individual career goals. (1/0)
- HE002U Fashion History** 3  
Covers the development of costume and accessories as a part of a socio-economic and cultural force from ancient times to the present, and its relationship to fashion design and trends of today. (3/0)

- HE003U Textiles I** 3  
Studies natural fiber characteristics, yarn processing, fabric construction and fabric finishing. The qualities of fabrics are analyzed in relationship to factors of design, strength and durability. (3/0)
- HE004U Textiles I Laboratory** 1  
Studies properties of fabrics and fibers. Offers directed laboratory activities which provide knowledge for fabric identification and analysis of fiber characteristics. (0/2)
- HE005U Food Production I** 6  
Provides experience in the use and care of small and large quantity cooking equipment. Emphasizes kitchen procedures, work simplification processes and kitchen safety and sanitation. Introduces food preparation skills and techniques for yeast breads, quick breads, pastry, cakes, cookies, other desserts, salads, dressings, sandwiches, eggs, beverages, fruits, vegetables, appetizers, relishes, milk and milk products, breakfast dishes, condiments and seasonings. (0/12)
- HE006U Food Production II** 6  
Provides continued experience in the use and care of equipment, safety, sanitation, and work simplification procedures. Includes large and small quantity food production in meat, poultry, fish, seafoods, soups, sauces, gravies, yeast breads, convenience and synthetic foods, dehydrated and concentrated foods. Prereq: HE005U (0/12)
- HE007U Food Production III** 5  
Offers field studies to complement employment experiences. Specialized projects such as catering, cake decorating, etc., enable the student to develop areas of specialty. Prereq: HE006U (0/12)
- HE008U Menu and Servicing Fundamentals** 3  
Applies basic nutrition principles and aesthetic values to menu planning and directs study toward the various forms of commercial/institutional menus, and their relationships to food purchasing, costing, personnel, equipment and determining selling price, dependent upon the types of establishment. (3/0)
- HE009U Food Service Sanitation and Safety** 3  
Studies the relationship and requirements of food, food handling and food preparation necessary to produce safe and sanitary foods including the study of food-borne illnesses, pest control, commercial dishwashing, personal sanitation and grooming and local sanitation regulations. Identifies safe working practices, conditions, equipment safety, OSHA requirements and basic first aid procedures. (3/0)
- HE010U Nutrition and Food Composition I** 4  
Studies the basic principles of nutrition in relation to feeding individuals of all ages. Emphasizes study of foods, their nutritional contributions, composition, characteristics and requirements in handling, preparation, service and storage. (4/0)
- HE011U Nutrition and Food Composition II** 4  
Continues study of foods, their nutritional contribution, composition, characteristics and requirements in handling, preparation, service and storage. Emphasis is on red meats, poultry and fish. Prereq: HE010U (4/0)
- HE012U Equipment and Design** 4  
Studies the types and capabilities of commercial/institutional food service equipment available. Studies floor plans of commercial/institutional kitchens in relation to menu needs, work flow, space and personnel. Students design a commercial or institutional floor plan including equipment, specifications, approximate cost, includes field trip studies of large quantity kitchens and equipment companies. (3/2)
- HE013U Gourmet Foods/Catering** 3  
Studies specialty, regional, national and "gourmet" foods. Includes menu planning, preparation and service of above food types, and costing each type. Special emphasis is directed toward catering menus for various groups with study of menu needs and pricing, portion and cost controls, equipment and service. Prereq: HE007U or permission of instructor. (0/6)
- HE016U Quantity Food Purchasing** 3  
Studies the requirements for quantity food purchasing related to food specifications, specification writing, determining specifications according to various menu requirements. Includes study of inventories and relation of inventory records to purchasing. (3/0)
- HE017U Food Service Internship I** 6  
Provides six-week employment experiences to apply competencies learned in the classroom and laboratory, to gain additional quantity food production experience and to develop the ability to work with food service oriented people. Prereq: Successful completion of required classroom and laboratory courses. (6/36)
- HE018U Food Service Internship II** 6  
Provides six weeks of employment experiences to apply competencies learned in the classroom and laboratory, to gain additional mid-management experiences in working with food service personnel and quantity food preparation and service. Students must meet with the instructor in seminars to discuss experiences and problems identified during the internship, to emphasize job-seeking skills and

necessary interpersonal relationships with fellow employees, and to evaluate their personal objectives, goals, and accomplishments. Prereq: Successful completion of required classroom and laboratory courses. (6/36)

**HE019U Textiles II** 2

Studies basic characteristics and principles of man-made fiber production emphasizing fabric service-ability in specific end uses—clothing, household textiles, and non-wovens. Prereq: HE003U (2/0)

**HE020U Interior Analysis and Design** 5

Is an analysis of the interior including the construction materials and mechanical systems. A study of graphic presentation as it interprets design for the consumer including blueprint reading, perspective, elevations and medias. Emphasis on graphic presentation as a selling aid and communication tool with client and tradesman. Includes units on schedules, estimates, bids and contract. (4/1)

**HY: HISTORY**

**HY001T U.S. History (Seventeenth and Eighteenth Century)** 4

Surveys the social, political and economic history of the United States with emphasis on the forces resulting in the emergence of the new nation through the age of Jackson. (4/0)

**HY002T U.S. History (Nineteenth Century)** 4

Surveys the social, political, and economic history of the United States from the 1840s through the Progressive Era. Prereq: None (4/0)

**HY003T U.S. History (Twentieth Century)** 4

Surveys the social, political and economic history of the United States from World War I to the present. Prereq: None. (4/0)

**HY008T Independent Study in Social Sciences (History)** 0, 1, 2, 3, 4

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairman is required before registering.

**HY016T Europe in the Age of Monarchy** 4

Presents and explores the social, economic, political and cultural basis of Europe from the Renaissance to 1763. (4/0)

**HY017T Europe in the Age of Liberalism** 4

Continues the objectives of three-quarter study. Covers the Enlightenment to the Revolution of 1848. (4/0)

**HY018T Europe in the Age of Totalitarianism** 4

Continues the objectives of the three-quarter study. Covers from 1848 to the present. (4/0)

**IS: INTERDISCIPLINARY STUDIES**

**IS001T Biological and Cultural Man** 4

Considers and explores such questions as the origin and evolutionary history of the earth, life, man and culture. During the course of study, the student will engage in such diverse fields of study as physical and cultural anthropology, paleontology, geology, evolution and genetics. (4/0)

**IS002T Biosocial Issues** 4

Examines biosociological problems and issues facing present and future society. Human genetics and principles of evolution serve as the basis for study and discussion of such topics as Social Darwinism and more recent parallels, human ecology, race, medical genetics, eugenics and abortion. The course is interdisciplinary in scope and offered through a team teaching approach by a sociologist and a biologist. (4/0)

**IS003T Czech Ethnic Heritage Studies I** 1

Studies Czech language and/or culture. Specific materials in elementary and intermediate language; topics related to history, literature, anthropology, sociology, psychology, geography, fine arts and independent study. Individualized instruction. Variable entry. Czech native assistant. Repeat for credit up to a total of 12 quarter hours. (1/0)

**IS004T Czech Ethnic Heritage Studies II** 2

Studies Czech language and/or culture. Specific materials in elementary and intermediate language, topics related to history, literature, anthropology, sociology, psychology, geography, fine arts and independent study. Individualized instruction. Variable entry. Czech native assistant. Repeat for credit up to 12 quarter hours. (2/0)

**IS005T Czech Ethnic Heritage Studies III** 3

Studies Czech language and/or culture. Specific materials in elementary and intermediate language, topics related to history, literature, anthropology, sociology, psychology, geography, fine arts and independent study. Individualized instruction. Variable entry. Czech native assistant. Repeat for credit up to a total of 12 quarter hours.

**IS006T Czech Ethnic Heritage Studies IV** 4

Studies Czech language and/or culture. Specific materials in elementary and intermediate language, topics related to history, literature, anthropology, sociology, psychology,



geography, fine arts and independent study. Individualized instruction. Variable entry. Czech native assistant. Repeat for credit up to a total of 12 quarter hours.

- IS008T Science and Society** 4  
 Considers the interactions of science and society during past ages, in the present and for the future. Topics include fads and fallacies in science; interactions of science, music, art, literature and politics; government support of science; role of science in various civilizations; energy production and use; the space program, and "consumer survival." (4/10)
- IS009T Death and Dying** 4  
 Examines selected topics dealing with death and dying with regard to health care, religious, social, legal and funeral practices. (4/0)
- \*IS010T Man Evolving** 4  
 Considers biological evolution and applications to the history of man. Hypotheses and theories concerning origins of the earth, life, levels of life, man and races are examined. Topics investigated include primate classification and relationships, human evolution, anthropological and archeological techniques, the evolution of prehistoric culture, man's migration into North America, etc. Concept-building subject areas include scientific method and logic, genetic principles, population genetics, evolutionary principles, and paleontological principles. (4/0)
- \*IS012T The Change Family: Third World** 1  
 Studies societal characteristics relating to family form. Present Third World family forms are examined as well as the factors leading to change in family form. (1/0)
- \*IS014T Irony in Latin American Fiction** 1  
 Introduces plot and theme analysis as they are applied to four satirical Latin American short stories. (1/0)
- \*IS015T Folk Music of the Andes** 1  
 Surveys forms and types of South American popular music. Recorded music and samples of lyric poems show a variety of ethnic elements in Latin American culture. (1/0)
- \*IS018T Third World Agriculture** 1  
 Deals with topography, soil type, climate, effects of product demand, and products produced in Zambia, Africa, as a model of agriculture in a developing country. Assesses world food needs and factors limiting agricultural growth in developing countries. Identifies possible solutions to limiting factor. (1/0)
- \*IS019T The Transformation of Tanzania** 1  
 Examines the impact of Western Imperialism upon the developing nations and the major forces of modernization in transforming a traditional society into a modern nation using the example of Tanzania. (1/0)

- \*IS020T Ecological Factors in Third World Change** 1  
 Deals with the following five topics: 1) the United Nation's perspective of the Third World in the environmental program, 2) physical limits of the Third World—climate, 3) ecological productivity and energy flow, 4) characteristics of populations, and 5) the role of exponential growth. (1/0)
- \*IS021T Political Modernization: Turkey** 1  
 Examines the nation-state of Turkey. Turkey is used as an example to indicate the similarities and unique situations of nations classified as part of the Third World. (1/0)
- \*IS022T Tanzania: Problems of Nation Building** 1  
 Examines the impact of nationalism and the major problems of nation building for nations of the Third World, using Tanzania as an example.
- \*IS023T Cultural Values: Third World** 1  
 Introduces the student to a sociological study of values through an analysis of the American value system and several different Latin American value systems. It uses several case studies to demonstrate the vulnerability of cultural values to outside influences and the consequences of that vulnerability for people living in Third World cultures. (1/0)
- \*IS024T The Third World People** 2  
 Introduces the population, culture and settlement patterns in the third world. A self-directed study requires use of the library, reference materials and an ability to synthesize. (2/0)
- \*IS025T The Third World: Livelihoods** 1  
 Introduces the economic activities that predominate in the Third World today. (1/0)
- \*IS026T The Third World: Politics** 1  
 Introduces political patterns in the Third World. (1/0)
- IS027T Environmental Encounters** 3-4  
 Utilizes a wilderness area as a living classroom to teach the concepts of environmental science, outdoor living skills, sensory awareness and self expression, leadership training, group dynamics, history and personal values clarification. (0/9-12)
- \*IS028T You and Your Community** 1  
 Focuses on historical development of the Cedar Rapids area and on the resources, operations and programs of educational and government agencies. The arts, business, industry and labor also are examined. (1/0)
- \*IS031T Third World Women** 1  
 Is an introduction to the examination of the roles of women in developing countries as reflections of their various cultures. The roles will be explored according to these social/cultural institutions, religion, family, economics, government, and education. The focus of the study will be

on the following countries: India, Sub-Saharan Africa, Columbia and the People's Republic of China. (1/0)

**\*IS032T The Need for Land: Third World Issues 1**  
Discusses the relationship of peasant farmers in the Third World to land and the pressures for more equitable land distribution underlying much of the turmoil in the world today. (1/0)

**\*IS003T Non-verbal Dimensions of Inter-cultural Communication 1**  
Emphasizes the concept that examining the non-verbal behaviors of other cultures can broaden our awareness and understanding of ourselves as well as others. (1/0)

**\*IS034T Life Span Development in Third World Countries 1**  
Examines the important aspects of human development in the Third World and places emphasis upon the similarities and differences of other cultures to that of our own with regard to the changes that take place with age. (12/0)

**\*IS035T Socialization of Children in China 1**  
Examines Chinese educational theory and practices. Compares the socializing effects of schools in China and the United States. (12/0)

**\*IS036T Israel and the Arabs 1**  
Is an introduction to the Arab-Israeli conflict with an emphasis on the development of Zionism, the establishment of Israel, and the Arab response and perspective. (12/0)

**\*IS038T Introduction to Latin American Fiction 1**  
Emphasizes perceptual tendencies in Latin American cultures revealed through the use of satire, symbolism, and fantasy in novelettes and short stories. (12/0)

## JO: JOURNALISM

**JO101T Introduction to Journalism 3**  
Presents a broad, yet incisive, picture of the most important phases of journalism: newspapers, writing, advertising and public relations. (3/0)

**JO102T Journalism Laboratory 2**  
Is a laboratory for basic reporting and news writing. Combines weekly meetings and student independent work on college publications. May be taken twice. (2/1)

**JO103T Introduction to Photography 3**  
Introduces students to camera types, parts, and techniques to control film processing and printing. This is a fundamentals of photography course. (3/0)

**JO104T Photo Journalism 3**  
Introduces students to the use of photography in journalism. Emphasis is on color photography and processing,

time and business management, and sequencing and layout of photographic pictorals. Prereq: JO103T (3/0)

**JO105T News writing and Reporting 3**  
Involves an in-depth study of objective news reporting and advocacy journalism as well as training in writing the news story, writing headlines, layout, using copy writing symbols, and studying legal implications of biased reporting. Open to any interested student. (3/0)

**JO106T Promotion and Public Relations 3**  
Designed to teach students how to plan an effective promotion campaign by identifying target audiences, understanding the effect of mass communication media, and preparing materials for media campaigns. Students will be involved with campaign projects. (3/0)

## LE: LAW ENFORCEMENT

**LE002T Patrol Procedures 4**  
Studies the basic methods used by a police patrolman. Subjects covered are planning the patrol, methods of patrol, problems faced by the patrolman, relations with the public, specialized patrol activities, response for various types of emergency calls, dealing with persons presenting such special problems as illness, intoxication, amnesia and mental illness.

**LE004T Criminal Investigation 4**  
Presents the basic techniques of criminal investigation including examination of the criminal scene, collecting physical evidence, interrogation and investigation, drawings, report writing and basic photography. Investigative methods related to specific crimes such as arson, burglary and homicide will be treated. Specialized detection methods and services of the crime laboratory will be included.

**LE005T Crime Scene Investigation 4**  
Deals with advanced methods of criminal investigation, utilizing special methods and techniques as it applies to felony and misdemeanor cases. (4/0)

**LE008T Independent Study in Criminal Justice 1-3**  
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairman. (Hours arranged) May be repeated for up to 10 credit hours.

**LE009T Introduction to Criminal Justice 4**  
Surveys the various segments of the criminal justice system; explores the relationship between these independent segments of the system and the effect of this separation

upon the justice process. Should be taken early in the student's program.

