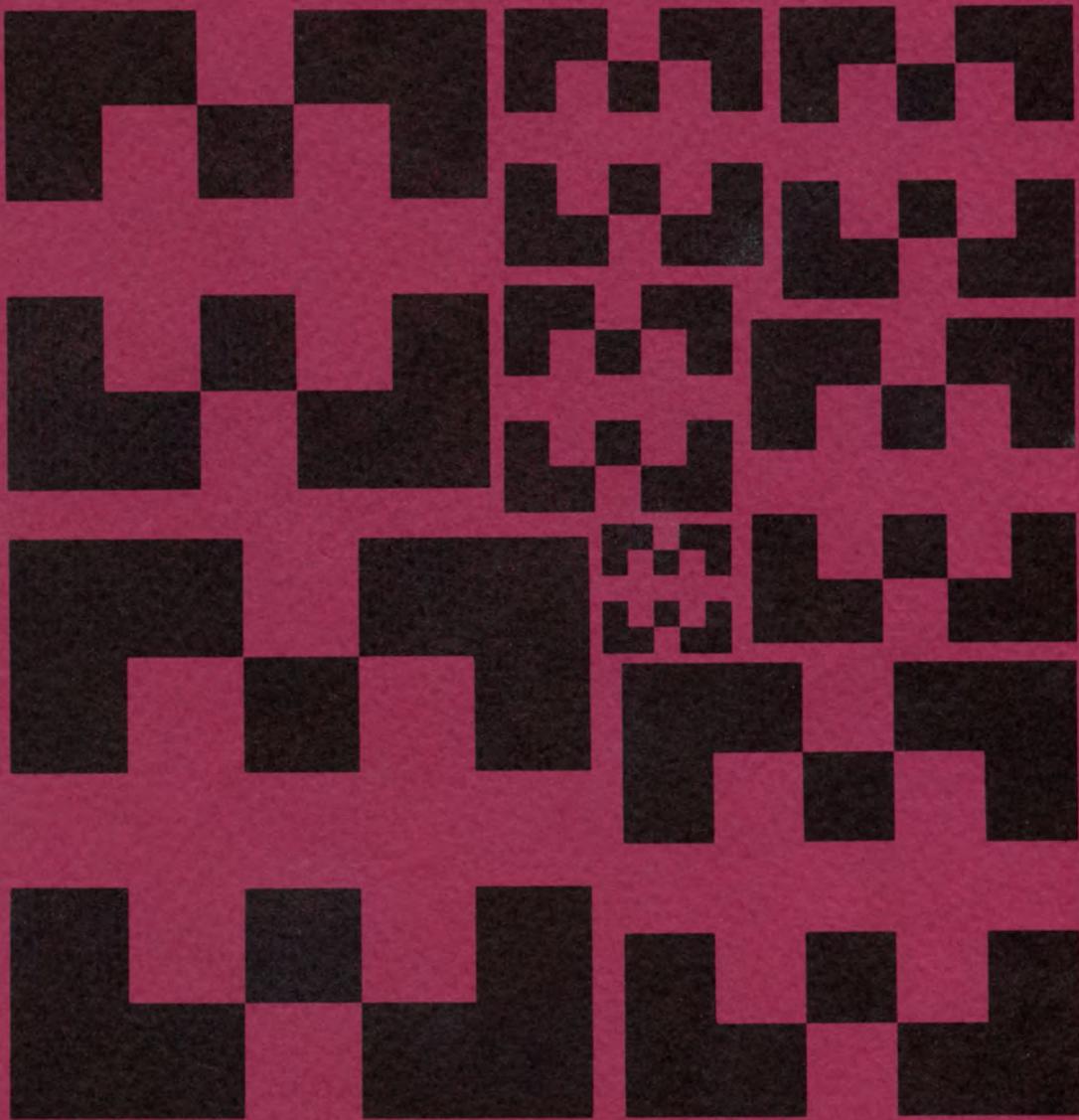
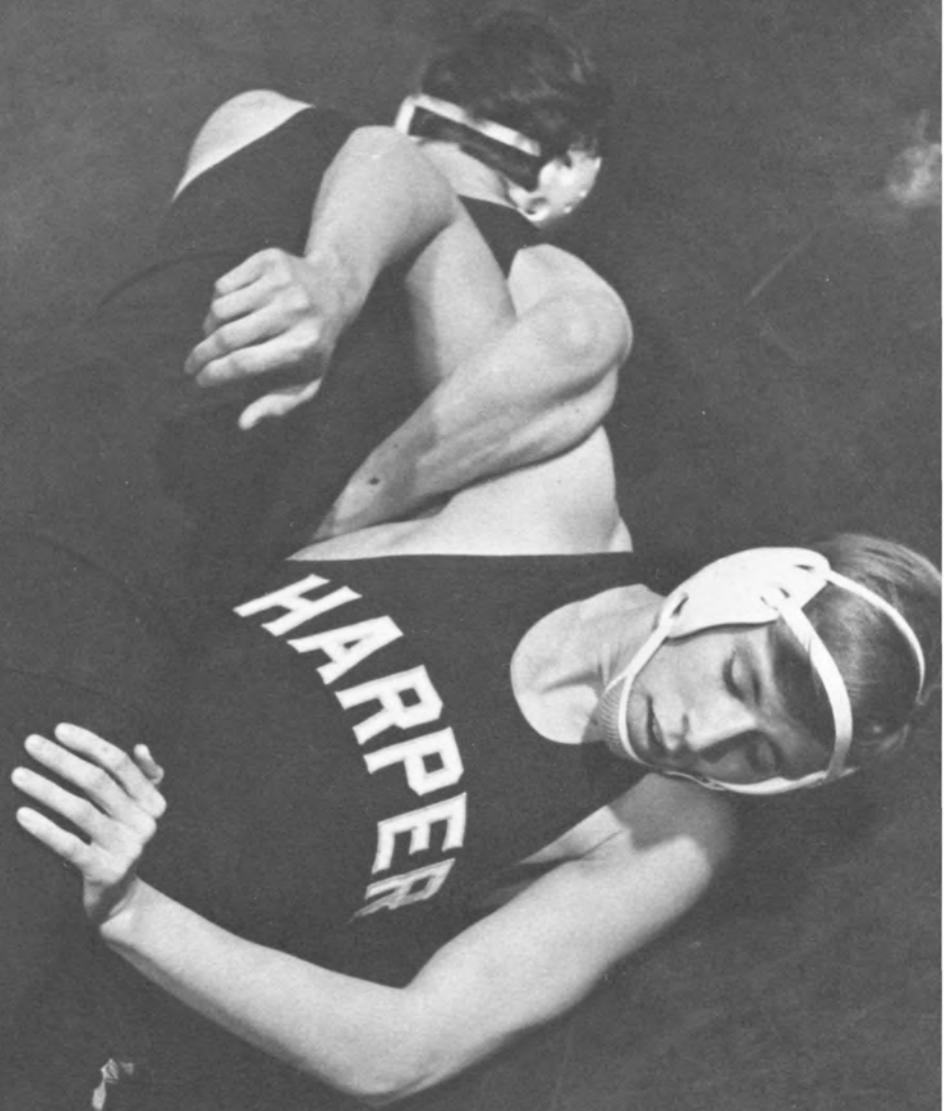


1969-1970





Published by William Rainey Harper College
Algonquin and Roselle Roads
Palatine, Illinois 60067

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1969-1970 CATALOG

VOLUME 2

NUMBER 1

JUNE, 1969

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BOARD OF TRUSTEES

Just four years ago this May, the newly-elected Board of Trustees for Harper College convened for their first official meeting. The college had no name, no staff, no facilities. But it did have a Board consisting of seven individuals determined to establish a community college worthy of the area it serves.

How do seven people establish, staff and equip an operating college once the voters give them the go-ahead? Words such as "dedication," "hard work," and "civic pride" just don't tell the whole story. It is more of a "total involvement" in the project by each of the members.

Harper College has been fortunate to have Trustees possessing a unique capacity to work together in the planning of programs, the solving of problems and the establishing of educational goals which are unique in the history of the northwest suburban areas.

There has been a heartening interest and involvement by members of the community itself, too. Hundreds of interested people have worked countless hours in helping accomplish key phases of the college program.

As Harper College looks to the future, it seems appropriate here to look back briefly and reflect on the efforts of the Board and the community in making this new college a reality.

RICHARD L. JOHNSON, Chairman



JAMES J. HAMILL, Secretary



MILTON C. HANSEN, Vice-Chairman



JOHN A. HAAS



L. E. HUTCHINGS



LAWRENCE R. MOATS



JESSALYN M. NICKLAS



THE FIRST THREE YEARS

The history of Harper College is not long. Late in 1964, a petition was circulated calling for a referendum to vote on the establishment of a community college. A few months later voters approved the referendum and the townships of Elk Grove, Palatine, Schaumburg and Wheeling joined together to form a community college district.

Formation of the first Board of Trustees was swift. Voters returned to the polls only 34 days after approving the referendum to elect seven citizens — from among 48 candidates — as the first Board for the new college. Each of the original four townships was — and still is — represented on the Board.

The idea of a community college in this area is not new. It had been mentioned as far back as 1950. But community ideas take time to grow and mature and it requires the vision and initiative of a number of people to bring important ideas to fruition.

Harper College has a history just over four years old. Milestones in this brief history include:

May, 1965

Board convenes for first meeting.

March, 1966

200-acre site in Palatine selected for future campus.

April, 1966

College adopts name "William Rainey Harper".

June, 1966

\$7.375 million bond issue referendum passes 4 to 1.

January, 1967

First faculty members hired; first student accepted by College.

March, 1967

Barrington area joins Harper College district.

September, 1967

Classes begin. First edition of student newspaper published; 1,725 students enrolled.

October, 1967

Ground broken for the first six buildings of the new campus.

February, 1968

Second semester begins; enrollment tops 1,800; 26 students named to academic Honors Lists for first semester.

March, 1968

Harper joins in forming GT-70, a national consortium of ten leading community junior colleges cooperatively seeking self improvement through new and stimulating approaches to quality education.

June, 1968

First summer session attracts nearly 1000, including students from over 50 other colleges and universities throughout the country.

August, 1968

With GT/70 support, Harper hosts three-week national workshop for student personnel staff in colleges and universities.