**LE010T Traffic Safety and Accident Investigation 3**

Examines the principles of traffic safety, accident prevention, accident scene control, investigate procedures, skidmark evaluation and speed calculation, accident reconstruction, cause analysis report writing, case presentation, enforcement action, follow-up methods. (3/0)

**LE011T Traffic Regulation Procedures 3**

Examines the development, purpose and organization of the vehicle code, supervision of traffic, selective enforcement procedures, chemical testing for intoxication, congestion control, traffic analysis and engineering, organization and planning, use of records and statistics. (3/0)

**LE012T History of Police in America 4**

Traces the development of the police officer and the police organization, from the colonial period to modern times. Investigates the problems encountered during various periods of development of American police agencies. (4/0)

**\*LE014T Motorcycle Safety Education 4**

Develops the knowledge necessary to organize and administer the program. This would include class scheduling, instruction of staff, physical support, cycle procurement, community support and promotion. (3/2)

## LS: LIBRARY SERVICES

**LS001T Instruction in Educational Media 3**

Covers the planning and production of different types of projected and non-projected teaching materials for use in the classroom, and selection, utilization and evaluation of audiovisual materials in educational programs. (May not apply toward library science major when credit is transferred.) (3/0)

**LS003T Library Literature 3**

Considers specialized materials common in most library collections including reference materials, catalogs, indexes and periodicals. (May not apply toward library science major when credit is transferred.) (1/3)

**LS004T Public Services in the Library 3**

Provides an understanding of the function and arrangement of library catalogues, the ordering and typing of catalogue cards and the ALA filing system for the card catalogue. (3/0)

**LS006T Technical Processes 3**

Covers principles and practices of workroom procedures involving the preparation of new materials and the repair and maintenance of current collections. (3/0)

**LS007T School Library Operations 3**

Covers library service to children and adolescents, and those operations and routines which are common to school libraries. These latter include library instruction and orientation, story hours, construction of displays and bulletin boards, reserve work, technical services in the school library and direct cooperative projects with classroom teachers. Also included are circulation and shelving routines. (3/0)

**LS008T Introduction to Uses of the Library I 1**

Provides self-instruction in basic skills of library research. Students are allowed to proceed at their own pace, with guidance in the library. (1/0)

**LS009T Introduction to Uses of the Library II 1**

Continues work in library use and research skills begun in Introduction to Uses of the Library I. Examines reference books in more detail and discusses classification systems used in various types of libraries. Self-instructional. Prereq: LS008T (1/0)

**LS010T Introduction to Uses of the Library III 1**

Final course in the sequence. In addition to more research projects there is discussion of library organization, book selection and purchasing and the newer educational media. (1/0) Prereq: LS009T

## LT: LITERATURE

**LT001T Children's Literature 4**

Analyzes children's reading interests by examining the three levels of ability and the 10 types of literature available. It is primarily a historical survey of the literature with emphasis on contemporary literature. Prereq: CM101T or consent of instructor. (4/0)

**LT002T Science Fiction 4**

Includes the study of short stories and novels of the science fiction genre. Special emphasis is on utopian and fantasy science fiction. Authors studied include people like Herbert, Brunner, Vonnegut, Asimov and Heinlein. Prereq: CM101T or equivalent. (4/10)

**LT003T Selected Topics 2, 3**

Offers specialized study in interest areas. Areas may include special courses in mythology, American culture, detective novels, or other concentrations. (2-3/0)

**LT101T Introduction to Fiction 4**

Introduces the techniques and purposes of the novel and the short story. Both forms are based on the students' interests and broadening and refining those interests. Intensive analytical and interpretative reading and extensive

comparative reading will help to enrich and improve the students' literary tastes. In addition to basic texts, supplemental reading lists will refer students to a variety of library reading in the novel and short story. Prereq: CM101T or equivalent. (4/0)

**LT102T Introduction to Dramatic Literature** 4  
The purposes and kinds of dramatic works will be analyzed, and extensive comparative reading will indicate some of the significant types and forms used in dramatic convention. In addition to the study of a number of individual plays, supplemental reading will refer students to a variety of dramatic works. Prereq: CM101T or equivalent. (4/0)

**LT103T Introduction to Poetry** 4  
Develops skill in interpreting the elements of the formal structure of poetry and evaluates different theories of how poems gain meaning. The study develops a perceptive acquaintance with a large number and variety of the world's poetry. Prereq: CM101T or equivalent. (4/0)

**LT104T American Literature** 4  
Introduces major American prose literature with a concentration on writers from 1820 to 1925. Prereq: CM101T or consent of instructor. (4/0)

**LT201T Masterpieces of World Literature I** 4  
Analyzes selected writings from the Bible, Greek drama, and Greek and Roman narrative poetry. Primarily these works will be approached on their contextual basis with some attention to style, meaning and form. Prereq: CM101T or equivalent. (4/0)

**LT202T Masterpieces of World Literature II** 4  
Studies epic poetry of the medieval period, some of Chaucer's works and some of Shakespeare's plays and poetry. These works will be explored using generic, social-cultural, mythical and comparative approaches in combination. Prereq: CM101T or equivalent. (4/0)

**LT203T Masterpieces of World Literature III** 4  
Discusses selected prose and poetry of nineteenth and twentieth century Europe and America. Works will be read as masterpieces of art and studied by employing a combination of critical approaches. Prereq: CM101T or equivalent. (4/0)

**LT204T Black Literature** 4  
Analyzes American Black literature as art forms and for sociological impact, and provides a historical overview of significant Black writers. (4/0) Prereq: CM101T or equivalent.

**LT205T Independent Study in Literature** 1-4  
Provides readings, papers and/or research projects in literature under the guidance of a staff member. Consent of

instructor and department chairman is required before registering.

**LT209T Literature of Terror** 4  
Explores fear of horror in literature from medieval times to the present. Beginning with the medieval folk tale and ending with twentieth century psychological horror, this course will attempt to show how literature has dealt with the theme of fear throughout western history. This course will be concerned with horror fiction as a reflection of historical phenomena, but also as a work of art understandable in its own terms. Prereq: CM101T or equivalent. (4/0)

**LT210T Popular Literature** 4  
Includes a survey of popular literature which covers such genres as the thriller, the romance, the detective, the western and science fiction. The course attempts to evaluate their effect on modern society and to give these types of literature their place on the literary scene. Prereq: CM101T or equivalent. (4/0)

**LT211T Introduction to Film** 4  
Provides for film history, criticism and analysis of major films. The works of Chaplin, Renoir, Cocteau, Bergman, Antonioni and Truffaut will be viewed and analyzed. The emphasis of the course is upon criticism and analysis of film as an artistic medium and upon the historical and societal implications of the film. Prereq: CM101T or equivalent. (4/0)

## LW: LAW

**LW001T Criminal Procedural Law** 4  
Deals with the procedural aspects of the criminal justice system; includes the limits on prosecution; proceedings prior to trial; rights and privileges of the defendant. Emphasis is on the safeguards and protections of "due process" as they relate to procedures. (4/0)

**LW002T Criminal Evidence** 4  
Studies the kinds and degrees of evidence and the rules governing the admissibility of evidence in court. (4/0)

**LW003T Criminal Law** 4  
Introduces the philosophy and theory of criminal law and traces the historical development of criminal law from its roots in common law and Roman law to its present statutory condition. (4/0)

**LW004T Applications of Criminal Law** 4  
Examines specific definitions of criminal behavior as set forth by law. Subjects include: homicide, robbery, burglary, arson, larceny, rape, auto theft and others. Study

will progress from historical definitions to contemporary Iowa law. (4/0)

**LW005T Business Law I** 4  
Surveys principles of law as applied to business relationships and transactions. (4/0)

**LW006T Business Law II** 4  
Studies partnerships and corporations, real property, negotiable instruments, sales, insurance, trusts and estates, government and business. Prereq: Business Law I. (4/0)

**LW007T Individual Rights and the Law** 4  
Examines the American view of liberty by exploring the history of constitution-making and the Bill of Rights. Discusses rights and issues of the nineteenth century. Follows the development of each freedom from its beginnings to contemporary society by reviewing recent court decisions regarding freedom of speech, "due process" of law, equal protection under the law, and other relevant issues. (4/0)

**LW008T Introduction to Law** 3  
Introduces the philosophy and history of common law as it relates to the court system and law office operations in Iowa. The role of the legal assistant in the modern law office will be examined. (3/0)

**LW009T Legal Systems** 3  
Reviews the American judicial system and the relationship between the federal, state and local systems, study of the law library and research. (3/0)

**LW010T Legal Processes** 3  
Examines the processes and methods of legal decision making by judicial legislative and administrative agencies, ethical and professional practice standards applicable to lawyers and law office personnel. (3/0)

**LW011T Estates and Trusts I** 3  
Provides the basic legal concepts of the more common forms of wills and trusts and their ramifications. Studies the Iowa District Court relating to probate, administration of estates in probate court, estate and inheritance taxes. (3/0)

**LW012T Estates and Trusts II** 3  
Covers the basic legal concepts of the more common forms of wills and trusts and their ramifications. Studies the Iowa District Court relating to probate, administration of estates in probate court, estate and inheritance taxes. Prereq: LW011T (3/0)

**LW013T Tax IV: Estates and Gifts** 3  
Focuses on the basic legal concepts of the more common forms of wills and trusts and their ramifications, and studies the Iowa District Court regarding to probate, administration of estates in probate court, estate and inheri-

tance taxes. (3/0) Prereq: LW012T

**LW014T Legal Internship Research** 6  
Provides practical experience in the functions and responsibilities of a legal assistant. The student will research legal problems utilizing the law library and will be able to understand the more common forms of legal procedures and agreements and to perform the functions of a legal assistant in an office setting. The student will be evaluated by the coordinator and the employer. Prereq: one year in the Legal Assistant curriculum.

**LW015T Torts and Trials I** 3  
Studies the principles of the law of tort and preparation and use of pleading and other documents involved in the trial and appeal of the civil action. (3/0)

**LW016T Torts and Trials II** 4  
Continues Torts and Trials I. Prereq: LW015T (4/0)

**LW017T Business Organizational Law I** 3  
Provides a study of the attorney's role in the formation of business entities which includes proprietorships, partnerships, corporations and other business vehicles with a survey of the fundamental principles of law applicable to each and the training to prepare the necessary documents for the organization and operation of each entry. (3/0)

**LW018T Business Organization Law II** 3  
Continues Business Organizations Law I. Prereq: LW017T (3/0)

**LW019T Real Estate Law** 4  
Studies the law of real property and a survey of the more common types of real estate transactions and conveyances such as deeds, contracts, leases, deeds of trust and recording systems, and public documents. (4/0)

**LW020T Law Office Management** 3  
Aids in effective planning and use of financial resources. Topics will include management techniques, human relations, fees, accounting for time, planning and development in the law office, training, law library management and maintenance, tickler procedures, word processing future trends. (3/0)

**LW021T Commercial Law** 4  
Studies the fundamentals of the laws of contracts, sales and transactions and the right of creditors in transactions involving commerce. (4/0)

# MA: MATHEMATICS

## DEVELOPMENTAL COURSE

**MA020D Beginning Algebra** 5  
Includes the properties of the real numbers, linear equations and linear inequalities in one variable, factoring, fractions, systems of linear equations, exponents, radicals, second-degree equations and inequalities in one variable. This course presumes no background in algebra. (5/0)

## COLLEGE TRANSFER COURSES

**MA031T Intermediate Algebra** 5  
Includes the properties of the real numbers, polynomials, fractions, exponents, roots, radicals, first-degree equations and inequalities in one variable, functions and their graphs, systems of equations. Prereq: MA020D or one year of high school algebra and one year of high school geometry. (5/0)

**MA032T College Algebra** 5  
Includes systems of equation, matrices and determinants, functions and their graphs, the binomial theory, linear programming, probability and sequences. Prereq: MA031T or equivalent. (5/0)

**MA033T Trigonometry** 5  
Studies functions, inverse functions, periodic functions, circular functions, identities; trigonometric equations, and applications using the properties of the trigonometric functions. Prereq: MA032T (5/0)

**MA034T Analytic Geometry** 5  
Includes point and plane vectors, direction cosines, the straight line, the conics, transformations, polar coordinates, the point and space vectors, surfaces and curves. Prereq: MA033T or equivalent. (5/0)

**MA035T Calculus I** 5  
Includes limits, derivative, differentiation, the differential, elementary applications of calculus and introduction to integration. Prereq: MA034T (5/0)

**MA036T Calculus II** 5  
Continues Calculus I and includes the study of the integral, integration, methods of integration, parametric equations, and improper integrals. Prereq: MA035T (5/0)

**MA037T Calculus III** 5  
Includes study of indeterminate forms, infinite series, series expansion of functions, partial differentiation, and multiple integration. Prereq: MA036T (5/0)

**MA038T Differential Equations I** 5  
Includes solutions of differential equations, equations of first order and first degree, variables separable, exact equations and reduction to exact equations, and linear

equations; geometric applications and physical application. Prereq: MA037T (5/0)

**MA039T Differential Equations II** 4  
Is a continuation of Differential Equations I. More on series solutions, systems of linear differential equations, approximate methods of solving first-order equations. An introduction to Laplace transforms, and Sturm Liouville problems is also included. Prereq: MA038T.

**MA040T Linear Algebra** 5  
Is a post-calculus course which includes a study of vector spaces, determinants, linear transformations and matrices, bilinear and multilinear forms, and polynomial rings. Prereq: MA036T. (5/0)

**MA041T Fundamentals of Statistics** 5  
Includes descriptive statistics (mean, median, mode, standard deviation and variance.) Probability and inferential statistics will also be covered. Prereq: MA032T or instructor approval.

**MA042T Math for Elementary School Teachers** 5  
Includes systems of numeration, abstract mathematical systems, sets and geometry, elementary probability theory and sets of numbers. Prereq: MA020D or one year of high school algebra and one year of high school geometry.

**MA043T Finite Mathematics** 5  
Includes matrices, systems of equations, linear programming simplex method, permutations and combinations, probability and applications. Prereq: MA031T or instructor's approval (5/0)

**MA044T Problem Solving by Computer Programming** 4  
Is designed to teach a computer language with emphasis toward problem solving. An introductory course for anyone meeting the prerequisite. Prereq: MA043T and MA032T (4/0)

## VOCATIONAL-TECHNICAL COURSES

**MA001U Agricultural Mathematics** 2, 3, 4  
Stresses problems relating to agronomy, animal science, ag business, ag economics and ag mechanics. This course is designed to aid the student in reviewing mathematics practical to agriculture. (2, 3, 4/0, 2)

**MA002U Basic Mathematics** 0  
Covers basic fundamental operations of addition, subtraction, multiplication and division. The course includes working with fractions, review of decimals, and use of percent in business. Course work is orientated toward individual instruction allowing the student to complete the course in line with his ability to grasp the material presented.

**MA003U Mathematics II** 1-5  
Covers basic algebra as relates to fundamental equations, ratios and proportion, and percentages. Covers applied geometry as it relates to finding length, areas, volumes, etc. Also covers basic right angle trigonometry and gives more practice in solving "stated" problems. (2-5/0)

**MA004U Mathematics III** 1-5  
Includes the study of algebraic symbols, directed numbers, fundamental operations and factoring of algebraic expressions. Graphs, linear and simultaneous equations and trigonometric functions are also covered. Emphasis is placed on application to technology. (1-5/0-2)

**MA007U Engineering Computations I** 2  
Surveys calculator market to aid students in purchase of a personal calculator. Problem exercises cover scientific type functions and mental calculations are stressed for purpose of checking calculator results. (0/4)

**MA008U Engineering Computations II** 2  
Presents problems in applied geometry with particular emphasis on the analytic approach using electronic calculators to obtain solutions. (0/4)

**MA011U Mathematics I** 1-5  
Covers basic math skills such as addition, subtraction, multiplication, and division of whole numbers, decimals and fractions. Covers specifically dimensional analysis and significant digit concepts. Also gives practice in solving "stated" problems and covers introductory algebra concepts. (1-5/0)

**MA012U Technical Mathematics I** 4  
Includes fundamental concepts and operations, functions and graphs, trigonometric functions, linear equations and determinants, factoring and fractions, quadratic equations, vector algebra, and exponents and radicals. Emphasis is placed on applications to technology. (4/1)

**MA013U Technical Mathematics II** 5  
Continues Technical Mathematics I and includes a study of logarithms, numerical trigonometry of right and oblique triangles, analytical trigonometry and applied geometry. (5/0)

**MA014U Technical Mathematics II E** 4  
Continues Technical Mathematics I and includes a study of logarithms, the j-operator systems of equations, inequalities, variation and progressions, inverse trigonometric functions, elements of analytic geometry and an introduction to differential calculus. Emphasis is placed on application to technology. (4/1)

**MA015U Technical Mathematics III** 4  
Introduces applied calculus. Emphasis is placed on application of applied calculus to the understanding, analysis

and solution of engineering problems. Topics covered are derivations of functions, with application to maxima, minima and related rate problems, integration techniques with application to area, volume and moment of inertia problems. (4/0-1)

**MA017U Related Food Service Math** 3  
Studies recipe forms, standardization and quantity conversions, computing recipe costs. Includes work with portion controls, use of standard weights and measures, recipe yields and production charts. (3/0) Prereq: Basic Math

**MA036U Statistical Preparation** 3  
Is designed to provide the student with the necessary formulas to perform statistical data on the patient care, i.e., average daily census, rate of occupancy. (3/0)

## MH: MECHANICS

**MH001U Basic Hydraulics** 3  
Covers diagnosing and repairing basic hydraulic systems including pumps, valves, cylinders, oils and lines. (2/2)

**MH002U Hydraulics** 4  
Studies the use of hydraulic pumps and systems. Special emphasis is given to pumping, controlling, and measuring flows and to system design and analysis. Special emphasis is also placed on distinguishing the difference between types of valves, pumps, hose and connection arrangement and flow patterns. (2/4)

**MH003U Applied Hydraulics** 3  
Covers diagnosing and repairing hydraulic pumps, motors, servos, cylinders and valves. Prereq: MH001U (2/2)

**MH005U Manual Interpretation and Application** 3  
Studies interpreting operators and assembly manuals with emphasis on safety, tool selection, hoisting equipment, tires, belts, chains, bearings, bushing and seals. (2/2)

**MH006U Machine Operation and Adjustment: Crops** 3  
Includes operating and adjusting major crop machines with special emphasis on planters and combines. (2/2)

**MH007U Machinery Assembly and Handling: Materials** 3  
Includes assembly and adjustment of materials, handling farm equipment such as grinders, forage boxes, mowers, spreaders, augers. Emphasis is on accuracy of work. (2/2)

**MH008U Diesel Diagnosis and Overhaul** 8  
Covers the diagnosis and overhaul of farm and light industrial diesel power units. Prereq: MH014U (3/10)

**MH009U Supervised Shop Projects** 3, 4, 6  
Is planned so that student projects assist the students in exploring their interests, abilities and deficiencies in the area of agricultural mechanics. (3, 4, 6/0)

**MH013U Basic and Applied Gas Engines** 8  
Covers servicing and repairing all makes and models of a two- and four-cycle air and water cooled gasoline engines including the rotary engine. (4/8)

**MH014U Gas Engines Diagnosis and Overhaul** 8  
Offers instruction in the diagnosis and overhaul of farm and light industrial gasoline power units. (3/10)

**MH015U Hydraulic Controls** 3  
Involves overhauling, adjusting and maintaining hydraulic systems in which electricity is used to control flows and pressures. Prereq: MH003U (2/2)

**MH016U Power Transfer Systems** 3  
Compares principles of design, construction and operation of manual and hydrostatic transmissions, clutches, axles, belts, chains and differentials. (2/2)

**MH017U Advanced Power Transfer Systems** 3  
Includes the operation, diagnosis and repair of manual and hydrostatic transmissions, clutches, differentials and final drives. (2/2)

**MH018U Automatic Transmissions** 3  
Covers diagnosing and repairing hydraulic controlled transmissions and torque converters. (2/2)

**MH021U Unit Diagnosis and Overhaul** 8  
Covers diagnosis and overhaul of gasoline and diesel power units with special emphasis on student work with a minimum of instructor supervision. Prereq: MH008U (3/10)

**MH022U Systems Diagnosis and Repair** 14  
Concentrates on diagnosis and repairing all systems of outboard motors, stern drives, lawn mowers, garden tractors, chain saws, mini-bikes, bicycles and all two- and four-cycle stationary power plants. Students may elect to specialize or generalize. Prereq: First and second quarters of Grounds Recreational Vehicle and Repair. (8/12)

**MH025U Machine Operation and Adjustment (Tillage)** 3  
Covers adjustment and calibration field equipment with emphasis placed on student performance under actual field conditions. (2/2)

**MH026U Vehicle and Equipment Sales and Service Management** 4  
Studies the profit sources of a business dealing with ground and/or recreational vehicles and the procedures which contribute to obtaining maximum profit from each source. (4/0)

**MH027U Machinery Assembly and Handling (Tillage)** 3  
Provides instruction in the assembling and adjusting of primary and secondary tillage equipment used in modern farming systems. Related instruction in metal grinders, taps and die work and fasteners. (2/2)

**MH028U Machinery Assembly and Handling (Planting and Harvesting)** 3  
Involves instruction in the assembly and adjustment of planting and harvesting equipment with emphasis on speed and accuracy. (2/2)

**MH029U Automotive Internship** 1  
Consists of on-the-job training for the student in automotive mechanics. The student must be employed full-time, be a registered apprentice, and attend required related instruction classes. The student is rotated on work assignments in the various automotive service and parts departments that include brakes, chassis, transmissions and drive trains, power plants, electrical systems, engine diagnosis and tuning, heating and air conditioning, and miscellaneous automotive systems. May be repeated up to 12 hours.

**MH030U Automotive Fundamentals** 3  
Covers foundation for other courses and the introduction to the automobile and auto servicing. Includes steering, suspension, alignment, and tires. (3/0)

**MH031U Brakes** 3  
Covers theory of brake systems and the repair of both disc and drum types, as well as the various components. (3/0)

**MH032U Automotive Electrical I** 3  
Covers the basic electrical systems found in automotive equipment, including lights, ignition, batteries, warning systems, charging systems, and regulators. Also the diagnosis procedures. (3/0)

**MH033U Automotive Electrical II** 3  
Is a continuation of Automotive Electrical I (3/0)

**MH034U Vehicle Inspection** 3  
Is designed to meet requirements of State of Iowa inspection procedures. Successful completion requires passing State exam. (3/0)

**MH035U Engines** 4  
Covers instruction in the theoretical procedures necessary to completely rebuild an automotive engine and includes the disassembly and assembly techniques along with the restoring of tolerances by the machining of engine components. The student will be able to identify and list the procedures for engine diagnosis, removal, disassembly, rebuilding and service to worn parts. (4/0)



<b>MH036U Fuels, Lubricating and Cooling</b>	<b>4</b>	tillage and planting equipment appropriate for the season of the year during which the course is offered. (1-6/1-4)
Covers fuel systems, engine fuels, carburetors, injectors, diagnosing and servicing. Also engine lub systems and cooling. (4/0)		
<b>MH037U Tune-Up I</b>	<b>3</b>	<b>MH001V Auto Mechanics Lab I</b> <b>10</b>
Includes the use of testing equipment necessary for proper servicing of the automobile as it pertains to the engine. Servicing carburetors, ignition starting, charging pollution devices. (3/0)		Offers formal classroom as well as on-the-job instruction in shop practices, in complete auto service procedures, automotive electrical systems, fuel systems, brakes, drive train, etc. (0/20)
<b>MH038U Tune-Up II</b>	<b>3</b>	<b>MH002V Auto Mechanics Lab II</b> <b>10</b>
Is a continuation of Tune-Up I. (3/0)		Continues Auto Mechanics Laboratory I. (0/20)
<b>MH039U Emission Control</b>	<b>3</b>	<b>MH003V Auto Mechanics Lab III</b> <b>10</b>
Studies theory and causes of emission as it relates to the automobile and includes study of devices used to control these effects. (3/0)		Continues Auto Mechanics Laboratory II. (0/20)
<b>MH040U Power Trains and Transmissions I</b>	<b>3</b>	<b>MH004V Auto Mechanics Lab IV</b> <b>10</b>
Includes a study of automatic transmission, clutches, standard transmission, overdrives, propeller shafts and rear axle assemblies which includes theory of operation, diagnosis, maintenance and repair procedures. The objective of this course is to provide the related theory of transmissions and drive systems as needed. (3/0)		Continues Auto Mechanics Laboratory III. (0/20)
<b>MH041U Power Trains and Transmissions II</b>	<b>3</b>	<b>MH005V Auto Mechanics Related I</b> <b>10</b>
Is a continuation of Power Trains and Transmissions I. (3/0)		Covers practices safety, mathematics, customer relations and employer-employee relations. (10/0)
<b>MH042U Air Conditioning and Heating</b>	<b>3</b>	<b>MH006V Auto Mechanics Related II</b> <b>8-10</b>
Is designed to teach the theory of automotive heating and air conditioning systems with emphasis placed on the basic air conditioning cycle and servicing procedures. The objective of this course is to enable a student to obtain a working knowledge of automotive heating and air conditioning systems. The student will be able to identify the components, explain the theory of various systems, and know proper servicing techniques. (3/0)		Continues Auto Mechanics Related I. (8-10/0)
<b>MH043U Auto Parts Department Manager</b>	<b>3</b>	<b>MH007V Auto Mechanics Related III</b> <b>10</b>
Includes an in-depth study of parts numbering systems, storage, cataloging and retrieval of parts departments. Also included are ordering, stocking and management techniques. The objective of this course is to provide the automotive student with related theory in the operation of a parts department. (3/0)		Continues Auto Mechanics Related II. (10/0)
<b>MH044U Auto Service Department Manager</b>	<b>3</b>	<b>MH008V Auto Mechanics Related IV</b> <b>10</b>
Introduces students to dealer management. Topics include marketing techniques, financial analysis, personnel management, work scheduling and distribution, and use of flat rate manuals. The objective of this course is to provide the student with a solid background in the overall management of a service department. (3/0)		Continues Auto Mechanics Related III. (10/0)
<b>MH045U Machinery Operations</b>	<b>1-6</b>	<b>MH009V Collision Lab I</b> <b>12</b>
Gives experiences in operating and adjusting harvesting,		Instructs through discussion, visual aids and demonstrations covering the basics in assembly, sheet metal and frame, trim and glass, and refinishing. Students will practice proper use of hand and power equipment, materials and develop skills in repair procedures. (0/25)
		<b>MH010V Collision Lab II</b> <b>12</b>
		Continues Collision Laboratory I. (0/25)
		<b>MH011V Collision Lab III</b> <b>12</b>
		Continues Collision Laboratory II. (0/25)
		<b>MH012V Collision Related I</b> <b>3-5</b>
		Provides instruction in shop processes and responsibilities, shop problem solving and basic repair procedures. (3-5/0)
		<b>MH013V Collision Related II</b> <b>3-5</b>
		Continues Collision Related I. (3-5/0)
		<b>MH014V Collision Related III</b> <b>3-5</b>
		Continues Collision Related II. (3-5/0)

## MK: MARKETING

### COLLEGE TRANSFER COURSES

#### **MK001T Principles of Marketing** 4

Studies the concepts, institutions, procedures, methods and problems in moving goods or services from the producer to the consumer. (4/0)

#### **MK002T Principles of Retailing** 4

Studies retailing and its functions in a free enterprise system. All facets of retail operation are considered including planning, organization, personnel, facilities, control, pricing, buying, selling and promotion. (4/0)

#### **MK003T Principles of Selling** 4

Provides the basic skills needed to sell goods and services in a free enterprise economy. Theory is followed by practical application by each student. (4/0)

#### **MK006T Principles of Insurance** 4

Exposes students to different types of insurance contracts, the concept of risk, and government's relationship with the industry. (4/0)

#### **MK007T Principles of Bank Operations** 3

Presents the fundamentals of bank functions in a descriptive fashion so that the beginning banker may view his chosen profession in a broad perspective. (3/0)

#### **MK008T Trust Functions and Services** 3

Presents a complete picture of the services rendered by institutions engaged in trust business. Providing an introduction to the services and duties involved in trust operations, the course is intended for all bankers, not only those who are engaged in trust business. (3/0)

#### **MK013T Bank Public Relations and Marketing** 3

This course discusses the basis of public relations, both internal and external, and seeks simply to explain the why, the what, and some of the how of public relations and marketing. It is intended as an overview for all bankers in terms of what everyone in banking should know about the essential of bank public relations and marketing. (3/0)

#### **MK014T Exploring World Trade** 3

Provides students with an overview of the concepts of international trade. Students will acquire an awareness of the effects of monetary exchange, trade duties and restrictions, sociological problems and other areas of involvement in international trade. (3/0)

#### **MK016T Counselor Selling** 4

Presents the technical aspects of customer assistance. The student should have had previous sales experience prior to enrolling in this course. Prereq: instructor's consent. (4/0)

#### **MK017T Techniques of Exporting** 3

Covers terminology, payment terms, financing, drafts, letters of credit, and United States and foreign government trade controls. The course is structured for the person who has no previous foreign trade experience. Prereq: MK01 or consent of instructor. (3/0)

#### **MK019T Real Estate Finance** 3

Approaches the subject from the viewpoint of the mortgage loan officer who seeks to develop a sound mortgage portfolio. A picture of the mortgage market is presented first, then the acquisition of a mortgage portfolio, mortgage plans and procedures, mortgage loan processing and servicing, and finally the obligations of the mortgage loan officer in overall portfolio management. (3/0)

#### **MK020T Savings/Time Deposit Banking** 3

Presents the historical development of savings institutions and an awareness of the basic economic function of the savings and policies of these institutions. Different types of financial savings are reviewed in order to describe the system of financial flows of income to capital investment. (3/0)

#### **MK021T Foreign Trade Documentation** 3

Involves the student directly in the actual details of processing an export order from the time it is received until payment is received. It will cover export shipping, documents, packaging, traffic procedures and insurance. The course is structured for the person who has no previous foreign trade experience. Prereq: MK014T or consent of instructor. (3/0)

#### **MK022T International Transportation** 3

Covers the functions of the movements of goods from the point of origin to international and intercontinental destination. These functions include choice of carrier and port of exit and entry, routing, packaging, insurance, claims, rates and freight forwarder functions. Prereq: MK014T or consent of instructor. (3/0)

#### **MK023T Business Potential Seminar** 3

Is designed around a series of seminars for the small business owner, manager and employee. It deals with the image of business, customer potential analysis, advertising and promotion, merchandising for more sales, the satisfaction of the customer and the development of the masterplan for a profitable business. (3/0)

#### **MK024T International Business** 3

Is intended to teach the theoretical and practical concepts of international business which are related to international trade. The course will outline world effects of private and governmental trade as well as the effects of foreign and

domestic economic policy on overseas trade. Prereq: MK014T or consent of instructor. (3/0)

**MK025T Principles of Advertising** 4  
Acquaints the student with the philosophy of advertising, historical concepts and practical applications of advertising at the local and national levels and includes media and media selection, copywriting and layout with an emphasis on product selection for advertising. (4/0)

**MK026T Principles of Real Estate** 3  
Is designed to introduce the student to the fundamental concepts of real estate, including law, terminology and ethics. Primary attention will be given to students preparing for the real estate licensing examination. (3/0)

**MK027T Advanced Documentation** 3  
Is a case problem course involving application of transaction theories. Students will gain experiences with actual transaction problems involving proforma, letters of credit, ocean freight documents and other control systems. Prereq: MK021T (3/0)

### VOCATIONAL-TECHNICAL COURSES

**MK002U Basic Salesmanship** 3, 4  
Leads students to recognize personal traits needed for success in a sales career and identify basic sales principles as they relate to the agricultural industry. (2-4/0-4)

**MK003U Agricultural Product Marketing I** 2-4  
Emphasizes grain marketing from the producer's standpoint. Economic principles and seasonal supply cycles, grain grades and least-cost market options are covered. (2-4/0-4)

**MK004U Agricultural Futures Marketing** 2-4  
Covers the futures marketing system from a hedging standpoint. In addition, forward contracting as a price protection for farm commodities is explained and discussed. (2-4/0-4)

**MK007U Principles of Fashion Merchandising** 3  
Provides a historical and evolutionary introduction to the field of fashion merchandising: sociological, psychological, and economic aspects of fashion; fashion terminology; fashion cycles, and current practices in fashion retailing. (3/0)

**MK008U Fashion Show Procedures** 5  
Includes the principles of fashion show production: planning, coordinating and directing the fashion show. (3/4)

**MK010U Retail Management Seminar** 1  
Is designed to help prepare students for careers in retailing. The majority of seminar time is set aside for individual student help. Students also are given time to investigate retailing opportunities, prepare reports and complete

projects related to their individual retailing interests. May be repeated for a total of six hours. (0/2)

**MK011U Food Store Seminar** 1  
Provides various instructional procedures to practical problems in food marketing, with special emphasis given to the technical study of the food merchandising field and the development of projects through the use of food store marketing facilities. May be repeated to a total of six hours. (0/2)

**MK012U Introduction to Food Store Marketing** 4  
Offers an introduction to the specialized field of food merchandising. Study and materials will be based on the principles, practices and procedures relating to the retail and wholesale food industry. (4/0)

**MK013U Food Store Planning and Layout** 3  
Includes the study and actual development of the organization and planning necessary to properly merchandise and lay out a retail or wholesale food operation. (3/0)