September, 1968

Second year of classes opens with more than 3700 students enrolled, faculty size doubled, and five new career programs added.

November, 1968

Harper's Board of Trustees becomes the second community junior college board admitted to membership in the Association of Governing Boards of Universities and Colleges.

February, 1969

127 students earn academic honors for the first semester; five students recognized in the 1968-69 edition of Who's Who Among Students in American Junior Colleges. Harbinger, the student newspaper, wins national recognition for excellence.

March, 1969

Harper president named to three-year term on the Board of Commissioners of the National Commission on Accrediting and on the Advisory Council of Presidents of the Association of Governing Boards.

April, 1969

Based on high performance ratings determined by a five-member examining team, North Central Association for accreditation elevates Harper to candidacy status.



W. R. Harper, at right, with J. D. Rockefeller
observing University of Chicago's
Decennial Celebration, June 18, 1901.

WILLIAM RAINEY HARPER

Father of the Community College

William Rainey Harper was the father of the community college movement. As the first president of the University of Chicago, he accomplished so much that he is counted among the intellectual giants of his time.

William Rainey Harper was a prodigy. He was a freshman at Muskingum College at the age of 10, received a bachelor of arts degree at 14, a Ph.D. from Yale at 19 and was a full professor at Yale at the age of 29.

The 15-year period of his presidency saw: 1, The emergence of the University of Chicago as a leader in the movement to reform higher education; 2, the principle of academic freedom clearly defined; 3, the importance of both teaching and research established; 4, and the way set for the flowering of the modern American university.

William Rainey Harper is credited with having been the first to use the name "junior college" in referring to the first two years of the traditional four-year course. In 1896, the University of Chicago was divided into two major divisions—the Academic College and the University College.

The Academic College, where the student completed his freshman and sophomore years, was renamed the Junior College while the University College, for juniors and seniors, become the Senior College. This seems to firmly establish Harper as the first to have used the term "junior

college" in describing an institution from which the modern community college stems.

When Harper wrote to John D. Rockefeller in 1890 seeking support for the University he did not over-state his case when he said, "It seems a great pity to wait for growth when we might have been born full-fledged."

In light of Harper's specific contributions, it does indeed seem that the institution was born full-fledged. The university extension service was founded, the four-quarter system begun, the University Press introduced to higher education and the prestige of the teacher-scholar pushed to new heights.

Even as he reorganized the university and administered its many departments, he taught full time and served as chairman of his department. Few, if any, presidents had ever done so much before and probably none has since.

PHILOSOPHY

The general philosophy of Harper College is to provide an outstanding program of higher education for the community it serves. Created by a community responsive to the contemporary insistence on more education for more of its citizens, the college is determined to meet the full range of post high school educational needs of the community at large.

The importance is recognized of educating all students for a meaningful role in a free and fluid society. Basic to responsible participation in society is the student's realization of his potential by voting more intelligently, producing more efficiently through the acquisition of a salable skill, and adapting more readily to a complex society.

With a commitment to the dignity and significance of each student, the college will endeavor to bring the student to an understanding of what place he can make for himself in modern society and to provide the education necessary for him to realize his social and personal goals. The college must create an environment conducive to the development of sound standards of thinking and conduct and must provide those cultural experiences which open to the student the heritage of the educated man.

OBJECTIVES

Specific objectives of the college are:

A To offer the first two years of transfer or pre-professional education, preparing students within their chosen field of study with a sound background commensurate with the first two years of education at a four-year college or university.

B To offer two year programs in technical-vocational training providing students with the knowledge and skills required in a specific field.

C To offer appropriate general education for all citizens, preparing them for more effective participation in a free society as well as for personal and cultural enrichment in an era which promises more and more leisure time.

D To offer opportunities for adults in the community to initiate or to continue a collegiate education.

E To provide retraining and upgrading courses and programs to facilitate adjustment to, or re-employment or advancement in, a work environment that is undergoing rapid technological changes.

F To complement the educational programs with effective counseling services, including guidance and assistance to each individual student.

G To encourage the use of its facilities and services for educational and cultural purposes by all citizens of the community.

GENERAL EDUCATION

Harper College is committed to a program of general education which acquaints the student with a broad area of knowledge. This knowledge not only provides him with information in particular subject fields but contributes toward an enlightened and integrated view of life. General education serves to complement the specialized training designed to prepare him for an occupation, whether it be a trade skill, a technical proficiency, or a professional vocation.

Essential to transfer and career oriented programs, the aim of general education is to equip the student with important understandings and insights and with the power to communicate them. Thus his efforts to assume his role as a citizen and to earn a livelihood are set in a perspective of values that gives a proper order to life's activities.

The general education philosophy of Harper College is intended to permeate the entire college program, enabling all members of the college community to work together to develop and strengthen constructive attitudes, knowledge, and understandings.

Degree graduation requirements have been developed to combine adequate specialization with general education.

DEGREES

Harper College offers three degrees: the Associate in Arts, the Associate in Science, and the Associate in Applied Science. The A.A. and A.S. degrees are primarily for students desiring to transfer to four year institutions. The A.A.S. is primarily for those in two year career programs.

In addition, the college structures certificate programs designed to meet specific needs of the community. These programs are normally one year in length and upon completion of the prescribed courses the student receives a certificate of completion. See the list of curricula for current certificate programs.



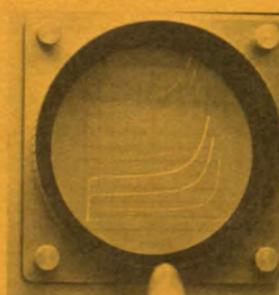
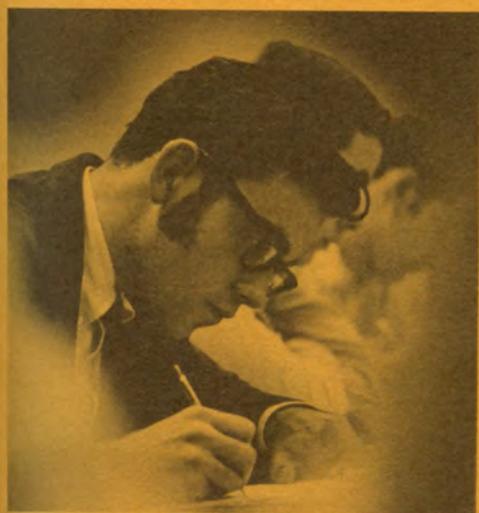
CONTINUING EDUCATION

As Harper College prepares to move to its own campus it is also planning an extensive program of Continuing Education. A large number of adults — fully 25% of Harper's enrollment — have taken advantage of courses offered during the first two years.

Various seminars and other programs of a specialized nature, both credit and non-credit, are now being developed and will be included in the schedule of classes for the fall and spring terms. Every effort is being made to provide offerings that will be responsive to community needs and afford both enjoyment and practical benefit to the participant.

SUMMER SESSION

Harper's second summer session has been planned as an eight week program from June 12 to August 8, 1969. Courses will be offered in all areas of the college curriculum. A full-time student will normally be limited to two courses during this period of concentrated study.



OUR NEW CAMPUS

Bricks and mortar will be playing an important part in developing Harper College into a distinguished comprehensive community college. The program of construction and development is being taken in a number of carefully planned steps over the next several years.

A master plan has been devised for a campus projected to enroll 10,000 students by 1975. Of the 12 buildings included in the plan, six are nearing completion and are scheduled for occupancy in the summer of 1969.

The first six structures on the Harper site include a comprehensive library and learning resources center; a science and technology laboratory and classroom complex; a lecture-demonstration center; a fine and applied arts wing; a college center, housing the data processing center, classrooms, counseling and student related activities, bookstore, lounge and dining facilities, and administration offices; and a central utility facility.

LIBRARY AND LEARNING RESOURCES CENTER

The Harper College Library is located on the main floor of the Learning Resources Center. The Library contains about 30,000 volumes, catalogued according to the Library of Congress classification, plus newspapers, records, films, and slides. About 300 magazines are currently received. It also has copying facilities for duplicating pages from books. The Library staff is qualified and ready to help in the use of the Library or in finding library materials.

On the lower floor are located an independent study center, specially equipped areas for the developmental skills program, and media production facilities for graphics, photography, and instructional television.

A LOOK AT THE UNIQUE VILLAGE STREET CONCEPT OF THE NEW CAMPUS

The new campus of Harper College is being designed to complement the student's social and intellectual experiences. The informal layout of the campus may be char-

acterized as having a "Village Street" atmosphere. This architectural concept uses scale and placement of buildings, multi-level plazas, picturesque pedestrian streets, various building materials and subtle colors to produce a stimulating and pleasing environment for learning and working.

Buildings, while suggesting strength, will be designed on a human scale. Built into the natural contours of the site, many buildings will have entrances on several levels and will contain a variety of interior spaces and exterior views. Variations of building materials as well as the staggered placement of architectural shapes will be other techniques utilized to produce a feeling of informality.

Vistas will be controlled through building arrangement, architecture and landscaping to achieve different esthetic experiences. A walk across the campus will provide varied "look-in look-out" experiences in passing from one intimate plaza to another. Especially dramatic will be several views through buildings or from within certain buildings to a scenic small lake bordering the campus. A footbridge will connect the peninsula at the edge of the campus to a parking area across the lake.

Heavy pedestrian traffic flow between buildings will be accommodated by broad plazas, surfaced in brick or textured concrete, interspersed with lawns and plantings. Numerous tree-shaded outdoor seating areas are planned.

Coordinating the human scale with a careful combination of building materials and color patterns will generate within each building a pleasing "flow of space." Channels of student traffic will occasionally open into quiet bay areas where groups may pause to pursue anew ideas, issues, or problems raised in class but often unresolved. These conversation centers, plus classrooms, offices and other interior spaces are being designed to encourage intellectual interaction among students and faculty.

Harper's new campus will be laid out so that students have alternative pathways available when walking between buildings. Outdoor routes may be the most used when the weather is inviting. During inclement weather, the campus may be traversed almost entirely undercover.

At night, campus illumination will come from fixtures built into plaza walls. The perimeters bordering on park-

ing areas will be screened with trees and other plantings to preserve the village atmosphere.

In anticipation of the future role of the college, interior and exterior spaces have been carefully planned to provide a cultural focal point for the communities being served and to create an atmosphere of belonging and a pride of occupancy for students and faculty alike.