**MK014U Merchandising** 4  
Studies principles and methods of successful merchandise selection, analyzing the market, and coping with the problems of buying. Inventory control and pricing procedures are included. (4/0)

**MK015U Marketing Study Tour** 1-2  
Provides a short period of orientation (lectures, films, discussion and study) prior to tour departure. Written report due after termination of the tour. Cities and itinerary will vary to include educational appointments with retail stores, manufacturing companies and showrooms, advertising agencies, national conventions and market-week activities. (1/1-2)

**MK018U Visual Merchandising** 2  
Offers basic instruction in display construction, the relationship of display to the total promotional program, the role of the display manager, elements of display design, construction materials and merchandise selection. A laboratory provides the student an opportunity for display construction. (1/2)

**MK019U Small Business Organization/Management** 3  
Designed to examine the fundamentals of organizing a small business. It covers such topics as finance, demographics, promotion, market competition and site location and analysis. The student will be involved in a business simulation project. Prereq: Instructors consent. (3/0)

**MK022U Employment Seminar** 1  
Provides preparatory training in job seeking skills for fashion/home furnishings majors, prior to their supervised business internship period. Emphasized application, resume, and interviewing techniques; philosophy and pur-

pose of career programs, and an introduction to the availability and use of current resource literature in professional areas of study. (0/2)

**MK023U Industrial Marketing** 3  
Introduces and investigates the functional areas of industrial marketing. Industrial distributor and manufacturer marketing principles and methods are examined. Industrial marketing simulated experiences will be given through an industrial marketing business game. (3/0)

**MK024U Business Internship Seminar** 1  
Is arranged seminars for fashion/home furnishing students concurrently enrolled in a business internship. Includes goal setting and learning objectives for the internship period, discussion and evaluation of internship experiences and work problems encountered. (0/2)

**MK032U Home Furnishings I** 3  
Studies furnishings including fundamentals of good design, color in interiors, background materials, window treatments and fabrics. Emphasis placed on practical aspect of home furnishings including measurements and estimates. Prereq: Textiles I & II. (3/0)

**MK033U Home Furnishings II** 4  
Studies sales/servicing in the home furnishings store through interior projects requiring the student to select the elements employed in the creation and coordination of an interior. The course covers the fundamentals of space planning, product knowledge, trade sources, furniture arrangement, room coordination and the solution of specific customer problems. (4/0)

**MK035U Agribusiness Sales** 3, 4  
Describes the application of selling aids, selling innovation, prospecting for customers, importance of customer relations, handling customer objections, meeting the competition, and the preparation of sales calls, sales reports and the necessity of organization. (2, 4/2, 0)

**MK039U Introduction to Purchasing** 2  
Is designed for those persons who are employed in the purchasing field and have had no formal classroom instruction; or those persons enrolled in marketing who want to expand their knowledge of the purchasing field. (2.5/0)

**MK041U Food Store Merchandising I** 3  
Offers a basic look at the principles involved in retail food merchandising with practical examples and illustrations of how they maximize profits and customer satisfaction when properly applied. (3/0)

**MK042U Food Store Merchandising II** 3  
Offers a continuation of the principles involved in retail food merchandising with emphasis on advertising and

promotions, display, profit planning and control, and government regulation and trends affecting merchandising. Prereq: MK041U (3/0)

**MK043U Trends and Practices Fashion Merchandising I** 1  
Explores current practices in specialized areas of merchandising. Includes current designers and design concepts in marketing. Explores trends through field trips, guest speakers, and review of marketing literature. (0/2)

**MK044U Trends and Practices Fashion Merchandising II** 1  
Explores current practice in specialized areas of merchandising. Includes professional affiliations and organizations. Explores trends through field trips, guest speakers, and review of marketing literature. (0/2)

**MK045U Problems in Fashion Merchandising** 1  
Is a synthesis of two years of study for entry into the professional field. Emphasizes job campaign strategy, placement bureau services and activities. Special problems in fashion merchandising are cited, analyzed and discussed. (0/2)

**MK046U Home Furnishings Trends & Practice I** 1  
Explores current practices in specialized areas of merchandising, including current designers and design concepts in marketing. It also explores trends through field trips, guest speakers, marketing literature, and familiarizes students with drafting equipment, material to create floor plans, and furniture elevations and visual means of selling. (0/2)

**MK047U Home Furnishings Trends & Practice II** 1  
Explores current practices in specialized areas of merchandising, including professional affiliations and organizations. It also explores trends through field trips, guest speakers, and review of marketing literature, and emphasizes job campaign strategy, placement bureau services and activities. (0/2)

**MK048U Window Design Treatment** 2  
Is an in-depth study of window styles and treatments including problem solving, fabric selections, treatment, and hardware selection and installation. Emphasis is placed on the selling and servicing of the drapery customer. Prereq: AT003U, AT006U, HE003U, HE019U. (2/0)

**MK049U Professional Practices** 2  
Is a synthesis of two years study for entry into the professional field, including techniques of total customer presentation and an introduction to resource people through a designer-client project. Prereq: Sophomore in Home Furnishings. (0/4)

- MK001V Retail Advertising and Display** 4  
Emphasizes instruction and practical experience in the areas of ad layout, design and construction for use with local advertising media. Includes relationship of display to the total promotional program and a study of elements of display, construction materials, merchandise selection and the actual display construction. Course meets only during summer quarter (10 weeks). (5/0)
- MK002V Floriculture Seminar** 1  
Provides various instructional procedures for practical problems in the retail florist business. Emphasis is placed on retailing and an annual floral design show planned entirely by the students. (0/2)

## MM: METALS AND MANUFACTURING

- MM001U Manufacturing Processes I** 3  
Covers ferrous metals and materials, machining and cutting tools, layout tools, gaging and inspection, measuring, hand tools, sawing and turning lathes. (1/5)
- MM002U Manufacturing Processes II** 3  
Develops skills in turret and automatic lathes, screw threads, drilling, milling, grinding and finishes, shaper and planer, and numerical control machines. (1/5)
- MM006U Metals and Welding** 4  
Studies shaping, cutting, forming, fastening, drilling, finishing and welding of various types of metals used in farm construction. (3/2)
- MM001V Machinist Laboratory I** 8-10  
Studies heat treatment of various metals and other basic metallurgical procedures; instruction in the proper care and use of measuring and layout tools; development of skills in following machines; drill press, engine lathe, turret lathe, horizontal and vertical milling machines, grinders, shaper, tracer lathe, numerically controlled machines and other types of production machine tools. (0/16-20)
- MM002V Machinist Laboratory II** 8-12  
Continues Machinist Laboratory I. (0/16-24)
- MM003V Machinist Laboratory III** 8-13  
Continues Machinist Laboratory II. (0/16-26)
- MM004V Machinist Laboratory IV** 8  
Continues Machinist Laboratory III (in the evening program only). (0/16)
- MM005V Machinist Related I** 4-10  
Offers instruction in applied mathematics for machinist, blueprint reading, machine technology, metallurgy, heat treating, and safety. (4-10/0)
- MM006V Machinist Related II** 4-6  
Continues Machinist Related I. (4-6/0)
- MM007V Machinist Related III** 4  
Continues Machinist Related II. (4/0)
- MM008V Machinist Related IV** 4  
Continues Machinist Related III (in the evening program only.) (4/0)
- MM009V Production Machinery** 2  
Covers classroom study and shop practice on the use of metal-forming machinery and maintenance of welding equipment. (0/56)
- MM010V Welding for Automotive Mechanics** 2  
Covers the set-up and operation of metallic arc and oxyacetylene welding equipment. Welding techniques used for welding in the flat position with arc welding, gas welding and brazing also are included. Welding safety is stressed.
- MM011V Introduction to Arc Welding** 1  
Includes operation of A.C. and D.C. welding equipment. Striking an arc, beads of weld in all direction in the flat position, and building pads of weld. Welding safety is stressed. (2/24)
- MM012V Welding Special Projects** .5 to 5  
An individualized course for those needing specific welding training other than the regular courses, or practice for various weld tests. Also for those needing review or upgrading of methods and skills. (0/12 to 120)
- MM017V Semi-automatic Welding** 3  
Studies the set-up and operation of the semi-automatic welding process, using both hard wire and flux core wire. (6/54)
- MM019V Heliarc Welding** 5  
Covers all position welding techniques on ferrous and non-ferrous materials, using the heliarc welding process. (6/98)
- MM020V Special Arc Welding Techniques** 3  
Studies the welding methods used on cast iron, stainless, hard surfacing and all position weld techniques used on light gauge metal. (6/54)
- MM022V Welding Inspection** 2  
Studies shop and lab welding inspection techniques giving practice in the selection, preparation and interpretation of both destructive and non-destructive welding tests. (0/56)
- MM023V Student Project** 2  
Provides for preparation of an original project by the student in the areas of fabrication, inspection or welding process. (0/56)

- MM024V Welding Technology** 4  
Studies welding processes and power sources including welding metallurgy, strength of materials, design of weldments, cost of welding and production methods. (60/0)
- MM025V Weaving the Electrode** .5  
Covers the welding techniques used to make beads of weld any width. Three basic weave patterns are taught. (0/12) Prereq: Introduction to Arc Welding.
- MM026V Introduction to Joint Welding** 1  
Studies in detail fillet welds in the flat position using single and multiple pass techniques. Includes an introduction to welding metallurgy. (4/24)
- MM027V Powdered Iron Weld Methods** 1  
Covers the methods used to make fillet welds using large diameter powdered iron "drag rods"; also the selection, and the A.W.S. numbering system of covered electrodes. (4/24)
- MM028V Flame Cutting** 1  
Develops the skills needed in oxy-acetylene flame cutting, including set-up, operation, and maintenance of equipment. Oxyacetylene safety is stressed. (6/12)
- MM029V Butt Joints: Flat** 1  
Introduces the basic methods of preparing and welding butt joints in the flat position, with and without backing strips. Also includes the use of the A.W.S. welding symbols. (6/24)
- MM030V Horizontal Weld Techniques** 1  
Introduces horizontal welding techniques and methods used to make various types of joints in the horizontal position. (0/24)
- MM031V Vertical Welding Techniques** 1  
Introduces vertical welding techniques and methods used to make various types of joints in the vertical position. (0/24)
- MM032V Overhead Welding Techniques** .5  
Introduces overhead welding techniques and methods used to make various types of joints in the overhead position. (0/12)
- MM033V A.W.S. Test: Low-Hydrogen Electrodes** 3.5  
Covers the testing of welds including the preparation and welding of A.W.S. Welder Certification Guided Bend Tests in all positions, using E-7018 electrodes. Students must pass this test to complete the metallic arc welding section of the welding program. (6/70)
- MM034V Blueprint Reading for Welders** 3  
This covers lines and views, size description, welding layout, with emphasis on welding terms and symbols. It also includes interpreting welding prints. (36/0)
- MM035V Oxy-acetylene Light Gauge Steel Welding** 1  
An introduction to oxy-acetylene welding including the set-up and operation of equipment and accessories. Welding procedures for light gauge steel sheet metal in all positions, and common joint types are taught. (4/16)
- MM036V Oxy-acetylene Heavy Steel Welding** 1  
Provides instruction in the correct welding procedures to use for heavy steel plate in all positions, and various joint types. (4/16)
- MM037V Brazing and Silver Solder** 1  
Introduces the techniques and procedures used to braze, braze weld, and silver solder. (4/16)
- MM038V Oxy-acetylene Cast Iron Repair** 1  
Studies the various methods of oxy-acetylene repair welding of cast iron. (4/16)
- MM039V Oxy-acetylene Non-ferrous Materials** 1  
Covers methods and procedures used for oxy-acetylene welding of non-ferrous materials. Aluminum welding techniques are stressed. (4/16)
- MM052V Bench Work: Engine Lathe I** 4  
Introduces measuring tools, layout, saws, drill press and engine lathe work. The work on lathe covers tool grinding, speeds and feeds as well as turning. (0/8)
- MM053V Engine Lathe II** 4  
A continuation of Engine Lathe I covering tapers, thread cutting, face plate and chuck work. Also included is sine bar, dial indicator and other precision gauge work. (0/8) Prereq: Engine Lathe I.
- MM054V Milling I** 4  
Covers basic set-ups on the vertical and horizontal milling machines. Also included is work with the shaper and planer. (0/8) Prereq: Eng. Lathe I.
- MM055V Milling II** 4  
A continuation of milling machine operations including indexing, gear cutting and rotary table milling. Also covered in this course is the metal cutting band saw. (0/8) Prereq: Milling I.
- MM056V Grinding and Heat Treat** 4  
Covers the operation and set up of surface cylindrical and tool grinders. Also including basic heat treatment and metallurgy. (0/8) Prereq: Eng. Lathe I.
- MM057V N.C. Operation and Programming** 4  
Includes the set up and operation of a two-axis tape machine and the programming and tape punching. (0/8) Prereq: Eng. Lathe I.

- MM058V Turret Lathe** 4  
Includes the basic set-ups and operations of a turret lathe. (0/8)
- MM065V Pipe Welding Techniques** 8  
The study of shielded metal arc welding of pipe joints in all positions and in accordance with A.S.M.E. and A.P.I. pipe welding codes. Prereq: MM033V (26/134)

## MS: MEDICAL AND SURGICAL

### COLLEGE TRANSFER COURSE

- MS001T Emergency and First Aid Procedures** 1-3  
Provides three areas of instruction in: 1) Red Cross multimedia basic first aid, 2) American Heart Association approved basic life support (cardio-pulmonary resuscitation), and 3) safety emphasis for procedures in general health related practices. (1-3/arranged)

### VOCATIONAL-TECHNICAL COURSES

- MS002U Emergency Care, (OPA)** 4  
Introduces students to the organization and function of the emergency room, develops basic skills in resuscitatory methods, triage and primary patient evaluation and management. Emphasis is placed on understanding the body's response to injury and disease and methods of treating specific traumatic, medical and surgical emergencies. Fundamentals of first aid are incorporated throughout the course. (3/2)
- MS004U Orthopaedic Conditions I, (OPA)** 4  
Investigates specific orthopaedic diseases and disorders, their cause, course and methods of treatment. Incorporates history and physical examination techniques, fundamentals of roentgenology and applied pharmacology. Subjects are classified by etiology or anatomical region and include a review of the related surgical and functional anatomy. (4/0)
- MS005U Orthopaedic Conditions II, (OPA)** 4  
Continues Orthopaedic Conditions I. (4/0)
- MS006U Operating Room Techniques I, (OPA)** 3  
Provides the basic principles and skills necessary to assist with surgical procedures in the operating room, including surgical aseptic techniques, patient preparation and positioning, instrumentation and equipment management. Selected operative procedures and the related anatomy are studied. (2/2)
- MS007U Principles of Immobilization I, (OPA)** 3.5  
Focuses on the principles and techniques of plaster casting and splinting utilized in the treatment of musculoskeletal disorders and includes care of the cast and the

involved patient, fracture identification, healing and complications. Concepts of traction and internal fixation are introduced. (2/3)

**MS008U Supervised Laboratory Experience I, (OPA)** 6  
Provides practical experience in a hospital emergency room, orthopaedic operating room and orthopaedic outpatient clinics. In the emergency room, the student assists with the care, treatment and transportation of patients, especially those with traumatic injuries. In the orthopaedic operating room, the student functions as an operating room technician. In the orthopaedic outpatient clinic, the student observes and assists staff with patient evaluations and treatments. Students are assigned a minimum of six weeks in each area. Performance is based on knowledge and skills acquired through the first-year course offerings. Emphasis is placed on patient/personnel relations and the development of technical skills. (0/12)

**MS009U Supervised Laboratory Experience II, (OPA)** 6  
A continuation of Supervised Laboratory Experience I (OPA). (0/12)

**MS010U Supervised Laboratory Experience III, (OPA)** 9  
Focuses on developing skills in surgical assisting. The student is assigned to a local orthopaedist in private practice to assist with the care of office and hospitalized patients, with special emphasis on assisting with all types of orthopaedic surgical procedures. Activities involve patient positioning, draping and prepping for surgery, and retracting and maintaining hemostasis during surgery. Students develop surgical case studies during operating room rotations. (0/18)

**MS011U Supervised Clinical Experience IV, (OPA)** 12  
Offers an intensified, comprehensive clinical practicum in St. Paul, Minnesota. Emphasis is placed on increasing skills in assisting with the immediate care and treatment of patients with traumatic injuries, and also offers the student an opportunity to assist a number of orthopaedists with a variety of procedures in the hospital and office environment. (0/30)