ADMISSIONS

High School Graduates

All high school graduates are eligible for admission to the college. Non-graduates, 18 years of age or older, may be admitted if they demonstrate the capacity and maturity to benefit from programs and courses offered by the college. To be placed in some programs within the college, applicants may have to meet additional requirements.

Adult Students

All classes are open to adults who meet course prerequisites and wish to attend. In addition, the college will offer special courses designed to meet the needs of adults within the college community.

High School Students

High school students may be admitted to selected courses upon the recommendation of their high school principal and the director of admissions.

International Students

International students will be admitted to Harper College. Information regarding their admission may be obtained from the admissions office.

TYPES OF ADMISSION

Regular Admission

Applicants may be admitted as regular students if they are high school graduates and meet the requirements, if any, for placement in the program of their choice. Applicants not meeting requirements will have an opportunity to demonstrate capacity to do college level work on an admission examination.

Provisional Admission

Applicants who have not met the requirements for placement into a specific program, or who fail to qualify for admission as regular students, may be admitted on a provisional basis to take the course work necessary to enter the program of their choice.

Applicants who have completed high school requirements by satisfactorily completing the General Education Development (G.E.D.) examination may be admitted as regular or provisional students, depending upon their performance on the admission examination.

Transfer Admission

Individuals transferring in good standing from another college or university will be admitted as regular students. Students transferring with less than a C (2.0) average will be admitted on a probationary status if it is felt they are ready to pursue a college program. Students must provide the admissions office with official college transcripts covering all previous college work.

Special Admission

Applicants desiring to enroll on a part time basis carrying less than 12 hours and not interested in earning credits applicable toward a degree may be admitted after completing the Special Admission form. If at a later date the student wishes to enroll in a degree program, credits earned as a special student may be applicable.

Readmission

Any student who has previously attended Harper College and who is returning after an absence of one semester or more must complete an application for readmission and supply transcripts for all academic work taken since last attending Harper College. Any student dismissed for an academic or disciplinary reason must submit a petition for readmission to be reviewed by the admissions committee.

Application Procedures

Prospective students applying for admission to Harper College are required to:

- 1 Apply for admission using forms supplied by the college.
- 2 Submit complete transcripts of all high school work and any college credits earned.

- 3 Take the American College Test (ACT) and have the scores submitted to the college.
- 4 Complete and return the health form.
- 5 Pay a \$10.00 non-refundable application fee.

RESIDENCY

Students enrolling at William Rainey Harper College shall be classified as Resident, Non-resident, or Out-of-State for tuition and fee purposes. Residency classifications are:

Resident

A student whose residence has been determined to be within the William Rainey Harper College District (Illinois Junior College District 512).

Non-resident

A student residing in Illinois but outside Junior College District 512.

Out-of-State

A student whose residence is outside the State of Illinois.

ADVANCED PLACEMENT POLICY

Credit and advanced placement will be awarded to students with adequate CEEB (college entrance examination board) Advanced Placement Examination grades in areas comparable to the Harper curriculum. The granting of credit and/or advanced placement will be determined following an evaluation of the examination by the appropriate division chairman.

DEVELOPMENTAL PROGRAM

Harper College has established a program for students whose high school achievement and test scores are below the minimum for admission to other college curricula. This program is designed to give the student every opportunity to develop his abilities, to remove deficiencies, and to qualify for the college curriculum of his choice. The program is designed and supervised by the student's counselor within guidelines established by the college.

TUITION AND FEES

Tuition

Resident Tuition \$ 8.00 per semester hour

Non-Resident Tuition \$43.50 per semester hour

(See Charge Back Section)

Out-of-State Tuition \$55.00 per semester hour

Application Fee

An application fee of \$10.00 is charged each new student applying for admission. The fee is non-refundable and will be applied to the tuition of any student completing registration prior to the fall of 1970. Students enrolling in the fall of 1970 and thereafter will not be granted credit for the application fee towards their tuition.

Activity Fee

Students enrolled for 12 or more semester hours will pay a \$10.00 activity fee; students enrolled for less than 12 hours will pay a \$5.00 activity fee.

Special Music Fee

Students enrolled in minor applied music will pay \$48.00 per semester. This entitles the student to one private lesson per week. Major applied music students will pay \$96.00 per semester and will receive two private lessons per week.

Students may lease musical instruments for \$25.00 a semester, \$15.00 of which may be refunded depending upon the condition of the instrument when it is returned.

Graduation Fee

A graduation fee of \$10.00 includes the cost of diploma.

Laboratory Fee

A \$5.00 fee will be charged for each class involving a laboratory.

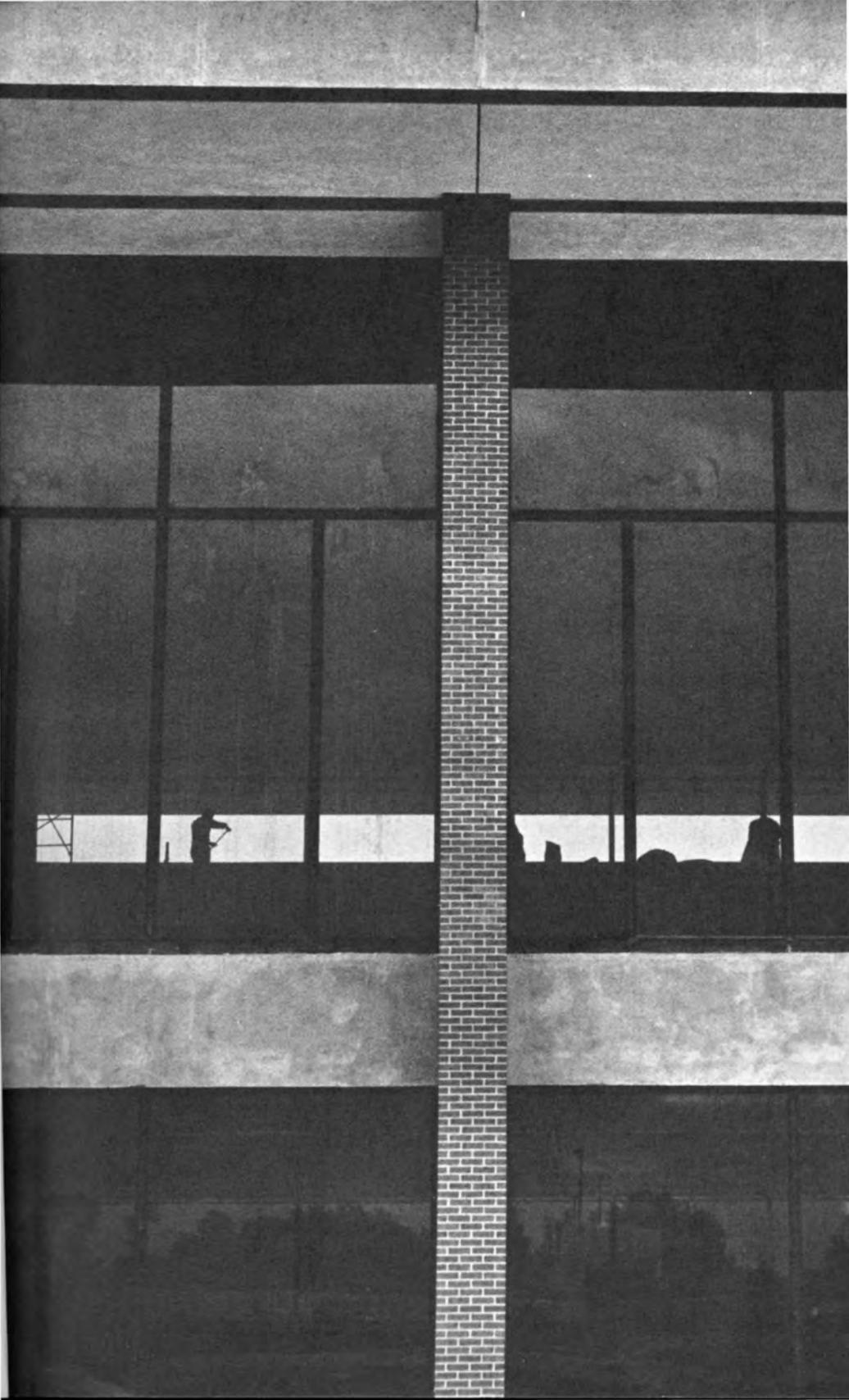
Late Registration Fee

A fee of \$5.00 is charged any student who registers after the close of the official registration period.

Program Change Fee

A fee of \$3.00 is charged for program changes following registration.

Some technical and physical education courses have additional fees.



WITHDRAWALS

When a student wishes to withdraw from a class after regular registration, he must withdraw officially by petition approved by his counselor. The following guidelines determine grades for an official withdrawal.

1. Classes dropped prior to the beginning of the fourth week will not become a part of the students permanent record.
2. A "W" grade will be assigned to a class dropped after the beginning of the fourth week and prior to the beginning of the eleventh week.
3. A class dropped after the beginning of the eleventh week and prior to the beginning of the thirteenth week will be assigned a "W" grade if the student was passing at the time of withdrawal; if the student was failing at the time of withdrawal a grade of "F" will be assigned.
4. A grade of "F" will be assigned to a class dropped after the beginning of the thirteenth week. If extenuating circumstances exist, students **may** petition through the Dean of Instruction's Office for a "W" grade.

Students not withdrawing officially through the counseling office are subject to an "F" grade.