**MS012U Supervised Clinical Experience V—and Seminar, (OPA)** 12  
Involves a three-month assignment in a private orthopaedic office or clinic. Under the direction of the orthopaedist(s), guided by predetermined learning objectives, the student participates as an OPA, including assisting with office procedures and emergencies, accompanying the orthopaedist on hospital rounds and assisting in surgery. (0/30)

**MS013U Principles of Immobilization II, (OPA)** 3.5  
Continues Principles of Immobilization I with emphasis on traction techniques. Spica and body casting and cast-

bracing techniques are included. (2/3)

**MS014U Respiratory Therapy Techniques I 5**

Provides lectures and laboratory practice in the techniques used to administer gas and aerosol therapy. Included is the study of medical gases; regulation of gas flow; storage and safe handling of compressed gas systems; devices used to generate humidity aerosols; administering therapeutic gases; and operation of environmental control systems. (3/4)

**MS015U Introduction to Physical Therapy, Orthotics and Prosthetics, (OPA) 3**

Studies the basic concepts of biomechanics and physical therapy in relation to the care and rehabilitation of the orthopaedic patient and includes principles of orthotics and prosthetics with emphasis on terminology, gait concepts, recognition of abnormalities and problem-solving techniques. (3/0)

**MS017U Ventilation Therapy 5**

Introduces rationale for IPPB therapy, pressure, volume and flow classifications of ventilators, mechanics of IPPB therapy, techniques and hazards, continuous ventilation, pressure and volume cycled ventilators, compliance monitoring alarms, IMV, PEEP, CPAP. Emphasis on mechanics of providing ventilating techniques. Prereq: MS023U (4/2)

**MS019U Clinical Experience I 8**

Provides orientation to hospitals with closely supervised patient care techniques in oxygen therapy, changing cylinders and processing equipment for sterilization. Prereq: MS014U (0/16)

**MS020U Clinical Experience II 8**

Requires the student to actively participate under direct supervision of a clinical instructor. Clinical skills in gas therapy, airway management and chest physical therapy are expected to be refined to the point where there are few mistakes. The student should demonstrate sound judgment in interpersonal skills but clinical judgment is not expected at this time. The student will observe and participate in IPPB therapy to a limited extent. Prereq: MS019U (0/16)

**MS021U Clinical Experience IIIB 4**

Assigns students to specific diagnostic clinics and laboratories for observation and practice of laboratory skills in diagnostic procedures. Includes pulmonary function, bronchoscopy, and electrocardiogram labs. Prereq: MS051U (0/8)

**MS022U Clinical Experience IV 8**

Emphasizes active participation in clinical areas of general medical-surgical wards, intensive care units, coronary

care units, pediatric wards and neonatal intensive care units. The student should be able to judge the appropriateness of a physician's orders for basic therapy and recognize contraindication to therapy. The student will, to a limited extent and under close supervision establish continuous ventilation. Prereq: MS021U (0/16)

**MS023U Respiratory Therapy Techniques II 4**

Provides lectures and laboratory practice in making a physical assessment of the respiratory system; providing basic airway care and chest physical therapy techniques. Prereq: BY006U, MS014U (3/2)

**MS025U Introduction to Health Care 4**

Offers an overview of the medical care system, medical specialties and allied health fields, and an insight into the hospital organization and the interrelationship of its personnel in meeting the needs of the clientele. The course also stresses the fundamentals of patient care, safety and comfort, and includes basic nursing procedures, medical terminology, medical ethics and legal responsibilities. (2/4)

**MS032U Pediatric Respiratory Equipment and Clinical Topics 4**

Investigates the anatomy and physiology of newborn, neonatal cardio-respiratory diseases and disorders, pediatric cardio-respiratory diseases and disorders, pediatric oxygen therapy equipment, ventilators and CPAP devices. Prereq: MS017U (3/2)

**MS033U Clinical Experience V 8**

Offers continued active participation in all areas of the hospital. The course goal is to refine the students' skills in the care of critically ill patients. Emphasis will also be placed on experiences in pulmonary rehabilitation. Prereq: MS022U (0/16)

**MS036U Independent Study in Health Science 1, 2, 3, 4**

Provides readings, papers and/or basic research projects under the individual guidance of a staff member. Prereq: Consent of instructor and program chairperson.

**MS037U Clinical EEG Lecture I 2**

Provides basic knowledge of electroencephalography to understand how the EEG is utilized for diagnosis of various cerebral disorders. Includes history, development, basic neurophysiological concepts of EEG, normal and abnormal brain wave patterns in adults and children, effect of consciousness level or mental process upon EEG, pharmacology and various electroencephalographic signs of cerebral disorders. (2/0)

**MS038U Introduction to EEG Laboratory Techniques/Seminar 4**

Introduces the student to basic EEG techniques in the classroom and their practical application in the laboratory,



including basic instrumentation and operation. (1/6)

**MS040U Applied Electronics/Instrumentation 3**

Provides theory and application of systems related to EEG instruments. Laboratory sessions provide practical applications of the course material. (2/2)

**MS041U General Neurology I 2**

Provides medical and neurological terminology, neurological symptoms and signs and neurological examination in relationship with functional neuroanatomy, including neurological diagnostic methods. Introduces the disorder epilepsy. (2/0)

**MS042U Clinical Laboratory I, (EEG) 8.5**

Continues Introduction to Laboratory Techniques. Applies basic EEG techniques of recording in the clinical laboratory. History taking, patient handling and recording techniques will be correlated in a seminar. Normal and abnormal adult EEG will be introduced. (1/15)

**MS043U General Neurology II 2**

Studies neurologic disease entities including toxic and metabolic disorders, headaches, cerebrovascular disease, tumor and infectious processes. Also covers neurosurgical techniques, trauma, demyelinating, degenerative diseases and diseases of peripheral nerves and muscles. (2/0)

**MS044U Clinical Laboratory II, (EEG) 15**

Continues Clinical Lab. I. Provides additional knowledge of EEG findings. Pediatric EEG, development, both normal and abnormal and appropriate techniques are stressed. Seminars are designed to compliment clinical experience and recording techniques. (1/28)

**MS045U Special Instrumentation Techniques I 3**

Provides exposure to recent advances of electrodiagnostic techniques utilizing the computer system. Content includes visual, auditory, and somatosensory evoked potentials, CNV and radio-telemetry. Special emphasis will be placed on evoked potentials in the laboratory setting. (1/4)

**MS046U Clinical Laboratory III, (EEG) 13**

Introduces techniques in intensive care and outside laboratory settings. Emphasis is on abnormal patterns of all age groups and special techniques. Students will be required to exercise judgment initiative in techniques and instrumentation. (1/24)

**MS047U Special Instrumentation Techniques II 5**

Provides the practical aspect of electromyography and studies of nerve conduction velocity and blink reflex by observing and assisting neurologists. (0/10)

**MS048U Clinical EEG Lecture II 2**

Provides integrating information of EEG characteristics and specific patterns for cerebral disorders. Emphasis will

be placed on disorders in which EEG serves as a critical diagnostic tool. (2/0)

**MS049U Clinical Laboratory IV, (EEG) 9**

Emphasizes the ability to demonstrate clinical and technical competencies and problem solving in a varied clinical setting; includes laboratory management. Students will develop and present related reports for discussion in Seminar. (1/16)

**MS050U Diagnostic Laboratory Techniques 2-4**

Provides technician and therapist students instruction in spirometry volumes and capacities, basic mechanics, functional residual capacity measurements, theory and operation of blood gas analyzers, and electrocardiographic techniques. Therapist students will learn: measurements of gases, distribution and diffusion of gases, body plethysmography, measures of resistance and compliance, arterial puncture techniques, bronchoscopy procedures, and recognition of cardiac arrhythmias. (1/32)

**MS051U Clinical Experience IIIa 4-8**

Provides for active participation for refinement of clinical skills in IPPB therapy, changing of continuous ventilator circuits, checking ventilator settings. The student will perform, on a limited basis, spirometry, EKG and arterial blood gas analysis. Prereq: MS020U (0/8-16)

**MS052U Clinical Medicine I 3**

Provides the study of general medicine and medical subspecialties, general body response to diseases, essentials of diagnosis and treatment, review of upper airway disorders, respiratory disorders, cardiovascular and G.I. disorders, renal and nervous system disorders. (3/0)

**MS053U Clinical Medicine II 3**

Examines general surgery and subspecialties, thoracic and cardiovascular surgery, chest trauma, neurosurgical procedures, pediatrics and obstetrics. (3/0)

**MS054U Pharmacology I 1**

Introduces the administration, distribution, metabolism and excretion of drugs in the body, pharmacy terminology, aerosol medications, and respiratory physiology pertaining to drug administration. There is further study of pharmacologic action of bronchodilators, mucolytics, proteolytics, wetting agents and anti-foaming agents, which includes patient assessment following drug administration. (1/0)

**MS055U Advanced Pharmacology II 2**

Studies the autonomic nervous system and cardio-respiratory drugs affecting it, cardiac drugs, anesthetics and muscle relaxants, antibiotics, steroids, narcotics, barbiturates, diuretics, bronchial asthma inhibitors, anti-

coagulants and drugs used in cardio-pulmonary resuscitation. Prereq: CH003T, BY009U (2/0)

**MS056U Educational Techniques 3**  
Provides a systems approach to designing a learning program. Includes stating objectives in behavioral terms, writing a lesson plan, presentation techniques, strategies for learning, clinical education and evaluation, use of media, production of audio-visual materials and production of self-instructional package or presentation of inservice lecture. (3/0)

**MS057U Clinical Experience VI 8**  
Refines all clinical skills. The student is expected to demonstrate sound clinical judgment and ability to function independently in critical care areas. Offers practice in clinical evaluation and instruction of freshmen students under direction of a clinical instructor and selected experiences in elective clinical rotations. (0/16)

**MS058U Advanced Life Support 2**  
Provides a review of cardio-pulmonary resuscitation. In addition lecture and laboratory practice will be provided in inendotracheal intubation, cardiac defibrillation, intravenous therapy and fluid replacement, and treatment of immediate life-threatening condition. (1/2)

**MS059U Advanced Pathology 3**  
Offers an indepth study of cardio-respiratory disorders, relating to the respiratory therapists' roles in diagnosis, treatment, and support. Prereq: MS052U, MS053U, MS050U and Advanced Pharmacology. (3/0)

**MS060U Advanced Respiratory Therapy Equipment and Procedures 4**  
Examines establishing a continuous ventilation, predicting necessary ventilator adjustments, criteria for weaning and weaning procedures, including nasotracheal suctioning, monitoring systems, assessing ventilator performance, choosing ventilators for clinical situations, VD/VT measurements, bedside spirometry, fluidics and application to respiratory equipment. Prereq: MS014U, MS023U, MS017U (4/1)

**MS004V Medical Terminology I 2**  
Is an orientation course in the vocabulary of medicine. Efforts are directed toward correct pronunciation and correct spelling of words through self-paced learning with videotapes as well as classroom participation. (2/0)

**MS005V Medical Terminology II 2**  
Continues Medical Terminology I with concentration on spelling, defining and applying terminology common to systems of the body by the medical field. Prereq: MS004V (2/0)

**MS006V Medical Terminology III 3**  
Continues Medical Terminology I and II. (3/0)

**MS008V Supervised Clinical Experience I, (MA) 6**  
Offers experience in private doctors' offices, clinics, industry or wherever medical treatment is given under supervision of doctors and registered nurses and school instructors. (1/16)

**MS009V Supervised Clinical Experience II, (MA) 13**  
Continues Supervised Clinical Experience I, (MA). Prereq: MA008V (1/36)

**MS013V Pharmacology 2**  
Introduces drugs, apothecary and the metric system. (2/0)

**MS022V Medical Procedures I 6**  
Introduction to medical assisting: orientation to the physician's office and the role of the medical assistant, house-keeping, sterilization procedures, T.P.R. and B.P. procedures, histories and preparing patients for examinations, telephone and scheduling procedures, inventory and storage, x-ray techniques, collection of specimens, smears, etc., as well as electrocardiogram. (3/7)

**MS023V Medical Procedures II 6**  
Continues Medical Procedures I and studies hematology, drugs and solutions. Hematology studies consist of complete blood counts. Also blood typing is done. Pharmacology includes history and purpose of drugs plus administration by all methods. Prereq: MS022V. (3/6)

**MS024V Medical Procedures III 2**  
Continues Medical Procedures II and pharmacology including physical therapy. Prereq: MS023V (1/2)

**MS025V Medical Procedures IV 2**  
Covers services management, including computer science information and current trends. Prereq: MS024V (2/0)

**MS026V Advanced Operating Room Techniques 3**  
Provides study of specific surgical procedures that are performed routinely in a general hospital. Includes applied anatomy and physiology, patient positioning, surgical skin preparation and limited instrumentation. (3/0)

**MS027V Advanced ORT Clinical 10**  
Introduces the student to the operating room environment and provides practical application of acquired knowledge and skills through circulating and scrubbing in a variety of surgical procedures as the student demonstrates increased competency. (0/20)

## MU: MUSIC

**MU007T Applied Music: Vocal I 2**  
Designed to teach, in a group situation, the basic skills of singing to beginning students. Various concepts of voice will be presented, concerning these skills which include overcoming self-consciousness, breath control, tone pro-

duction, interpretation, and performing musical exercises and a varied repertoire will be learned so that the student may apply concepts and techniques to simple songs. (0/4)

**MU008T Applied Music: Vocal II** 2  
A continuation of Vocal I. (2/0)

**MU010T Voice** 1  
Offers private instruction for advanced students in voice. May be repeated for six credits. Periods to be arranged. Prereq: MU008T or permission of instructor. (1/0)

**MU011T Music Appreciation: The Concert** 4  
Includes elements and types of music with some attention to major periods and composers. (4/0)

**MU012T Advanced Harmony, Ear Training and Sight Singing I** 1-3  
Continues the first year music theory. This course is divided into three one-hour segments so students may register for 1, 2, or 3 hours credit. Prereq: MU011T (0/8)

**MU013T Advanced Harmony, Ear Training and Sight Singing II** 1-3  
Continues Advanced Music Theory I. This course is divided into three one-hour segments so students may register for 1, 2, or 3 hours credit. Prereq: MU012T (0/8)

**MU014T Advanced Harmony, Ear Training and Sight Singing III** 1-3  
Continues Advanced Music Theory II. This course is divided into three one-hour segments so students may register for 1, 2, or 3 hours credit. Prereq: MU013T (0/8)

**MU015T Band** 1  
Is designed for students with ability and desire to play in a band. May be repeated for a total of six credits. (0/3)

**MU016T Chorus** 1  
Meets three hours weekly. May be repeated for a total of six credits. Period to be arranged. Prereq: Permission of instructor. (0/3)

**MU019T Beginning Piano** 2  
Designed to teach beginning piano in a group situation. The basic music skills and vocabulary are taught and developed into the techniques needed to perform music. Simple, familiar folk and popular songs are learned to develop these basic skills and technique. The course is also designed to help the student overcome self-consciousness while playing the piano and to stimulate ensemble playing in order to perfect the basic skills and to learn from one another. (0/4)

**MU020T Music for Classroom Teachers** 4  
Helps provide the necessary skills and background for elementary classroom teachers to teach music including: sight singing, the use of an autoharp, basic keyboard and repertoire. (0/8)

**MU022T Ensemble** 1  
Offers instruction and performance in small vocal groups. May be repeated for a total of six credits. (0/3)

**MU024T Music Theory II** 1-4  
Continues Music Theory I. This course is divided into four one-hour segments so students may register for 1, 2, 3, or 4 hours credit. Prereq: MU039T (0/8)

**MU025T Music Theory III** 1-4  
Continues Music Theory II. This course is divided into four one-hour segments so students may register for 1, 2, 3, or 4 hours credit. Prereq: MU024T (0/8)

**MU034T Beginning Guitar** 2  
Designed to teach beginning guitar in a group situation. The basic skills and vocabulary as taught and developed into the technique needed to perform music. Simple, familiar folk and popular songs are used to develop these skills and techniques. (0/4)

**MU035T Music Appreciation: Folk Music** 4  
Entails learning the origin of unfamiliar and familiar folk songs and can serve to mirror the collective consciousness of the society from which it emerged. (4/0)

**MU036T Music Theory Ia** 1  
Includes fundamental, ear training and sight singing and is a study of touch harmony. (0/2)