TUITION REFUND POLICY

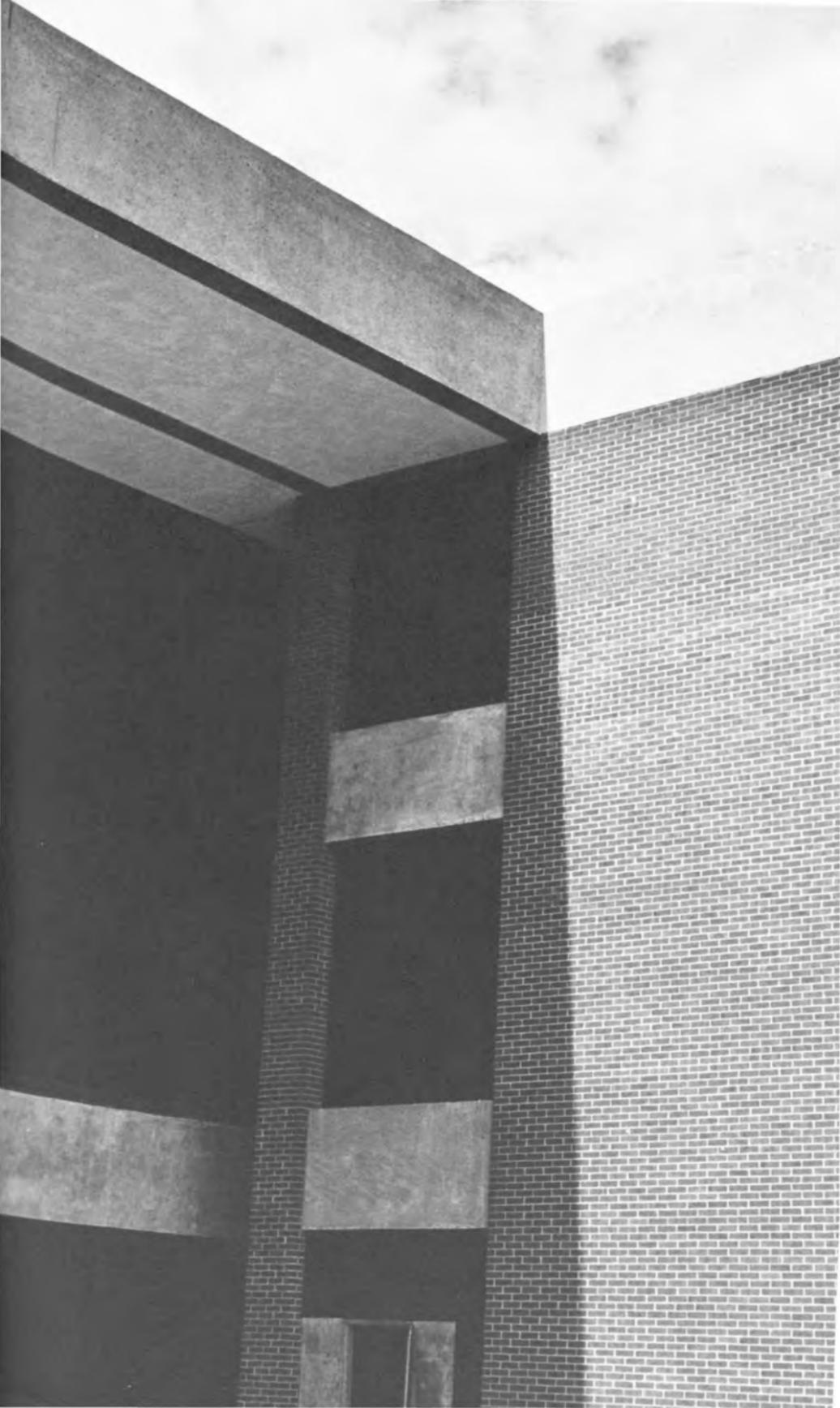
Tuition refund requests should be made to the office of the registrar. Refunds will be made according to the following schedule:

	Percent of Refund
First week of classes*	80
Second week of classes	60
Third week of classes	40
Fourth week of classes	20
After fourth week	None

*Terminates with the Friday ending the first full week of classes in accordance with the college calendar.

CHARGE BACK

Resident students desiring an educational program not available at Harper College may apply for charge back



tuition if they attend another public junior college in Illinois which offers that program.

Students approved for charge backs will pay the resident tuition of the receiving institution; the Harper College district will reimburse the college for the remainder of the non-district tuition cost.

Application for charge back tuition is made in the office of admissions.

GRADING

At mid-term and at the end of each semester the student will receive a grade for each class in which he was enrolled at the beginning of the fourth week of the semester.

Grade Point: Grade points are numerical values which indicate the scholarship level of letter grades. Grade points are assigned according to the following scale:

Grade	Significance	Grade Point
A	Superior	4.0
B	Good	3.0
C	Average	2.0
D	Poor	1.0
F	Failure	.0
H	Audit	.0
X	Incomplete	.0
W	Withdrawal	.0

ACADEMIC HONORS

Trustees' Honor List

Each semester the students achieving a grade point average of 3.75 to 4.00 are recognized as Trustees' Honor Students.

Dean's Honor List

Students achieving a grade point average of 3.50 to 3.74 during any semester are placed on the Dean's Honor List.

Honors List

Students with a grade point average of 3.25 to 3.49 are listed as honor students.

INCOMPLETE

A student may receive a grade of "X" for unfinished work in a course, provided the work was incomplete because of circumstances deemed by the instructor to be unavoidable. The unfinished work must be satisfactorily completed by the mid-term of the following semester or a grade of "F" will be assigned. An extension of time may be granted by the Dean of Instruction for special cases (e.g., military service).

AUDITING A COURSE

A student desiring to audit a course without credit must, at the time of registration, receive approval from the instructor or the division chairman and the registrar's office. Students will be required to pay full tuition and fees and will receive a grade of "H" for the course. An auditor cannot change his status to that of a credit student nor can credit for the audited course be established at a later date.

SELECTIVE RETENTION

Students who have accumulated seven hours of credit or more and who have failed to achieve satisfactory progress may be placed on probation or be disqualified. In the following table, satisfactory performance, probation and disqualification are defined in terms of grade point average.

Attempted Cumulative Hours	Disqualified	Probation	Satisfactory
7-18	.00- .99	1.00-1.49	1.50 or more
19-36	.00-1.29	1.30-1.74	1.75 or more
37 or more	.00-1.59	1.60-1.99	2.00 or more

Students may be disqualified without first being placed on probation if their grade point average is below the minimum level shown for probationary status. For example, if a student taking 12 credit hours during his first semester earns only a .91 grade point average, he will not be able to enroll at Harper the following semester.

PROBATION

Probationary students must raise their cumulative grade point average to the minimum required for the succeeding semester in which they are enrolled or be disqualified. A probationary student may be required to carry a reduced number of units upon the recommendation of his counselor. Students not achieving a satisfactory grade point average after two semesters on probation will be disqualified from further attendance.

TRANSCRIPTS

Official transcripts of a student's academic record will be issued and sent at his request to other educational institutions and prospective employers. Each student is entitled to two transcripts without charge. A fee of \$1.00 is charged for each additional copy.

TRANSFER OF CREDIT

Credits earned at Harper College may be transferred to other institutions of higher education. Students should select courses at Harper to fit the program they plan to follow at the four-year institution. These courses should be selected with the aid of one of the members of the college counseling staff. Harper College has received assurance from numerous colleges throughout the United States that qualified students will be able to transfer without difficulty.

FINANCIAL AID

A comprehensive program of financial aids has been developed to help insure that no student will be denied an education for lack of funds. This program includes scholarships, grants-in-aid, loans, educational opportunity grants, a college work-study program and employment opportunities. Further information is available from the director of placement and student aids at Harper College.

PLACEMENT SERVICES

Harper College offers complete full and part-time job placement services to students. Graduates from two year



programs are assisted with preparation for interviews, resumes and application forms. Interviews are arranged with employers from lists provided students. Placement is also available to former graduates. Questions concerning placement should be directed to the Director of Placement and Student Aids.

COUNSELING

Recognizing the importance of a comprehensive guidance and counseling program in a community college, Harper College has developed a strong counseling department. It is staffed on a three hundred to one student to counselor ratio.

Counselors will help students become oriented to college, serve as their academic advisors and counsel with them on educational, vocational, or personal-social problems. The counselors are readily available to students in the counseling center, and students are urged to use their services. Consultation with instructors is encouraged for students with academic problems.

Counseling is also available to part time students who may make appointments with counselors at the counseling center.

ORIENTATION

All students are invited to participate in the college orientation program held each year during the month of August. General information about the college will be presented and students will meet with their counselors for academic advisement. Details of the orientation program will be sent to all admitted students in July.

STUDENT GOVERNMENT

The focal point for the involvement of students in the democratic process at Harper College is the student government. It is the aim of the college to give the student government true authority and responsibility for student affairs and to look to it as the main vehicle through which

students are involved in the decision making processes of the college. Students are appointed to college committees which make policy directly affecting them and they are asked to assume a major role in keeping the administration abreast of student thought.

CONDUCT

College students are assumed to be adults and as such are expected to maintain contemporary community adult standards of dress, manners, and conduct. If the conduct of any student tends to subvert the academic process, violate laws, or reflect negatively on the college community, the college reserves the right to take appropriate disciplinary action. Serious offenses may result in suspension or dismissal.

STUDENT ACTIVITIES

The College Center is designed to become the hub of the co-curricular program. Its facilities can be used for dances, forums, debates, lectures, banquets, concerts and other activities designed to complement academic learning by providing opportunities for the application of knowledge and skills. Also located in the College Center are facilities for counseling, health, college publications, billiards, bookstore, and offices for student organizations.

A number of clubs and organizations have been started at Harper College and students are encouraged to begin any others that may interest them. Among the first clubs formally recognized have been the Folk Music Club, Nursing Students Club, Junior American Dental Hygienists Association, Harper Studio Players, Harper Students for Human Rights Club, and the Future Secretaries Association. Any students interested in participating or beginning new organizations should see the Director of Student Activities.

The activity program also includes a cultural arts series of art, drama, films, concerts, and lectures, student publications including the college newspaper the Harbinger, a full program of intramural athletics, and a travel program of domestic and European tours.

ATHLETICS

Harper College is a member of the Northern Illinois Junior College Conference and participates in league competition in seven sports, including cross country, golf, basketball, wrestling, baseball, tennis and track. Assigned to the Eastern Division of the conference, Harper competes with the following junior colleges: Wright, Wilson, Crane, Amundsen, Morton, Prairie State, Thornton and Triton.

An extensive intramural program has been developed by the athletic department. All students are encouraged to participate in these extra-curricular activities.

PARKING

All members of the college community are required to register their motor vehicles with the college, display their Harper parking permit decal, and park in the areas designated for them. Vehicles are registered and parking permits issued by the Security Office in Room B-103. Illinois motor vehicle laws will be enforced on the campus. The speed limit in all parking lots is 15 miles per hour.