**MU037T Music Theory Ib** 1  
Includes fundamentals, ear training and sight singing, with the addition of harmony. Prereq: MU036T (0/2)

**MU038T Music Theory Ic** 1  
Continuation of Music Theory IB Prereq: MU037T (0/2)

**MU039T Music Theory Id** 1  
Continuation of Music Theory IC. Prereq: MU038T (0/2)

**Applied Music**  
For each hour of credit, the work in applied music requires 10 lessons during the quarter. Unless otherwise directed by the department head, these lessons will be on a weekly basis. It is possible for a student to enroll for two hours of the same instrument with the permission of the department head. The appropriate faculty will determine the level of the student's qualification by audition and/or previous study in the instrument or vocal area. The following are the instrument areas. Each represents one hour of credit. (.5/0)

**MU101T Organ**  
**MU102T Piano**  
**MU103T String Bass**  
**MU014T Cello**  
**MU015T Viola**  
**MU106T Violin**  
**MU107T Percussion**

- MU108T Tuba  
 MU109T Baritone  
 MU110T Trombone  
 MU111T Coronet-Trumpet  
 MU112T French Horn  
 MU113T Saxophone  
 MU114T Bassoon  
 MU115T Clarinet  
 MU116T Oboe  
 MU117T Flute  
 MU118T Guitar 1  
 Offers private lessons for intermediate and advanced guitarists. Prereq: MU034T or consent of the instructor. (5/0)
- \*MU119T Opera Theatre 3  
 Prepares students to perform opera for the schools and community. Prereq: consent of instructor. (0/6)
- \*MU120T Recreational Music 4  
 Emphasized music as a past-time, diversion, or other resource affording relaxation and enjoyment. The student will learn to read music, play musical games, play simple instruments such as the auto harp and recorder, and develop a basic repertoire of "fun" songs that can address themselves to different audiences. (0/8)

## NS: NURSING

- NS001U Changing Patterns of Health Care and Nursing, (ADN) 2  
 Focuses on changing patterns of the health care delivery system and the complex team relationships that affect the quality of health service. Prereq: NS008U (2/0)
- NS002U Metrology 1  
 Uses a programmed instruction text to assist learning of conversion and application of apothecary, metric and household systems of measurement. Course is self-paced. A nursing core course. (Pass/no-credit evaluation) (1/0)
- NS003U Nursing I (Fundamentals of Nursing) 9  
 Focuses on function of the nurse in beginning clinical practice and the behavioral changes required to implement fundamental care for all patients and/or residents (care, comfort, safety, nutrition and elimination). The patient, as an individual, and the physical-emotional-cultural relationships also are studied. Students with reading and/or mathematic deficiencies may be required to enroll in the personal achievement courses. (5/8)

- \*NS004U Nursing II (Introduction to Medical-Surgical Nursing) 10  
 Continues Nursing I with focus on fundamental nursing knowledge and techniques for the care of all patients. Special emphasis is on the nursing care of patients having surgery. Fluid and electrolytes, oxygen, nutrition, pharmacology and elimination are stressed. Concepts of stress in self and others, death as a progressive, individual process, health care and health promotion are included. A nursing core course. Prereq: NS003U, NS002U, NS013U and BY006U. (5/10)
- \*NS005U Nursing III (Maternal and Child Nursing) 12  
 Focuses on physical and mental changes occurring during pregnancy and the birth process. The study of the needs of ill children in relation to the well child is emphasized. Includes identification of community health agencies and services through study and visitation. A nursing core course. Prereq: NS004U (5/14)
- NS006U Nursing IV (Psychiatric Nursing), (ADN) 10  
 Focuses on the care of persons with emotional problems. Principles relating to communication, the nurse-patient relationship and psychosocial needs are applied to the nursing care. The role of the nurse in caring for patients in various settings and in coordination with other professionals is explored. Attitudes, values, feelings and emotions as present in all persons and as an integral part of all interpersonal relationships are used in the continuing development of a philosophy of human caring in nursing. Prereq: NS005U (5/10)
- NS007U Nursing V (Medical Surgical Nursing), (ADN) 12  
 Focuses on the systematic application and analysis of care given to, for and with the hospitalized person with more complex medical surgical health problems. Supportive and therapeutic modalities are continued throughout the nursing core; i.e., fluid and electrolytes, pharmacotherapeutics, surgical and diet. Prereq: NS006U (4/16)
- NS008U Nursing VI (Medical Surgical Nursing), (ADN) 12  
 Focuses on the systematic analysis and application of care given to, for and with the hospitalized persons with more complex medical surgical health problems. Focus on the problem-solving method is continued as a tool to assess, implement and evaluate patient care. Prereq: NS007U (4/16)
- NS009U Nursing VII (Advanced Maternal and Child Nursing), (ADN) 12  
 Focuses on the care of obstetrical, newborn and pediatric patients. Nursing content is focused on the care of pa-

tients with complications. The psychosocial and learning needs of persons at the various stages of development. Complex health problems are explored in depth. Specific nursing measures are developed which are utilized in planning, implementing, evaluating nursing care for the patient and family. Prereq: NS008U (4/16)

**NS010U Nursing VIII (High Priority Care and Management Principles), (ADN) 16**

Focuses on the role of the nurse in planning, implementing and evaluating nursing care for groups of patients and those requiring priority care. The student is assisted with the transition to the nurse practitioner role. The team leading method of patient care is studied in relation to managerial skills. Disaster nursing also is included. Prereq: NS009U (4/24)

**NS011U Nursing IX (Legalities Seminar), (ADN) 2**

Focuses on the legalities and guidelines within which the nurse's patient care responsibilities are defined by the law and by nursing practice. Prereq: NS009U (2/0)

**NS012U Advanced Placement Seminar, (ADN) 1**

Is open to advanced placement nursing students to explore the role expectation of the associate degree nurse, develop skills in problem-solving, communication, self-evaluation and self-directed learning. (1/0)

**NS013U Normal Nutrition 2**

Designed to provide the foundation of knowledge of normal nutrition necessary to application of nutritional therapy in the nursing care of the patient with special nutritional needs. A nursing core course. (2/0)

**NS016V Nursing IV (Medical Surgical Nursing), (PN) 13**

Studies advanced med-surg. nursing care of patients with disaster nursing included. Prereq: NS005U (5/16)

**NS017V PN Nursing Seminar, (LPN) 2**

Deals with the legal and ethical implications and responsibilities of the licensed practical nurse. Consideration is given to the rights and privileges of the patient. General legal and ethical principles are related to specific nursing care situations. Prereq: NS005U (2/0)

## OE: OFFICE EDUCATION

### COLLEGE TRANSFER COURSES

**OE001T College Shorthand I 4**

Presents the shorthand theory and develops the ability to take dictation consisting of basic vocabulary. For students with no knowledge of shorthand or instructor's approval. (3/2)

**OE002T College Shorthand II 4**

Offers a review of shorthand theory and continues to develop shorthand dictation ability on gradually increasing vocabulary levels. Introduces typewriter transcription. Prereq: OE001T or instructor's approval. (3/2)

**OE003T College Shorthand III 4**

Emphasizes increased rate of dictation and development of introductory transcription skills. Prereq: OE002T or instructor's approval. (3/2)

**OE004T College Shorthand Transcription 3**

Continues shorthand sequence with emphasis on increasing the student's ability to transcribe difficult material from shorthand notes and to polish related transcription skills. Prereq: OE003T or instructor's approval. (2/2)

**OE006T College Typing I .5-3**

Consists of modules 1-6. Module I covers the alphabetic keyboard; module II, the number keys; module III introduces the basics of correspondence; module IV, the basics of tabulations and manuscripts; module V, other correspondence; and module VI introduces business forms and additional manuscript instruction. This course is designed for those with no previous typing instruction. Advanced placement may be arranged by successful completion of a diagnostic test. Speed goal is 35 wpm. Students should consult an instructor before enrolling. (0/1-6)

**OE007T College Typing II .5-3**

Consists of modules 7-12. This sequence is designed to improve the knowledge and skill developed in the first modules. Includes learning additional letter styles as well as more complex manuscripts, tabulations and business forms. Speed goal is 45 wpm. Prereq: OE006T or instructor's approval. (0/1-6)

**OE008T College Typing III .5-3**

Consists of modules 13-18. This sequence is designed to develop expert typing skill and knowledge and is primarily for the secretarial major. Begins with a review of previous instruction. Offers an opportunity for extensive practice of very difficult material. Concludes with office-style projects. Speed goal is 55 wpm. Prereq: College Typing I and II or instructor's approval. (0/1-6)

**OE009T Office Machines 4**

Provides for integration of and relevance between basic mathematics and office machines. Mathematical concepts are applied to the operation of adding and calculating machines. Special emphasis is placed on electronic calculators. Prereq: Knowledge of basic mathematics. (3/2)

**OE010T Filing Systems and Records Control 3**

Designed to introduce and develop the principles governing what records to keep, how to store them and how to find them quickly when needed. Consideration will be

given to criteria for determining disposition or retention of records, alphabetic indexing rules, records storage methods and systems, and principles for the selection of records equipment supplies. (3/0)

**OE011T Secretarial Procedures** 4  
Integrates the skills, knowledges and personal qualities necessary for an administrative secretary to perform the operational and supervisory functions for today's office. Provides simulated office activities, problem solving techniques and decision making experiences with special emphasis on creativity and professionalism. Prereq: OE007T, OE002T or instructor's approval. (3/1)

**OE012T College Typing IV** .5-3  
Consists of modules 19-24. Each module offers a different office simulation in which a student is provided practice in applying advanced typewriting skills to a realistic job situation. Speed goal is 65 wpm. Prereq: College Typing I, II and III or instructor's approval. (0/1-6)

### VOCATIONAL-TECHNICAL COURSES

**OE001U Office Procedures I** 4  
Refines knowledges and skills and introduces new concepts and procedures leading to realistic preparation for seeking office employment. Units include experience with copying and duplicating equipment, telephone and receptionist duties, as well as basic secretarial functions. Students learn effective job application techniques. Prereq: College Typing I. (3/2)

**OE002U Office Procedures II** 3  
Provides simulated office activities and problem-solving situations which will develop and apply a wide range of office skills. Students are rotated through different office positions and undergo realistic patterns of inter-action which will better prepare them to perform day-to-day operations, to develop self-confidence, and to cultivate the personal traits and the human relations skills that are necessary for success in office occupations. Prereq: Typing II. (1/4)

**OE003U Insurance Machine Transcription** 3  
Designed to concentrate on the letters, memos, and reports used in insurance offices. Both accuracy and increased transcription rate will be stressed, and actual letters will be used. Prereq: Insurance terminology and proficiency in machine transcription. (2/1)

**OE005U Office Education Laboratory** 1-4  
Provides self-paced learning activities for either remedial or enrichment instruction in various office education subject areas, with special emphasis on improving spelling skills. (0/2-8)

**OE007U Office Procedures, (OPA)** 2  
Develops procedures necessary to assist the orthopaedic surgeon and related personnel with the care of patients in the office environment. Includes communications procedures, inventory management, ordering orthopaedic shoes and adjustments, and applied pharmacology. (1/2)

**OE009U Medical Records Science II** 4  
Provides for a survey of the history of medical record science and the profession, including analysis of medical record content stressing accuracy, completeness, and correlation of data. Also covers numbering of terminal digit filing systems with emphasis on retention policies and storage methods. (4/0)

**OE010U Nosology and Health Data** 4  
Is designed to develop skill in the use of approved disease and operative classification systems. Emphasis is on techniques used in health information retrieval, and analysis and report preparation for medical staffs and community health agencies. (4/0)

**OE011U Directed Practicum** 7, 8  
Provides students with positions in medical record centers in order to gain experience in medical record analysis, filing, storage, coding, and indexing as well as statistical reporting and related medical record functions, and responsibilities. This course is required for two quarters prior to graduation. (0/20)

**OE012U Medical Records Science III** 4  
Provides for the training of storage and microfilming of records, including field trips to hospitals and related health institutions to learn of record retention. (4/0) Prereq: OE009U

**OE013U Documentation of Medical Records** 3  
Provides for an understanding of the completeness of medical records. It allows the student to learn of methods of determining lengths of stay. The student also will analyze records to determine necessary signatures needed to complete the records. (1/2)

**OE014U Legal Aspects of Medical Records** 2  
Enables the student to know what medical information can be released to proper authorities—proper release of information from the medical records. (2/0)

**OE002V Law Office Procedures** 3  
Designed as a finishing course in specialized legal secretarial training, combining skills previously learned in legal typing and terminology, shorthand, and office procedures. Through lectures, class discussions, simulated projects, field trips and panel discussions, students are acquainted with typical law office procedures applicable to different areas of legal work—probate work, real estate transac-

tions, civil actions, etc. Prereq: Legal Typing and Legal Terminology. (2/1)

**OE003V Legal Dictation** 3  
Develops student's ability to take dictation of difficult materials and to transcribe in legal document form. Prereq: College Shorthand III, Legal Terminology. (2/1)

**OE004V Legal Machine Transcription** 3  
Develops student's ability to transcribe legal materials in document form from machine dictation. Prereq: Legal Terminology and proficiency in transcribing machines. (2/1)

**OE005V Legal Typing** 3  
Provides instruction in typing of information on printed legal forms and in completion of legal instruments and documents common to local jurisdiction practices. Prereq: College Typing III (2/2)

**OE006V Legal Terminology** 3  
Provides instruction in the correct definitions, spelling, and application of approximately 400 terms commonly used in legal secretarial work. (3/0)

**OE007V Medical Secretarial Dictation** 4  
Develops a medical shorthand vocabulary, concentrates on building shorthand speed on medical material, and on producing mailable letters and reports with medical terminology. Prereq: College Shorthand III, Medical Terminology, Basic Anatomy and Physiology. (3/1)

**OE010V Medical Secretarial Machine Transcription** 3  
Develops further transcription skills with emphasis on medical terminology. Gives practice in transcribing medical letters and forms, case histories, consultation reports, operative records, discharge summaries, X-rays and EKG reports. Prereq: Medical Secretarial Terminology, Basic Anatomy and Physiology, and Transcribing Machines. (2/2)

**OE011V Medical Secretarial Office Procedures** 4  
Designed as a comprehensive advanced office simulation. Basic secretarial skills are combined with skills needed to perform secretarial duties in a doctor's office, hospital record room or specialized hospital department. Prereq: College Typing II or approval of instructor. (3/1)

**OE012V Medical Secretarial Typing** 3  
Concentrates on typing medical letters and forms, case histories, consultation reports, operative records, discharge summaries, X-ray and EKG reports, and the preparing of abstracts and articles for medical journals. Prereq: OE008T (2/2)

**OE013V Medical Typing** 2  
Concentrates on the typing of forms, letters, and other business papers which are common to the medical office,

and introduces the use of transcribing machines. (1/2)

**OE014V Insurance Terminology** 2  
Emphasis will be on the correct spelling and application of terms used in the insurance field. (2/0)

**OE015V Transcribing Machines** 2  
Teaches efficient operation of several kinds of transcribing machines. Emphasis is also given to spelling, grammar usage, punctuation, capitalization, business letter styles, typing shortcuts, and error correction. Business terminology used in various kinds of business communication is also introduced. Prereq: OE007T. (1/2)

**OE016V Office Careers** 1-2  
Provides an atmosphere to analyze the career opportunities available to clerical and secretarial workers. Special emphasis is placed on tours, personal development and projects related to individual interest areas. (1-2/1-2)

**OE025V Office Education Seminar** 1  
Correlated with the students program of studies and business internship experiences. Time assigned by program. (1/0)

**OE028V Insurance Typewriting** 3  
Introduces the forms, policies, and letters common to most insurance offices. The typing of numbers will be stressed, and accuracy will be a major objective. (2/2)

**OE030V Receptionist Seminar** 1  
Provides instruction in the area of greeting callers, making appointments, doing introductions, and other related receptionist responsibilities. (1/0)

**OE031V Business Skills (Insurance)** 2  
Promotes a working knowledge of basic medical insurance programs and forms utilized in record keeping of insurance claims. (2/0)

## PD: PERSONAL DEVELOPMENT

### DEVELOPMENTAL COURSES

**PD002D Personal Achievement Math** 1-3  
Is designed on an individualized or small group basis, to help students master the basic skills of mathematics as well as to help students who need a review of math skills. The course may cover any one or all of the following modules: whole numbers and fractions, whole numbers and decimals, ratios, proportion, percent, pre-algebra, basic geometry, metric system, and technical math. (1-3/0)

**PD003D Personal Achievement Reading** 1-3  
Is designed to measure the student's present reading skills and from that measurement provide an individualized program for the improvement of skills. The course is divided

into three main areas: pronunciation, vocabulary and comprehension. The reading materials utilized are related to the student's interests. (1-3/0)

**PD004D Personal Achievement Basic Writing 1-3**  
Is a course designed to assess a student's writing strengths and weaknesses. The student receives instruction on an individualized or small group basis in the areas of skill needs while building on skills already mastered. The course is divided into two parts: knowledge about language and experience using the language. The course will prepare the student to take Composition I and may also be supplemental support for those students enrolled in Composition I, Composition II, Communication Skills and/or other courses. (1-3/0)

**PD006D Orientation to American Culture 1**  
Presentation of information that will help the student function in American society and in Kirkwood Community College. Topics to be covered will include American institutions and customs and the educational system. Student activities will include conversation, oral reports, notetaking and quizzes. This course is required during the first term for those enrolled in English as a Second Language.