GRADUATION REQUIREMENTS

1. A minimum of 60 semester hours of credit, at least 30 of which must be earned in attendance at Harper College.
2. A minimum grade point average of 2.0 for all work taken for the associate in arts and the associate in science degrees. A minimum grade point average of 2.0 for any applicable 60 semester hours of work for the associate in applied science degree.
3. Two hours of credit in physical education activity courses in addition to the 60 hours of credit above (1).
4. Satisfactory completion of political science 201 or a passing score on a college administered test on the constitutions of the United States and state of Illinois, the principles of American democratic government and the proper use and display of the American flag (sec. 27-4—school code).
5. A math standard score of 14 or higher on the A.C.T. test, a satisfactory score on a math achievement test administered by the college or the satisfactory completion of a math course at the college numbered 100 or above.
6. Requirement of 60 hours must be in courses numbered 100 or above for the degrees of associate in arts and associate in science.
7. Enrollment in Harper College during the semester in which graduation requirements are completed. Waiver of enrollment requirement by dean of instruction where exceptional circumstances warrant.
8. Fulfillment of the degree group requirements.
9. A petition for graduation must be completed in the office of the registrar. The petition should be filed during the fall semester of the academic year in which graduation is expected.

DEGREE GROUP REQUIREMENTS

	Associate in Arts	Associate in Science	Associate in Applied Science
I. COMMUNICATION SKILLS			
English 101, 102	6 hrs.	6 hrs.	6 hrs. ¹
II. SOCIAL SCIENCES	6 hrs.	6 hrs.	6 hrs.
anthropology, economics, geography, history, political science, psychology, sociology, or social science			
III. SCIENCE OR MATHEMATICS	8 hrs.	20 hrs.	8 hrs. ²
biology, chemistry, engineering, geology, mathematics, microbiology, physical science, physics, zoology			
IV. HUMANITIES	6 hrs.	6 hrs.	3 hrs.
art, fine arts, foreign language, humanities, literature, music, philosophy			
	26 hrs	38 hrs.	23 hrs.

¹ English 130 or English 99 or 103 may be used in satisfying this requirement under certain conditions. See a counselor for details.

² Students majoring in an approved applied science degree program may count courses in their major toward fulfillment of this requirement.

CAREER PROGRAMS

Harper College offers a considerable number of associate degree and certificate programs in the vocational area.

Associate degree programs currently being offered are:

Accounting Aide
Architectural Technology
Chemical Technology
Data Processing Technology
Dental Hygiene
Electronics Technology
Fashion Design
Food Service Management
Journalism
Law Enforcement
Marketing Management
Mechanical Design
Numerical Control Technology
Nursing
Secretarial Science

Certificate programs are being offered in:

Accounting
Architectural Technology
Business and Industrial Security
Child Service
Clerical Assistant
Data Processing
Data Processing Clerical
Electronics
Fashion Design
Fire Science
Law Enforcement
Mechanical Drafting
Mechanical Technician
Numerical Control Technician
Practical Nursing
Secretarial Science
Supermarket Management

Additional programs considered for a year or two hence include:

Aviation — Pilot or Mechanic
Civil Engineering Technology
Dental Assisting
Drafting Technology
Instrumentation
Machine Tool Technology
Radio-Electronics
Urban Administration

Programs must be approved by the State Board before implementation. For current information on these programs, please check with the director of admissions.

The programs offered for 1969-70 and their course requirements are described in the following pages.



ACCOUNTING AIDE

Accounting Aide is a two year program leading to an associate in applied science degree. The curriculum includes the study of accounting theory and practice, partnership and corporation accounting, and cost accounting. The program is designed to prepare students for employment as junior accountants in business, industry, and government.

First Year

FIRST SEMESTER		SECOND SEMESTER	
English ¹	3	ENG 130 Business Writing ¹	3
Mathematics ²	3	SPEECH 101 Fund. of Speech . .	3
BUS 101 Accounting I	3	PSY 101 Intro. to Psychology . .	3
BUS 111 Intro. to Bus. Org.	3	BUS 102 Accounting II	3
DPR 101 Intro. to Data Proc. . .	3	BUS 104 Payroll Accounting . .	3
Physical Education elective	1	Physical Education elective	1
	<u>16</u>		<u>16</u>

Second Year

FIRST SEMESTER		SECOND SEMESTER	
BUS 204 Tax Accounting	3	Humanities elective	3
ECO 201 Prin. of Economics I . .	3	PSY 145 Psychology in Business & Industry	3
BUS 211 Business Law I	3	BUS 202 Inter. Acctg. II	3
BUS 201 Inter. Acctg. I	3	BUS 203 Cost Accounting	3
BUS 262 Acctg. Seminar	3	BUS 270 Principles of Mgt.	3
	<u>15</u>		<u>15</u>

¹ Students may elect English 99, English 101 or English 102 depending on their test scores and advice of their vocational counselor. Business Writing may be taken as the second English course.

² Students may elect any mathematics course offered depending on their test scores and advice of their vocational counselor.

ARCHITECTURAL TECHNOLOGY

Architectural Technology is a two-year technical program leading to an Associate in Applied Science degree. Curriculum emphasis is on architecture, but courses in communication skills, social sciences, and humanities are also included. Graduates from this curriculum may be qualified for positions as architectural aide, engineering aide in building construction, building materials and equipment salesman, specification writer, and ancillary professional services.

First Year

FIRST SEMESTER	SECOND SEMESTER
ATE 101 Intro. to Architectural Tech. I 4	ATE 102 Intro to Architectural Tech. II 4
ATE 103 Building Materials Technologies I 4	ATE 104 Building Materials Technologies II 4
ATE 105 Computer Math for Architectural Tech. I ² 3	ATE 106 Computer Math for Architectural Tech. II ² 3
ENG 101 Composition ¹ 3	ENG 102 Composition ¹ 3
Social Science elective 3	Social Science elective 3
Physical Education elective 1	Physical Education elective 1
<u>18</u>	<u>17</u>

Second Year

FIRST SEMESTER	SECOND SEMESTER
ATE 201 Comprehensive Building Project I 4	ATE 202 Comprehensive Problem II 4
ATE 203 Construction Problems I 4	ATE 204 Construction Problems II 4
ATE 205 Computer Graphics & Optimization 3	ATE 206 Comp. Applications in Architecture 3
ATE 207 Strength of Mtls. I . . . 3	ATE 208 Strength of Mtls. II . . . 3
Humanities elective 3	Technical elective 3
<u>17</u>	<u>17</u>

¹ English 99, 103 or 130 may be used, under certain conditions, to satisfy this requirement.

² Students in this program may count this course toward fulfillment of their mathematics requirement.

CHEMICAL TECHNOLOGY

Chemical Technology is a two-year program leading to an associate in applied science degree. The program is designed to combine chemical, physical, and mathematical theories with procedural and technical skills for application in the chemical and allied industries.

Graduates will find employment in such positions as research technician, production technician, product analyst, pilot-plant operator, and product or equipment salesman.

First Year

FIRST SEMESTER	SECOND SEMESTER
CHM 121 General Chem. I 4	CHM 122 General Chem. II . . . 4
MTH 101 Fund. of Math. I 3	MTH 102 Fund. of Math. II 3
ENG 101 Composition 3	ENG 103 Report Writing 3
PHY 101 Technical Physics I . . . 4	PHY 102 Technical Physics II . . 4
CHM 110 Chemical Tech. Seminar 1	PED 216 First Aid 2
Physical Education elective 1	16
<u>16</u>	

Second Year

FIRST SEMESTER	SECOND SEMESTER
CHM 204 Organic Chemistry . . 5	Humanities elective 3
ECO 201 Principles of Eco. . . . 3	Social Science elective 3
CHM 240 Unit Operations I . . . 4	Physical Education elective 1
CHM 210 Quantitative & Instrumental Analysis I 5	CHM 241 Unit Operations II . . 4
<u>17</u>	CHM 211 Quantitative & Instrumental Analysis II 5
	<u>16</u>

DATA PROCESSING TECHNOLOGY

The Data Processing Program is a technical curriculum to train students for various positions in the field of data processing. The student will take courses in mathematics, business, data processing, and general education. Graduates of the program will find employment as computer programmers, systems analysts, and computer and unit record equipment operators.

First Year

FIRST SEMESTER	SECOND SEMESTER
DPR 101 Intro. to DP 3	DPR 108 Computer Prog. I 5
ECO 201 Princ. of Econ. 3	DPR 150 DP Math. I 3
ENG 101 Composition ¹ 3	DPR 203 Sys. Anal. & Des. I . . . 3
MTH 103 College Algebra ¹ 3	BUS 101 Accounting I 3
SOC 101 Intro. to Soc. 3	BUS 111 Bus. Organ. & Mgt. . . . 3
Physical Education elective 1	<u>17</u>
<u>16</u>	

Second Year

FIRST SEMESTER	SECOND SEMESTER
DPR 110 Computer Prog. II . . . 5	DPR 210 Computer Prog. III . . . 4
ENG 103 Report Writing 3	Humanities elective 3
DPR 204 Sys. Anal. & Des. II . . . 3	DPR 202 Prog. Systems 3
DPR 250 DP Math. II 3	DPR 230 Field Pro./Case St. . . . 3
BUS 102 Accounting II 3	BUS 203 Intro. Cost Acc. 3
Physical Education elective 1	<u>16</u>
<u>18</u>	

¹ Students not qualifying in placement tests for English 101 or college Algebra 103, will be required to take appropriate preparation work.

DENTAL HYGIENE

Dental Hygiene is a two year program including one summer session and leading to an associate in science degree in dental hygiene. The program is designed to train the hygienist and educate the person. The curriculum is rich in basic and technical dental sciences and incorporates clinical practice, communication skills, social sciences, humanities, and community dentistry with field training.

Graduates, after passing state board examinations and achieving licensure, are qualified for private practice in the dental office, hospitals, health agencies, government, and armed services.