**PD007D Personal Achievement Basic Study Skills 1**  
Basic study skills include instruction and practice in the following areas: time schedule and management, using textbooks, systematic study attack methods, notetaking, concentration and retention, test taking and listening skills. (0/2)

**PD008D Personal Achievement: Punctuation Review .5**  
Review punctuation to help the student in writing, covering rules in conventional standard written communication. (0/1)

**PD009D Personal Achievement: Grammar Review .5**  
Reviews grammar to help student with sentence structure in writing. The course will cover parts of speech and parts of sentences. (0/1)

#### COLLEGE TRANSFER COURSES

**PD001T Group Dynamics 2**  
Emphasizes small group procedures for personal development in education. Structured group procedures and micro-counseling skills will supplement materials relevant to academic adjustment and success. (2/0)

**PD004T Life-style Planning and Assertiveness Training 2**  
Is designed primarily to assist students in assessing their current life-style and helping them make decisions regarding their future. Also, included are activities designed to

enhance straightforward communication and behavior. (2/0)

**PD005T Human Potential Lab 2**  
Is designed to allow the student to become involved in group interaction in an atmosphere that is conducive to assisting the student in his formation of a realistic, positive self-concept. Emphasis is on the personal growth of the individual's involved and development of the attributes which are important in establishing harmonious interpersonal relationships. (2/.5)

**PD007T College Orientation 1**  
Provides students with college information and helps students make academic decisions and develop a two-year academic course plan. The course is only open to new Kirkwood full-time students. (0/2)

**PD009T How to Decide .5**  
Is an interactive course designed to help the student learn decision-making skills and to provide practice in applying these skills to a variety of situations which will be similar to actual circumstances. (.5/0)

**PD010T Life-style Planning .5-1**  
Assumes that the student is raising some basic questions about life and/or work, or the circumstances have raised these questions. Its purpose is to help identify the direction the student wants to take in life and work, and then move in that direction. (.5-1/0)

**PD012T Assertive Behavior Training 1**  
Is an introduction to the assertiveness model for communication and behavior. Identification of individual communication problems and practice in assertive communication in small groups are the focus of this course. (1/0)

#### VOCATIONAL-TECHNICAL COURSES

**PD001U Personal Development 1-2**  
Provides the study and application of techniques for improving personal appearance, mental attitude, poise and personality, such as hair care, skin care, wardrobe selection, weight control and personality development. (1/0-2/0)

## PH: PHYSICS/ASTRONOMY

#### COLLEGE TRANSFER COURSES

**PH001T College Physics I 4**  
Is open to all students wanting a non-calculus level physics course. This is designed primarily for students interested in pre-medical, pre-dental, pre-pharmacy, pre-forestry, pre-teacher education programs and all who seek to meet the science requirement in their professional pro-



grams. It emphasizes introductory physics concepts and methods of scientific reasoning. The first quarter of this sequence treats the structure and properties of matter, descriptions of motion, Newton's Laws, conservation laws, rotation and vibration and an introduction to Einstein's theory of relativity. Prereq: An introductory algebra course in high school or college. (3/2)

**PH002T College Physics II** 4  
Continues Physics I and covers wave motion, liquids, gases, the gas laws, heat and the laws of thermodynamics with applications. Prereq: PH001T (3/2)

**PH003T College Physics III** 4  
Continues College Physics II and includes static and current electricity, electromagnetism, optics and optical devices, nuclear physics. Cosmology and environmental physics conclude the course. Prereq: PH002T (3/2)

**PH004T General Physics I** 4  
Is designed primarily for students in engineering, mathematics and physics as well as for those needing a problem solving physics course using calculus-level mathematics. The first quarter of this three-quarter sequence covers the topics of vectors, Newton's Laws, momentum, energy and rotational dynamics with applications to engineering problems. Prereq: MA006T (may be taken concurrently) (3/2)

**PH005T General Physics II** 4  
Continues General Physics I. This quarter includes the subjects of oscillatory and wave motion, gas laws, thermal properties of materials and the laws of thermodynamics. The quarter ends with an introduction to electricity. Prereq: PH001T and MA007T concurrently. (3/2)

**PH006T General Physics III** 4  
Continues General Physics I & II. It includes work in current electricity, electromagnetism, waves, optics and application of physics to current problems. Prereq: PH005T and MA007T concurrently. (3/2)

**PH007T Astronomy** 4  
Is an introductory course centered around a variety of topics including the universe and the earth in space, properties of stars, nuclear energy sources, the solar system, quasars, black holes and life in the universe. Laboratories and observations are incorporated. Prereq: none. (3/2)

**PH008T 21st Century Introductory Physics** 4  
Is a one-quarter introductory physics course with lab experience and provides basic work with scientific reasoning and with fundamental concepts in classical and modern physics. Recommended for students who plan to take college or general physics as well as all liberal arts students desiring an introductory science course. (3/2)

**PH011T Medical Physics** 4  
Is designed for students enrolled in respiratory therapy and deals with theory and applications of the gas laws, fluid dynamics, hydrostatics, simple machines and electricity as they apply to respiratory therapy. (3/1)

#### VOCATIONAL-TECHNICAL COURSES

**PH001U Applied Physics I** 4  
Studies properties of matter and mechanics, including the following topics: force, motion, relationships, work energy and power, vectors and graphic solutions, simple machines, rotation, torque, power and transmission; properties of solids, liquids and gases; temperature and thermal properties; vibration and wave motion, and basic sound and light. (3/2)

**PH002U Applied Physics II** 4  
Studies control system technology including the following topics: concepts and evaluation of control systems; methods of describing components; characteristics; control system components; analysis and design considerations. Prereq: PH001U (3/2)

**PH003U Heat, Light and Sound** 5  
Studies theoretical considerations and techniques of application of the topics of heat, light and sound. Major emphasis is placed on the application of heat energy conversion, heating and air conditioning. Prereq: Technical Math II (4/2)

**PH004U Technical Chemistry and Physics I** 3.5  
Content includes study of weights and measurements, charts, proportions, chemical and physical properties, and reactions relating to the mixing, gelation, and solidification of dental materials, including the laws of physics as they relate to the dental laboratory fabrication. (2/3)

**PH005U Technical Chemistry and Physics II** 3  
Is the study and application of principles contained in Technical Chemistry and Physics I. (3/0)

**PH006U Technical Physics III** 2  
Studies forces, stresses, and support relating to anatomical structures, dental materials or designs; principles of spinting and broken stress; and color or optical illusions created in restorations; applicable to the construction of crowns, and fixed or removable partial dentures. (2/0)

**PH001V Mechanisms** 4  
Studies the theory of mechanics and machines. Included are topics in forces and their effects, balance, equilibrium, gravitation, motion and mechanical movements. Also covered are simple machines, mechanical power transmission, friction and lubrication, and pressure. (3/2)

## PR: PHILOSOPHY AND RELIGION

### PR001T Introduction to Philosophy 4

Examines the foundations of philosophical thought in the West from Descartes to the present day with emphasis on problems of ethics, aesthetics, epistemology and metaphysics. (4/0)

### PR002T Introduction to Religion 4

Includes a consideration of each of the great religions in the context of contemporary society. Variations in the structure, organizations and functions of religion are systematically examined. (4/0)

## PS: POLITICAL SCIENCE

### PS002T American Government 4

Studies American policy based on a close examination of the processes of decision making. Emphasis is placed on voting behavior and citizen interaction within the system. Empirical data is employed as a basis for many analytical techniques. (4/0)

### PS004T International Relations 4

Is an analysis of governments interacting in political, security and economic dimensions. Emphasis is on the sourced of foreign policy. Problems will be examined through current world concerns. (4/0)

### PS005T Independent Study in Political Science 0, 1, 2, 3, 4

Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairman is required before registering.

### PS006T Iowa Government: Today and Tomorrow 4

Provides close examination of Iowa government processes and institutions with specific emphasis on decision making. (4/0)

## PY: PSYCHOLOGY/EDUCATION

### COLLEGE TRANSFER COURSES

### PY002T General Psychology 4

Provides an introduction to the study of human and animal behavior with emphasis on such topics as learning, motivation, personality and abnormal psychology. Wherever

possible psychological theories and principles are utilized to explain and predict behavior. (4/0)

### PY004T Education Psychology and Measurement 4

Considers and evaluates the following items: factors of physical and mental development; child and adolescent characteristics as they may effect the general learning situation; problems of classroom management, construction, use, interpretation and evaluation of standardized and teacher-constructed tests. Prereq: PY002T (4/0)

### PY005T American Public Education 4

Explores the multi-million dollar education industry that touches and shapes the lives of all of us. Examines the impact of schooling on the person, in terms of individuality, creativity, self-concept and socialization. Students will examine current beliefs about education ant its effectiveness. (4/0)

### PY006T Independent Study in Psychology 0, 1, 2, 3, 4

Provides readings, papers, and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairman is required before registering. (Hours arranged.)

### PY007T Practicum for Teacher Associates 4

Offers experience in a classroom or education setting in which students serve as teacher aides. Student spends 10 to 12 hours per week at a practicum site working under the supervision of a teacher. Students may choose to work in preschools, elementary or secondary schools. Prereq: consent of instructor. (0/10-12)

### PY009T Introduction to Teaching 4

Surveys current issues in secondary and elementary school teaching with emphasis on recent critical approaches to these issues as exemplified in Holt, Kozol, Leonard, Kohl, Glasser and Silverman. Students will have an opportunity to stress the level (elementary or secondary) in which they are likely to major. (4/0)

### PY020T Psychology of Growth and Development: Conception to Senescence 4

Examines the process of human development with special emphasis on the formative years—birth to adolescence. Topics range from socialization and personality development to identity crisis and death. Prereq: PY002T

### PY021T Introduction to Personality and Social Psychology 4

Involves three central areas of concern. The first deals with the various theories of personality and personality development (Freud, Miller and Pollard, Lewis, and Kelly) and how these relate to human behavior. The second deals primarily with the methods and core topics (aggression,

conformity, attitude formation and change) within the domain of social psychology. Finally, in a synthesis of these two approaches, the interrelations between social and personality processes are emphasized. Prereq: PY002T (4/0)

**PY022T Psychology of Human Relations 3**  
The course provides both a theoretical and practical approach to the study of human interaction. Lectures will emphasize the various theories underlying such topics as sensitivity training, non-verbal communication, group dynamics and interpersonal perception. In addition, discussion will be used to demonstrate, wherever possible, the disparate forms of human communication and interaction. Texts and readings will present an overarching framework for studying the above phenomena. (3/0)

**PY023T Independent Study: Education 1-4**  
Provide readings, papers and/or basic research or other projects under the individual guidance of the staff member. Prereq: consent of instructor and department chairman. (1-4/0)

**\*PY024T Exceptional Child 4**  
Studies children who are exceptional in the context of mental, emotional, physical and social development. The adult manifestations of the above developmental patterns also will be examined. Prereq: PY002T (4/0)

**\*PY025T The Young Child 4**  
Characteristics and development of the young child are examined via current literature on early childhood. Observations and readings will provide students with an understanding of educational strategies relating to the developing child. (4/0)

**PY026T Orientation to Human Services 2**  
Provides an introduction to the Aide for the Handicapped program, its scope, requirements and practicum sites within local agencies and institutions. Examines the roles of professional and para-professional. Works to develop positive self-concept and attributes important for harmonious interpersonal relationships. (2/0)

**PY027T Skill Development in Human Services I 4**  
Covers the development and designing of individualized programs for persons of all ages. Includes observation skills, writing performance objectives, designing program strategies, assessment and evaluation procedures. Specific examples in the areas of self help skills, communication, socialization and cognitive skills will be utilized. (4/0)

**PY028T Skill Development in Human Services II 4**  
Continues Skill Development in Human Services I by applying the model developed to developmental disabilities.

Role playing, modeling, cues and prompts will be utilized. Prereq: PY027T (4/0)

**PY029T Human Services Practicum & Seminar I 4**  
Places the student in an agency or educational setting working as an aide in a program for the handicapped. A weekly seminar will be held to discuss readings and experiences of students in their practicum setting. Students assigned to a practicum site will have specific objectives related to identified competencies. Prereq: PY027T and consent to instructor. (1/11)

**PY030T Practicum & Seminar in Human Services II 8**  
Continues practicum & seminar in Human Services. A bi-weekly seminar will be held to discuss readings and experiences of students in their practicum setting. Prereq: PY029 and consent of instructor. (1/21)

**PY031T Skill Development in Human Services III 4**  
Continues Skill Development in Human Services I and II by utilizing specific case studies and requiring educational report writing. Students will also be trained to assist in implementing programs. Prereq: PY028 (4/0)

**\*PY032T Biofeedback and Altered States of Consciousness 2**  
Surveys a wide variety of non-ordinary states of consciousness including hypnosis, dreams, mystical experiences and drug-induced states. These will be examined in the light of contemporary findings in biofeedback and brain lateralization research. (2/0)

**PY035T Teacher Associate Seminar 2**  
Stresses the practical aspects of the Teacher Associate's role as part of an educational team. Duties, responsibilities, expectation, and attitudes on the job will be examined. Competencies included in the course are job-seeking skills, behavior modification strategies, assertive techniques, planning skills and observation of children. (2/0)

#### VOCATIONAL-TECHNICAL COURSES

**PY003U The Profession 1**  
Familiarizes students in architectural drafting with ethics and procedures. Personal appearance and human relations are also stressed. (1/0)

**PY004U Psychology of Human Relations I 2-4**  
Covers basic psychological principles of human behavior. Designed to help students understand themselves and those persons with whom they will work. The course is adapted to the needs and interests of students depending on the program in which they are enrolled and is open to students in vocational-technical programs only. (2-4/0-2)

- PY005U Psychology of Human Relations II** 2-4  
Continues Psychology of Human Relations I. Open to students in vocational-technical programs. The course includes a study of self-concepts and individual and group relationships and adjustment factors, and consider the special needs of persons at various ages from early childhood through adulthood. (2-4/0-2)
- PY007U Sales Psychology & Human Relations** 3  
Explores the human motivational and behavior factors. Emphasis is placed on understanding human behavior from a supervisor's point of view. Basic fundamentals of salesmanship are studied with emphasis on successfully approaching professional people. (3/0)
- PY001V Human Relations and Shop Supervision** 1  
Covers organizational principles and patterns of shop leadership. (1/1)

## RE: RECREATION

- RE001T Foundations of Recreation** 4  
Is designed to introduce the basic philosophical, historical, scientific foundations and development in leisure and recreation, the function and setting or organized recreation, and a survey of organizations and agencies concerned with recreation. (4/0)
- \*RE003T Recreation Leadership** 4  
Is designed to enhance leadership skills in the student by examining various techniques used in the recreation and education fields. (4/0)
- \*RE006T Bowling** 1  
Is an activity course designed to improve the bowling skills of each student regardless of his degree of previous experience. Qualified instructors, instructional lane, and instructional films will be available in addition to hours of actual bowling experience. (0/2)
- \*RE012T Fundamentals of Physical Fitness and Conditioning** 1  
Provides students with an understanding of the value of physical fitness, the alternative methods for achieving and maintaining fitness, and actual experience in developing a personal plan for fitness. (.5/1)
- \*RE013T Orientation to Community Recreation Agencies** 3  
Provides the student with an opportunity to visit local facilities which deliver leisure services. Includes lectures by agency staff members describing their role in the community. (2/2)