First Year

FIRST SEMESTER	SECOND SEMESTER
ENG 101 Composition 3	ENG 102 Composition 3
SOC 101 Intro. to Sociology . . . 3	ART 105 Art Appreciation 3
BIO 160 Anatomy & Phys. 4	BIO 161 Anatomy & Phys. 4
CHM 100 Intro. Chemistry 4	CHM 140 Biochemistry 4
DHY 170 Orientation 1	DHY 111 Dental Radiology . . . 1
DHY 161 Dental Anatomy 4	DHY 101 Pre-clinic 2
	Physical Education elective 1
	<u>18</u>

SUMMER SESSION

SPE 101 Fund. of Speech 3
BIO 130 Microbiology 4
DHY 150 Clinic & Radiology . . . 2
<u>9</u>

Second Year

FIRST SEMESTER	SECOND SEMESTER
BIO 180 Histology & Embr. . . . 3	PSY 101 Intro. to Psychology . . 3
BIO 190 Pathology 3	PHI 115 Ethics 3
DHY 230 Nutrition & Perio. . . . 2	DHY 201 Seminar 2
DHY 240 Dent. Pharm. & Anesthetics 1	DHY 221 Community Dent. . . . 3
DHY 220 Community Dent. . . . 3	DHY 251 Clinic 4
DHY 250 Clinic 4	DHY 291 Dental Assisting 2
DHY 280 Dental Materials & Assisting 3	Physical Education elective 1
<u>19</u>	<u>18</u>

ELECTRONICS TECHNOLOGY

Electronics Technology is a two-year technical program leading to an Associate in Applied Science degree. It is designed to prepare students for the field of electronics and associated industries. The curriculum offers courses in electronics, circuit analysis, mathematics, physics, and general education, with laboratory emphasis placed on equipment familiarization and use.

Graduates will find employment as electronic engineering technicians, industrial technicians, electronic/electrical draftsmen, customer engineers, technical writers, and research laboratory technicians.

First Year

FIRST SEMESTER	SECOND SEMESTER
ELT 110 Intro. Electronics 2	ELT 111 Electronics I 3
ELT 101 Circuits I 4	ELT 102 Circuits II 4
MTH 106 Mathematics I 5	MTH 107 Mathematics II 5
ELT 105 Electro-Mech. Draft. . . 3	PHY 101 Technical Physics I . . 4
ENG 101 English 3	ELT 210 Computer Program. . . 3
Physical Education elective 1	
	<u>19</u>
	18

Second Year

FIRST SEMESTER	SECOND SEMESTER
ELT 203 Electronics II 4	ELT 204 Electronics III 4
ELT 103 Circuits III 4	Electronics Tech. elective ¹ . . . 4
MTH 206 Mathematics III 3	Social Science elective ² 3
PHY 102 Technical Physics II . . 4	ENG 103 Eng. Tech. Report . . . 3
Social Science elective ¹ 3	Humanities elective ³ 3
	Physical Education elective . . . 1
	<u>18</u>

¹ Technical electives

ELT 205 Electronic Instrumentation 4
ELT 206 Electronic Computers 4
ELT 207 UHF Com. and Reception 4

ELT 211 Analog Simulation I 4
ELT 212 Analog Simulation II 4

Courses may not be taken out of sequence without the consent of the instructor.

² The Social Science requirement can be completed by taking six hours from the following courses.

ANT 102 General Anthropology 3	HST 141 History of the Western Civilization 4
ECO 201 Principles of Economics 3	PSC 201 American Government 3
GEO 101 World Geography 3	PSY 101 Introduction to Psychology 3
HST 111 History of the American People to 1865 3	PSY 145 Psychology in Bus. & Ind. 3
HST 112 History of the American People from 1865 3	SOC 101 Introduction to Sociology 3
	SSC 201 General Social Science 4

³ Any three hour course in the Humanities area will meet this requirement.

FASHION DESIGN

Fashion Design is a two year program leading to an Associate in Applied Science degree. The program is designed to train students in apparel design, flat pattern design, draping, fashion illustrating, and in professional design room practices of tailoring. A survey of History of Costume, as an inspiration for contemporary design, and an analysis of current fashion trends are included. Facilities will simulate the professional atmosphere of the fashion industry.

Graduates will find employment as couture fashion designers, mass production fashion designers, flat pattern makers, fashion illustrators and fashion co-ordinators. Other areas of employment in the fashion industry include: fashion advertising, fashion promotion, fashion journalism, retailing, buying, window displaying, and other related careers.

Close cooperation between the college and the fashion industry helps to insure the type of training the fashion industry demands. Trips to manufacturers are included.

First Year

FIRST SEMESTER	SECOND SEMESTER
FAS 101 Flat Pattern Design and Draping I 4	FAS 102 Flat Pattern Design and Draping II 4
FAS 103 Apparel Design I 2	FAS 104 Apparel Design II 2
FAS 105 Fashion Design Illustration I 1	FAS 106 Fashion Design Illustration II 1
FAS 107 Textiles & Apparel Construction I 3	FAS 108 Textiles & Apparel Construction II 4
ENG 101 Composition* 3	ENG 102 Composition* 3
Social Science elective 3	Physical education elective . . . 1
<u>16</u>	<u>15</u>

Second Year

FIRST SEMESTER	SECOND SEMESTER
FAS 201 Advanced Flat Pattern Design & Draping I 4	FAS 202 Advanced Flat Pattern Design & Draping II 4
FAS 203 Advanced Diversified Apparel Design II 4	FAS 204 Advanced Diversified Apparel Design II 4
FAS 205 Tailoring Tech. I 2	FAS 206 Tailoring Tech. II 2
FAS 207 History of Costume I . . 2	FAS 208 History of Costume II . . 2
Social Science elective 3	Humanities elective 3
Physical Education elective 1	
<u>16</u>	<u>15</u>

* Students may elect ENG 99, ENG 101 or ENG 102, depending on their test scores and advice of vocational counselor. A journalism course (JNM 131 or JNM 134) may be substituted for the second English course.



FOOD SERVICE MANAGEMENT

Food Service Management is a two-year program leading to an Associate in Applied Science degree. Emphasis is placed on the techniques and technology of the food service industry from a management point of view, with 15 credits required in the division of business. Graduates will be qualified to assume positions as production supervisors, management trainees, and small unit managers. One-year certificate programs will be offered in Cooking and in Baking.

First Year

FIRST SEMESTER	SECOND SEMESTER
English elective 3	SPE 101 Fundmntls. of Speech . 3
FSM 111 Intro. to Food Service. 2	Social Science elective 3
FSM 114 Food Standards & Sanitation 3	FSM 115 Nutrition & Menu Planning 2
FSM 112 Qty. Food Production. 4	FSM 112 Qty. Food Production. 4
or	or
FSM 113 Qty. Food Service . . .	FSM 113 Qty. Food Service . . . 4
BUS 111 Business and Mgt. . . . 3	BUS 099 Record Keeping 3
Physical Education elective 1	Physical Education elective 1
<u>16</u>	<u>16</u>

Second Year

FIRST SEMESTER	SECOND SEMESTER
PSY 101 Intro. to Psychology . . 3	Humanities elective 3
BUS 265 Personnel Mgt. 3	DPR 101 Intro. to Data Processing 3
BUS 140 Salesmanship 3	FSM 214 Cost Control Sys. . . . 3
FSM 211 Food Purchasing & Storage 3	FSM 215 Restaurant Layout & Equipment 3
FSM 212 Practical Supervision . 4	FSM 213 Internship & Seminar. 4
or	or
FSM 213 Internship & Seminar. . .	FSM 212 Practical Supervision . .
<u>16</u>	<u>16</u>

JOURNALISM

Journalism is a two-year program leading to an Associate in Applied Science degree. The curriculum provides intensive study and practical training in all phases of contemporary journalism, including historic, sociologic and realistic situations. Graduates of the program are prepared for positions in newspapers; radio and television newsrooms; wire services; public relations and advertising agencies; and business, industrial and consumer magazines.

First Year

FIRST SEMESTER ¹	SECOND SEMESTER
JNM 130 Fundamentals of Journalism 3	JNM 131 News Reporting and Writing 3
ENG 101 Composition 3	JNM 133 Feature Writing 3
HST 101 History of the Amer. People to 1865 3	JNM 134 Media Adjuncts 4
PHS 101 Gen. Phys. Science . . . 3	HST 112 History of the Amer. People from 1865 3
ECO 201 Prin. of Economics . . 3	PSC 201 Amer. Government . . . 3
Physical Education elective . . . 1	
	<u>16</u>
<u>16</u>	

Second Year

FIRST SEMESTER	SECOND SEMESTER
JNM 234 Mass Com. 3	JNM 237 Externship Study 5
JNM 235 Copy Read. & Edit. . . . 4	HST 142 History of Western Civilization from 1815 4
JNM 236 Radio & T.V. News . . 3	PHI 101 Intro. to Philosophy . . . 3
HST 141 History of Western Civilization to 1815 4	SOC 101 Intro. to Sociology . . . 3
Physical Education elective . . . 1	
	<u>15</u>
<u>15</u>	

¹ Students unable to type 40 wpm are required to take BUS 121, Elementary Typing, during their first semester.

LAW ENFORCEMENT

Law Enforcement is a two year program leading to an Associate in Applied Science degree. It is designed to prepare men and women for careers in law enforcement service at the local, state and federal level, including positions as municipal or state policeman or security officer, technical opportunities in state or federal agencies, and work in crime prevention, probation, records and communication, often with special assignment to detective, and vice units. Special options are available for those students who wish to concentrate on courses in Business and Industrial Security. Also provided are options for students planning to earn a baccalaureate degree at a four year college or university.

First Year

FIRST SEMESTER	SECOND SEMESTER
ENG 101 Composition 3	ENG 103 Report Writing 3
SOC 101 Intro. to Sociology . . . 3	SOC 205 Social Problems 3
PSY 101 Intro. to Psychology . . 3	PSY 217 Develop. Psychology . . 3
LAE 101 Intro. to Law Enforcement 3	PSC 201 American Govt. — Organization & Powers 3
LAE 102 Police Org. & Admin. . . 3	LAE 110 Police Operations 3
Physical Education elective . . . 1	PED 206 Health 2
<u>16</u>	<u>17</u>

Second Year

FIRST SEMESTER	SECOND SEMESTER
PSC 202 Amer. Govt.: Functions 3	LAE 202 Criminal Law II 3
SPE 201 Fund. of Speech 3	LAE 211 Criminal Invest. 3
LAE 201 Criminal Law I 3	LAE 212 Traffic Admin. 3
LAE 210 Intro. to Criminology. 3	Law Enforcement elective ¹ 3
Law Enforcement elective ¹ 3	Humanities elective 3
PED 216 First Aid 2	LAE 215 Police Defense Techniques 2
<u>17</u>	<u>17</u>

¹ Elective must be taken from the following law enforcement offerings:

LAE 205 Juvenile Procedures
 LAE 206 Juvenile Delinquency
 LAE 207 Problems of Drug Addiction & Vice Control
 LAE 250 Police Field Service
 Business and Industrial Security Options:
 LAE 103 Industrial Security Administration
 LAE 252 Industrial Fire Protection, Disaster Control
 LAE 253 Safety Management
 LAE 254 Interviewing and Case Preparation

MARKETING MANAGEMENT

Marketing Management is designed for persons who aspire to mid-management positions in marketing and merchandising organizations and who have career objectives in any of the following occupational areas: retailing, wholesaling, transportation, and the operation of service businesses. Close cooperation between the college and area business organizations helps to insure the type of training contemporary marketing organizations demand. In the final two terms, formal classroom experience will be supplemented with 15-24 hours per week of work experience related to the student's career objectives. Students interested in supermarket management may prefer full time supervised occupational experience in food distribution firms, with supermarket management courses selected as electives.

For students not interested in the cooperative occupational experience, however, degree requirements may be fulfilled by taking additional marketing or business administration electives in place of BUS 281 and BUS 282. BUS 281 and BUS 282 are open only to those students participating in the cooperative occupational experience phase of the program.

First Year

FIRST SEMESTER	SECOND SEMESTER
English elective ¹ 3	PSY 145 Psych. in. Bus. & Industry 3
PSY 101 Intro. to Psychology .. 3	ENG 130 Business Writing ¹ 3
BUS 111 Intro. to Bus. Org. 3	Marketing elective 3
Marketing elective 2-3	BUS 270 Prin. of Mgt. 3
BUS 150 Business Math ² 3	Business elective 3
Physical Education elective 1	Physical Education elective 1
<u>15-16</u>	<u>16</u>

Second Year

FIRST SEMESTER	SECOND SEMESTER
SPE 101 Fund. of Speech 3	Humanities elective 3
ECO 201 Prin. of Eco. 3	BUS 102 Accounting II 3
ECO 115 Consumer Eco. 3	BUS 211 Business Law I 3
BUS 101 Accounting I 3	DPR 101 Intro. to Data Proc. . . 3
Marketing elective 3	BUS 282 Marketing Mgt. II 3
BUS 281 Marketing Mgt. I 3	<u>15</u>
<u>15</u>	Summer Option ³ 6

¹ Students will take English 99, English 101, English 102 depending upon their test scores and the advice of their vocational counselor. Business Writing may be taken as the second English course.

² While students may take any mathematics course offered, depending upon their test scores and the advice of their vocational counselor, Business Mathematics is recommended.

³ The summer option may be taken on a voluntary basis as an optional part of the program. Approval of the program coordinator would be required for courses selected.

MECHANICAL DESIGN

Mechanical Design is a two-year technical program leading to an associate in applied science degree. The program is designed to train students in the field of mechanical design and drafting. The curriculum includes courses in mechanical design and drafting, mathematics, physics, and general education.

Graduates will be employed in such positions as mechanical designers, mechanical draftsmen, machine designers, tool and die designers, mechanical engineering technicians, and technical salesmen.

First Year

FIRST SEMESTER	SECOND SEMESTER
MCD 101 Elem. of Drafting . . . 4	MCD 102 Tech. Drafting 4
MTH 106 Math I 5	MTH 107 Math II 5
PHY 101 Physics I 4	MCD 103 Mechanisms 4
ENG 99 Composition 3	MCD 108 Mfg. Proc. & Mtls. . . 3
Physical Education elective 1	Physical Education elective 1
<u>17</u>	<u>17</u>

Second Year

FIRST SEMESTER	SECOND SEMESTER
JNM 234 Mass Com. 3	JNM 237 Externship Study 5
JNM 235 Copy Read. & Edit. . . . 4	HST 142 History of Western Civilization from 1815 4
JNM 236 Radio & T.V. News . . 3	PHI 101 Intro. to Philosophy . . . 3
HST 141 History of Western Civilization to 1815 4	SOC 101 Intro. to Sociology . . . 3
Physical Education elective 1	<u>15</u>
<u>15</u>	

¹ Students unable to type 40 wpm are required to take BUS 121, Elementary Typing, during their first semester.

NUMERICAL CONTROL TECHNOLOGY

Numerical Control Technology is a two-year technical program leading to an associate in applied science degree. Numerical Control Technology is the application of coded information to the performance functions of machining and drafting. The program is designed to train students for the field of numerical control — machine tools and drafting. The curriculum offers courses in numerical control, mathematics and general education.

Graduates of the program will find employment in such positions as numerical control parts programmer, numerical control coordinator, numerical control computer programmer and numerical control salesman.

First Year

FIRST SEMESTER	SECOND SEMESTER
NMC 101 Intro. to Numerical Control 2	ENG 101 Composition or
MTH 104 Trigonometry 4	ENG 99 Composition 3
MCD 101 Drafting I 4	NMC 105 Part Program. I 3
MCD 105 Basic Mach. Shop . . . 3	MTH 106 Tech. Math. I 5
MCD 108 Mfg. Processes 3	MCD 109 Mfg. Processes II . . . 3
	MCD 102 Drafting II 4
	<u>18</u>
<u>16</u>	

Second Year

FIRST SEMESTER	SECOND SEMESTER
Social Science elective 3	Social Science elective 3
ENG 103 Tech. Report Writing. 3	NMC 214 Graph. Display Sys... 3
NMC 215 Part Program. II 3	NMC 216 Part Prog. III 3
NMC 201 Numerical Control Machining 3	NMC 220 Special Problems . . . 3
NMC 210 Computer Prog. 3	Physical Education elective 1
Physical Education elective 1	Humanities elective 3
	<u>16</u>
<u>16</u>	

NURSING: ASSOCIATE DEGREE

The associate degree nursing program is two years in length and leads to an associate in applied science degree. It is designed to prepare students to become Registered Nurse practitioners. The curriculum includes courses in the sciences and liberal arts plus clinical experiences in a variety of community health agencies.

Graduates, after passing the state board examination for licensure, are qualified for a variety of satisfying and interesting positions as Registered Nurses in hospitals, clinics, nursing homes, rehabilitation centers, and many other specialized care settings.

First Year

FIRST SEMESTER	SECOND SEMESTER
ENG 101 Composition 3	ENG 102 Composition 3
BIO 170 Bio-Physical Sci. ¹ 4	BIO 171 Bio-Physical Sci. 4
PSY 101 Intro. to Psych. 3	SOC 101 Intro. to Soc. 3
NUR 101 Found. of Nursing . . . 5	NUR 102 Found. of Nursing . . . 5
Physical Education elective 1	Physical Education elective 1
<u>16</u>	<u>16</u>

Second Year

FIRST SEMESTER	SECOND SEMESTER
Humanities elective 3	Humanities elective ² 3
PSY 216 Dev. Psychology I or	Elective 3
PSY 217 Dev. Psychology II . . . 3	NUR 202 Phy. & Men. Illness . . 10
NUR 201 Phy. & Men. Illness . . 10	<u>16</u>
<u>16</u>	

¹ Must be taken concurrently with NUR 101.

² To be designated by counselor.

SECRETARIAL SCIENCE

Secretarial Science is a two-year program leading to an Associate in Applied Science degree. The curriculum is designed to give the student experience in office practices, secretarial duties, and functions of office administration.

Graduates may be employed in any of a variety of agencies, including manufacturing firms, government agencies, schools, and colleges, insurance companies, banks, and hospitals.

First Year

FIRST SEMESTER	SECOND SEMESTER
English elective ¹ 3	ENG 130 Business Writing 3
SEC 121 Elem. Typing 2	SEC 126 Inter. Shorthand 4
BUS 111 Bus. Org. & Mgt. 3	SEC 122 Inter. Typing 3
SEC 236 Secretarial Seminar I . . 1	SEC 131 Office Machines 2
Mathematics elective ² 3	PSY 101 Intro. to Psych. 3
SEC 125 Elem. Shorthand 4	SEC 237 Secretarial Seminar II . 1
Physical Education elective 1	Physical Education elective 1
<u>17</u>	<u>17</u>

Second Year

FIRST SEMESTER	SECOND SEMESTER
BUS 101 Accounting I	BUS 211 Business Law ¹ 3
or	SEC 226 Trans. & Dict. ³ 3
BUS 103 Bus. Rec. Keeping . . . 3	Humanities elective 3
SEC 221 Adv. Typing 3	SPE 101 Fund. of Speech 3
SEC 225 Adv. Shorthand 4	SEC 234 Off. Procedures I 3
ECO 115 Consumer Eco.	SEC 239 Secretarial Seminar IV 1
or	<u>16</u>
ECO 201 Prin. of Eco. 3	
SEC 238 Secretarial Seminar III 1	
Elective 3	
<u>17</u>	

¹ Students will take English 99, English 101, or English 102 depending upon their test scores and the advice of their vocational counselor. Business Writing may be taken as the second English Course.

² While students may take any mathematics course offered, depending upon their test scores and the advice of their vocational counselor, Business Mathematics is recommended.

³ Students having an adequate background in high school shorthand may elect to take Business 231 and/or Business 232.

CERTIFICATE PROGRAMS

Seventeen certificate programs are also offered. A certificate program is a sequence of courses in a specialized academic and/or technical area requiring approximately two to three years of part-time or one year of full-time course work. Completion of the course work required for a specific program with a grade point average of 2.0 (C) or higher entitles the student to a certificate of achievement in that field of specialization.

Courses in certificate programs are offered in the evening as well as during the day to permit part-time evening students to meet their particular training needs and to reach an obtainable goal within a reasonable period of time. All courses creditable toward a certificate are also applicable toward an associate degree.

While completion of a certificate program may be the primary goal for some adults, for others it may represent their first step toward an associate degree.

Accounting	Fire Science
Architectural Technology	Law Enforcement
Business and Industrial Security	Mechanical Drafting
Child Service	Mechanical Technician
Clerical Assistant	Numerical Control Technician
Data Processing	Practical Nursing
Data Processing Clerical	Secretarial Science
Electronics	Supermarket Management
Fashion Design	



ACCOUNTING AIDE

Accounting Aide is a two year program for persons interested in pursuing careers as junior accountants in business, industry and government. Despite the increasing use of data processing in accounting work, there is an acute shortage of persons with the training and basic intellect needed to be successful in accounting.