- \*RE015T Theory of Coaching Basketball** 3  
Introduces the coaching profession with specific emphasis on basketball, fundamentals, strategy, organization, public relations, and coaching psychology. (3/0)
- \*RE016T The Nature of Backpacking** 2  
Will provide students with opportunities to learn skills of hiking and living in the backcountry. (3/0)
- \*RE017T Recreation Activities Project** 1-4  
Provides an opportunity to participate in various recreation experiences, including backpacking, canoeing, whitewater rafting and others. (0/2-8)
- \*RE018T Recreation For Special Populations** 4  
Is designed to examine the recent trend in recreation toward serving the physically and mentally handicapped as well as the elderly. (4/0)
- \*RE019T Fundamentals of Golf** 1  
Develops the basic skills necessary for a beginning golfer. (0/2)
- \*RE020T Beginning Archery** 1  
Familiarizes students with the fundamentals of archery. Correct methods of bow stringing, safety and short-range target practice will be stressed. Equipment will be provided. (0/1)
- \*RE021T Sports Participation** 1  
Is designed to give credit for knowledge and skills gained through varsity sports participation. Students may earn one credit per term up to a maximum of six credits. Although participation in a single sport can earn only one credit per year, a second credit can be earned for an additional year's participation in the same sport. Prereq: permission of instructor. (0/2)
- \*RE022T Administration of Physical Education and Athletics** 3  
Examines the policies, procedures, and current problems associated with the administration of physical education and athletic programs, with major emphasis on the secondary level. (3/0)
- \*RE023T Prevention and Care of Athletic Injuries** 3  
Introduces conditioning programs and training methods which tend to prevent athletic injuries. Provides basic skills in injury evaluation, and acquaints the student with treatment procedures, while providing practical experience in taping techniques. (2/2)
- \*RE024T Beginning Tennis** 1  
Introduces the basic skills (forehand, backhand, service), strategy, and rules of tennis. (0/2)

**\*RE025T Recreation Programing** 4  
Provides the student with knowledge in setting up and administering recreation classes. (4/0)

## SO: SOCIOLOGY

### COLLEGE TRANSFER COURSES

**SO004T Introduction to Sociology** 4  
Examines the range of human behavior. Drawing from the fields of anthropology and social psychology, a survey of contemporary behavior is made. An examination of the major findings of sociology will be presented and their impact on contemporary thought. (4/0)

**SO005T Marriage and the Family** 4  
Studies the process of the marital life cycle: courtship, dating, engagement, marriage, the child bearing years, the child rearing years and marriage during the middle years. These are examined in the light of current and past research, with stress on the consequences of premarital, marital and child-bearing decision making. The implication of marital dissolution is also explored. (4/0)

**SO006T Social Problems** 4  
Examines various objective social conditions which have come to be defined as social problems, using the structure-function approach to examine the consequences of social structure in relation to the production of social problems. Facts, interpreted theoretically, form the nucleus of the examination of social problems. (4/0)

**SO007T Criminology** 4  
Surveys the nature, causes, and extent of crime and delinquency; major consideration is given to apprehension, control and treatment. (4/0)

**SO008T Introduction to Cultural Anthropology** 4  
Considers group life in various cultures. Involves anthropological insights relative to human behavior in a comparative perspective. Includes selected aspects of both physical and cultural anthropology. (4/0)

**SO009T Independent Study in the Social Sciences (Anthropology)** 0, 1, 2, 3, 4  
Provides readings, papers and/or basic research or other projects under the individual guidance of a staff member. Prereq: Consent of instructor and department chairman is required before registering. (Hours arranged.)

**SO010T Independent Study in the Social Sciences (Sociology)** 0, 1, 2, 3, 4  
(See above course description for SO009T.)

**SO011T Juvenile Delinquency and Deviancy** 4  
Analyzes the various components of delinquency, home, school, peer group and community structure. Explores the

role of therapeutic and detention centers, and the juvenile court, as well as approaches to prevention and treatment. (4/0)

**SO013T Sociology of Poverty** 4  
Focuses on structured social inequality and its consequences on the life changes of the poverty group in the United States. The course is problem oriented and examines the possibilities of redistribution of income, status, etc., as a means of reducing the size of the poverty group and ameliorating the effects of poverty on society as a whole. (4/0)

**\*SO015T Sociology of Aging** 4  
Considers many of the issues associated with the role of the elderly in our society. By analyzing current research, students will investigate the attitudes, preferences and lifestyles of the aging. (4/0)

### VOCATIONAL-TECHNICAL COURSE

**SO001U Industrial Organization** 3  
Studies the union systems in the United States. Studies wages, union policy, local and national union organization and the laws pertaining to union and employer. (3/0)

## SW: SOCIAL WELFARE

**SW001T Introduction to Social Welfare** 3  
Designed to provide the student with an overview of social welfare. The historical development of social welfare services will be traced in terms of social change and changing attitudes toward social problems. Present procedures, philosophy and problems of social welfare will be discussed and selected social service areas will be described. (3/0)

**SW002T Social Welfare Programs** 3  
Designed to provide the student with an overview of social welfare in terms of specific services provided by both public and voluntary agencies in the community. By direct contact with representatives of community agencies the student is exposed to roles of human services personnel (particularly professional social workers), funding and present problems and procedures of these agencies. (3/0)

**SW003T Human Services Observation** 2  
Offers an overview of the field of human services with an emphasis on visiting local agencies to observe service delivery systems. Classroom discussions complement the observations with discussions of organizational structure, determination of social policy, helping techniques, and systems analysis. (1/2)

- SW004T Human Services Techniques I** 4  
Trains the student in basic techniques such as data collection, intake, decision-making, and programming by objectives. These topics will be discussed within the framework of problem solving. (4/0)
- SW005T Field Experience and Seminar I** 6  
Places the student as an aide in a human services agency 15 hours a week. The experience will be discussed at a one-hour seminar, the purpose of which will be to maximize the experience by gaining insights from other students and the instructor that will enable the student to objectify his or her work experience. (1/15)
- SW006T Human Services Techniques II** 4  
Focuses on skills needed by a human services worker. Major competencies to be addressed are problem solving techniques, decision-making, and the helping interview. (4/0)
- SW007T Human Services Field Experience II** 9  
Provides on-the-job training for mastery of competencies of human service values, communication skills, problem solving and job skills. Prereq: consent of instructor. (1/24)

## TH: THERAPY

- TH001U Occupational Therapy Management Skills** 2  
Provides knowledge of sound equipment maintenance procedures, purchasing procedures and supplies maintenance. Also provides knowledge of rudimentary personnel management skills. Prereq: TH003U, TH005U, and TH006U (2/0)
- TH002U Health-Illness-Health** 10  
Provides knowledge of the factors which influence/interfere with an individual's ability to function in basic life concerns such as self care, play-leisure and work experience. This includes knowledge of physical and psychosocial disease and disease processes. This is supplemented by practicum experience appropriate to didactic material. Prereq: BY001U (8/6)
- TH003U Major Crafts** 8  
Provides a knowledge of and skills in the major crafts used in Occupational Therapy including: weaving, leathercraft, ceramics and woodworking. (0/16)
- TH004U Developmental Processes** 6  
Provides a knowledge of normal physical and psychosocial developmental processes which affect a person throughout life, stressing integration of the physical with the psychosocial. Prereq: PY002T (5/2)

- TH005U Therapeutic Techniques I** 4  
Provides a knowledge of the general aspects of occupational therapy and the work environment by didactic work and field observation. Includes defining the role of the Occupational Therapy Assistant. Provides learning skills in minor crafts and introduces the concept of activity analysis. (3/2)
- TH006U Therapeutic Techniques II** 4  
Interpersonal relationship techniques important to occupational therapy are explored. Interpersonal skills are broadened. The structuring of interpersonal skills and activity is learned. Includes one-to-one and group techniques. Prereq: TH005U (2/4)
- TH007U Therapeutic Techniques III** 15  
Provides skills and knowledge of activities of daily living, work simplification, activity analysis and therapeutic techniques as used with various physical and psychosocial disorders. Provides knowledge of utilization of physical and psychosocial rehabilitation principles and the interrelation between the two as considered in occupational therapy. The student learns to evaluate, plan and implement as occupational therapy program as appropriate to an assistant. Practicum experiences are used to identify and/or reinforce needed learning. Prereq: TH002U (11/8)
- TH008U Clinic Experience OTA "C"** 7  
Offers learning activities in an occupational therapy clinic emphasizing the psychosocial aspects of therapy. Prereq: All occupational therapy courses except TH011U. (0/21)
- TH009U Clinical Experience OTA "B"** 7  
Offers learning activities in an occupational therapy clinic emphasizing the physical disability aspects of therapy. Prereq: All Occupational Therapy courses except TH011U (0/21)
- TH010U Clinic Experience OTA "A"** 7  
Will encompass pediatric development and/or geriatric and/or other specialized experience, and the objectives will be consistent with the projected need and/or desire of the student. Prereq: CM007U, TH007U and TH002U (0/21)
- TH011U Seminar OTA** 2  
Review clinical and didactic experience to prepare the student for certification. Prereq: Two of the major clinics, TH010U, TH009U, or TH008U. (2/0)

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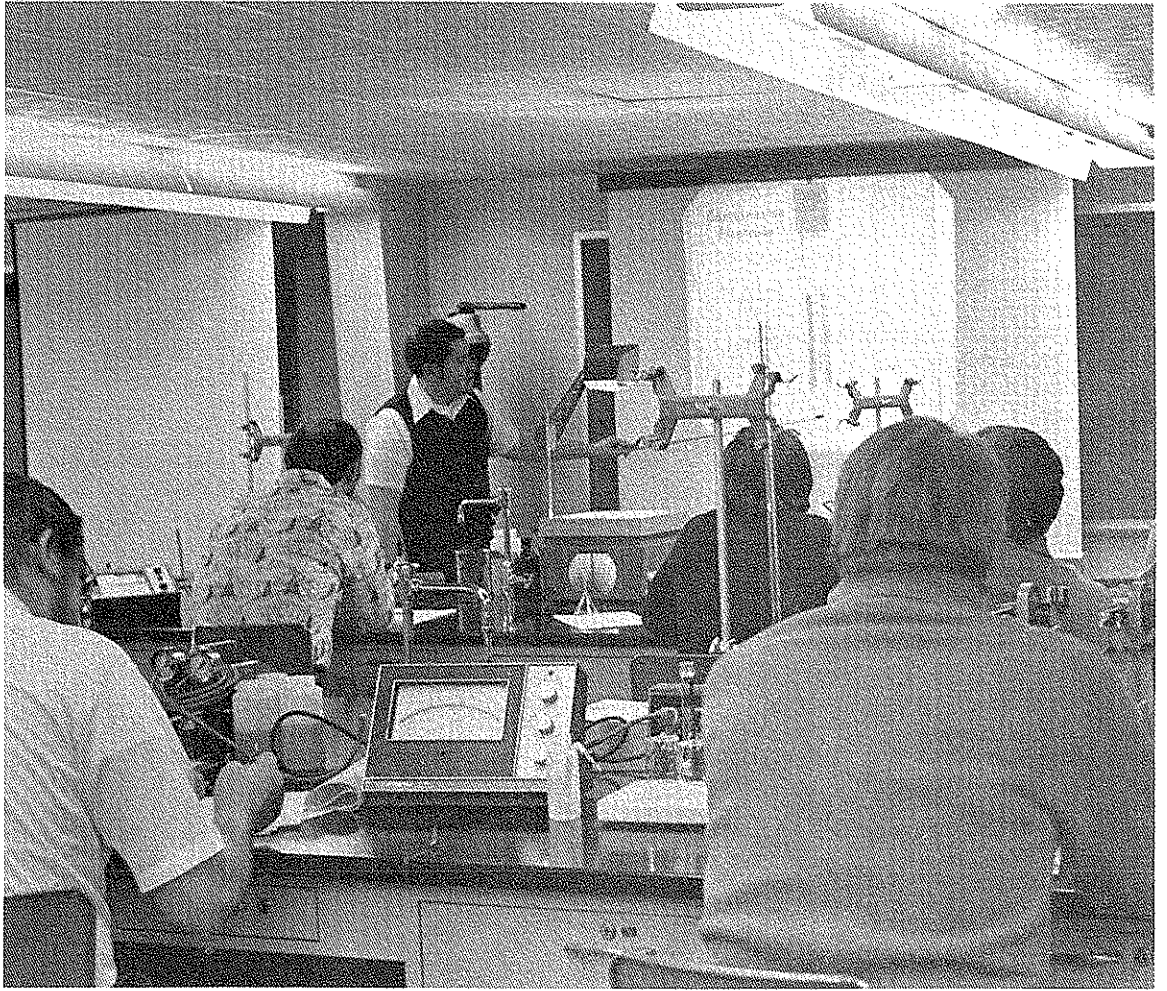
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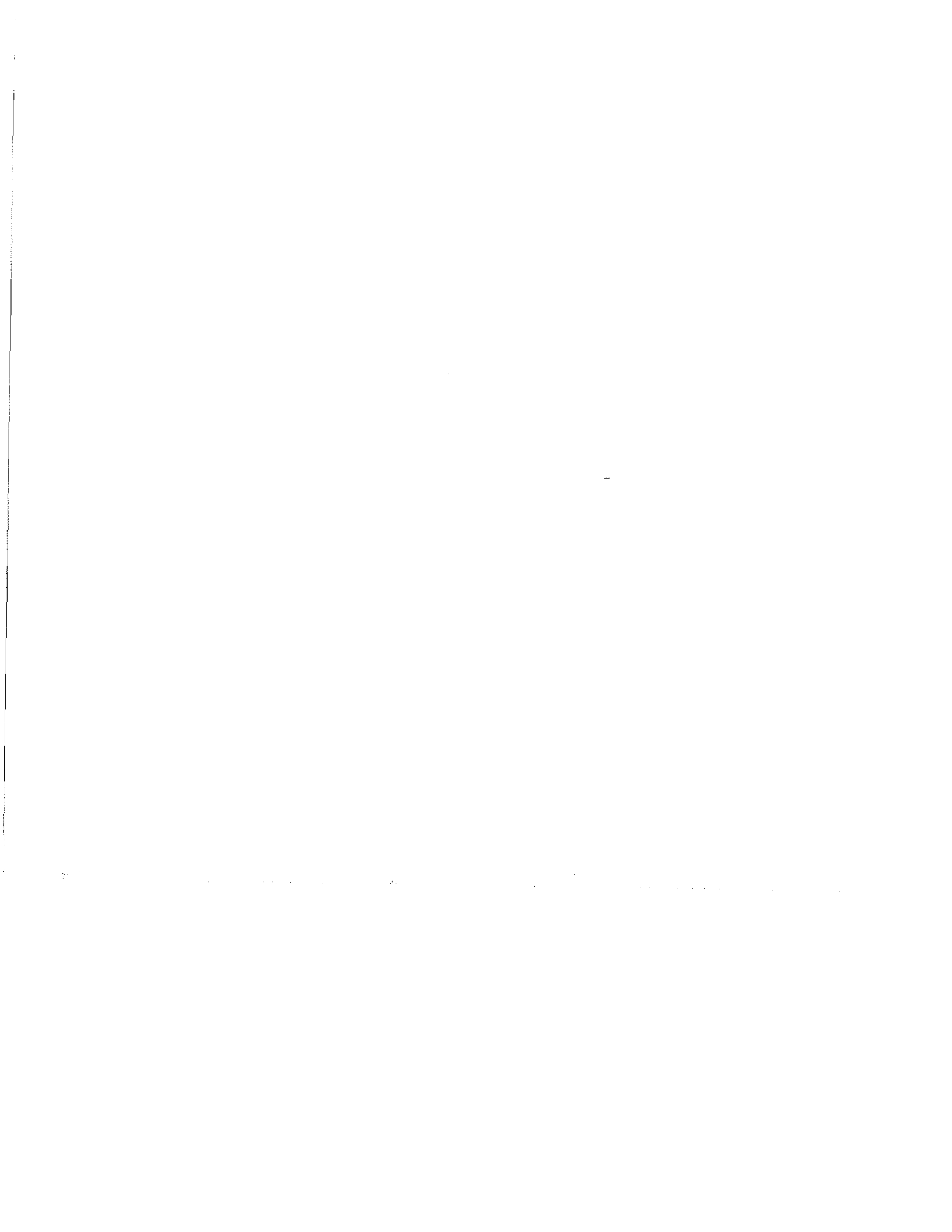
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