BUS 101 Accounting I	3	BUS 202 Inter. Accounting II . .	3
BUS 102 Accounting II	3	BUS 203 Cost Accounting	3
BUS 201 Inter. Accounting I . .	3		<u>18</u>
BUS 098 Payroll Accounting . .	3		
or			
BUS 204 Tax Accounting			

ARCHITECTURAL TECHNOLOGY

Architectural Technology is a technical program leading to a Certificate upon completion of any of the following course offerings totaling fifteen credit hours. The curriculum emphasis is on Architecture in the related areas of construction, drafting, computer programming, estimating and specifications.

Any combination of 15 credit hours may be selected from the courses listed below, providing the combination has counselor approval.

ATE 101 Intro. to Arch. Tech. I.	4	ATE 203 Constr. Problems I . . .	4
ATE 103 Building Materials I . .	4	ATE 205 Computer Concepts I.	3
ATE 105 Computer Prog.		ATE 202 Comprehensive	
for Arch. Tech. I	3	Problems II	4
ATE 102 Intro. to Arch. Tech. II.	4	ATE 204 Constr. Problems II . .	4
ATE 104 Building Materials II . .	4	ATE 206 Computer Concepts II.	3
ATE 106 Computer Prog.		ATE 207 Strength of Mtls. I . . .	3
for Arch. Tech. II	3	ATE 208 Strength of Mtls. II . . .	3
ATE 201 Comprehensive			
Problems I	4		

BUSINESS AND INDUSTRIAL SECURITY

This Certificate Program is designed to provide a specialized group of courses for those presently employed and for those who may wish to have a better knowledge of this employment area when seeking employment in the Security field.

Any combination of 15 credit hours may be selected from the courses listed below, providing the combination has counselor approval.

LAE 103 Industrial Security Administration	3	LAE 254 Interviewing & Case Preparation	3
LAE 252 Industrial Fire Protection Disaster Control . .	3	LAE 201 Criminal Law I	3
LAE 253 Safety Management . .	3	LAE 202 Criminal Law II	3
		LAE 211 Criminal Investigation .	3
		LAE 210 Police Operations	3

CHILD SERVICE

Any combination of 15 credit hours may be selected from the courses listed below, providing the combination has counselor approval.

SOC 101 Intro. to Sociology . .	3	PSY 217 Dev. Psychology II . . .	3
SOC 205 Social Problems	3	PSY 219 Psychology of Exceptional Children	3
SOC 210 Social Institutions . . .	3	LAE 205 Juvenile Procedures . .	3
PSY 101 Intro. to Psychology . .	3	LAE 206 Delinquency Prevention & Control	3
PSY 216 Dev. Psychology I . . .	3		

CLERICAL ASSISTANT

This program may be completed in one semester of day school or 2 semesters of evening school.

SEC 121 Beginning Typing ¹ . . .	2	SEC 132 Office Machines II . . .	2
SEC 122 Intermediate Typing . .	3	BUS 150 Business Mathematics .	3
SEC 221 Advanced Typing	3		
SEC 131 Office Machines I . . .	2		
			15

¹ If advanced placement is given for previous typing training, the student should substitute BUS 111, or another appropriate business course.

DATA PROCESSING

A program designed to either familiarize the student with, or to upgrade his knowledge of, the field of data processing. Contingent upon the particular sequence of courses taken, the student may be able to upgrade his current position, or be able to enter the field in a variety of positions.

Any combination of 15 credit hours may be selected from the courses listed below, providing the combination has counselor approval.

DPR 101 Intro. to Data Proc.	3	DPR 203 Sys. Anal. & Des. I	3
DPR 110 Computer Prog. I	5	DPR 204 Sys. Anal. & Des. II	3
DPR 150 Data Processing Math I	3	DPR 210 Computer Prog. II	4
DPR 202 Programming Systems.	3	DPR 215 Adv. Prog. Languages.	5

DATA PROCESSING CLERICAL PROGRAM

This is a two semester certificate program which includes the study of introduction to data processing, key punching and verifying, business machines operations, and general clerical subjects. Graduates will find employment as key punch operators, verifier operators, or other clerical positions in data processing installations in business, industry, and government.

FIRST SEMESTER

ENG 101 Composition*	3
BUS 101 Accounting I	3
DPR 101 Intro. to DP	3
DPR 103 K P & Ver. I	2
BUS 150 Bus. Math	3
Physical Ed. elective	1
	15

SECOND SEMESTER

SOC 101 Intro. to Soc.	3
DPR 104 K P & Ver. II	2
DPR 105 Bus. Mach. Oper.	2
English elective	3
Elective	3
Physical Ed. elective	1
	14

PREREQUISITES: Typing speed of 40 WPM. Students not meeting this requirement must take Business 121 and/or Business 122.

* Students not qualifying on a placement test for College English may take English 099 or Reading 095.

ELECTRONICS

Any combination of 16 credit hours may be selected from the courses listed below, providing the combination has counselor approval.

ELT 110 Intro. to Electronics ...	2	MTH 106 Mathematics I	5
ELT 101 Circuits I	4	MTH 107 Mathematics II	5
ELT 105 Electro-Mech. Drafting.	3	MTH 206 Mathematics III	5
ELT 111 Electronics I	3	ELT 211 Analog Simulation I ..	4
ELT 102 Circuits II	4	ELT 212 Analog Simulation II ..	4
ELT 210 Computer Prog.	3	ELT 207 UHF Com. & Receptn..	4
ELT 203 Electronics II	4	ELT 206 Electronic Computers .	4
ELT 103 Circuits III	4	ELT 205 Electronic Instru.	4
ELT 204 Electronics III	4		

FASHION DESIGN

Any combination of 15 credit hours may be selected from the courses listed below, providing the combination has counselor approval.

FAS 101 Flat Pattern Design & Draping I	4	FAS 201 Advanced Flat Pattern Design & Draping I	4
FAS 102 Flat Pattern Design & Draping II	4	FAS 202 Advanced Flat Pattern Design & Draping II	4
FAS 103 Apparel Design I	3	FAS 203 Advanced Diversified Apparel Design I	4
FAS 104 Apparel Design II	4	FAS 204 Advanced Diversified Apparel Design II	4
FAS 105 Fashion Illustration I .	1	FAS 205 Tailoring Tech. I	2
FAS 106 Fashion Illustration II .	1	FAS 206 Tailoring Tech. II	2
FAS 107 Textiles & Apparel Construction I	2	FAS 207 History of Costume I .	2
FAS 108 Textiles & Apparel Construction II	2	FAS 208 History of Costume II .	2

FIRE SCIENCE

The Fire Science Certificate Program is designed to upgrade people currently employed in the Fire Science field and to enable them to seek more responsible positions within that field by furthering their knowledge in special areas of Fire Science.

Any 6 credit hours may be selected from the courses listed below:

ENG 099 Composition	3	ENG 103 Report Writing	3
ENG 101 Composition	3	SOC 101 Intro. to Sociology . .	3

Any 9 credit hours may be selected from the courses listed below, providing the combination has counselor approval.

FIR 102 Intro. to Fire Protection	3	FIR 115 Bldg. Codes & Constr. .	3
FIR 103 Fund. of Fire Prevention	3	FIR 120 Hazardous Material . . .	3
FIR 104 Intro. to Fire Supp. . . .	3	FIR 130 Hydraulics & Equip. . .	3
FIR 110 Fire Fighting Tactics		FIR 101 Municipal Fire Adm. I.	3
& Strategy	3	FIR 201 Municipal Fire Adm. II.	3

LAW ENFORCEMENT

This Certificate Program is designed to provide specialized education for those currently employed who wish to obtain a Certificate indicating completion of the courses as a group.

Any combination of 15 credit hours may be selected from the courses listed below, providing the combination has counselor approval.

LAE 101 Intro. to Law Enforcement	3	LAE 210 Intro. to Criminology .	3
LAE 102 Police Admin. & Org. . .	3	LAE 202 Criminal Law II	3
LAE 110 Police Operations	3	LAE 211 Criminal Investigation .	3
LAE 201 Criminal Law I	3	LAE 212 Traffic Administration .	3

MECHANICAL DRAFTING

The Mechanical Drafting Certificate program has been developed in conjunction with the area industries to prepare students for challenging careers in drafting. The program may be completed in one semester of day school or 2 semesters of evening school.

MCD 101 Elements of Drafting. 4	MCD 103 Mechanisms 4	
MTH 106 Mathematics I 5		17
MCD 102 Technical Drafting .. 4		

MECHANICAL TECHNICIAN

The Mechanical Technician Certificate program, developed in conjunction with area industries, prepares students for employment as industrial technicians, lab technicians, shop technicians, or engineering assistants. The program may be completed in one semester of day school or two semesters of evening school.

MCD 101 Elements of Drafting. 4	Technical elective ¹ 3-5	
MTH 106 Mathematics I 5		16-18
PHY 101 Technical Physics I .. 4		

¹ Elective to be chosen from the following courses:

MCD 102 Technical Drafting 4	MCD 103 Mechanisms 4
MTH 107 Mathematics II 5	MCD 108 Manufacturing Processes 3

NUMERICAL CONTROL TECHNICIAN

The Numerical Control Technicians's Certificate program allows for in depth course work in Numerical Control. Such courses should provide an individual with the necessary background to assume a responsible position in this area.

Any combination of 15 credit hours may be selected from the courses listed below, providing the combination has counselor approval.

NMC 93 Numerical Control Drafting	2	NMC 201 Numerical Controlled Machining	3
NMC 97 ADAPT & APT Part Programming	2	NMC 210 Computer Prog.-FORTRAN	3
NMC 101 Intro. to Numerical Control	2	NMC 214 Graphic Display Sys..	3
NMC 105 Part Programming I.	3	NMC 215 Part Programming II.	3
		NMC 216 Part Programming III.	3
		NMC 220 Special Problems ...	3

NURSING: CERTIFICATE (PRACTICAL)

The practical nursing certificate program is one full year in length — two semesters and one summer session — and is designed to prepare students to become licensed practical nurses. The curriculum concentrates on practical nursing, vocational relationships, and disaster nursing.

After passing the state board examination for practical nursing licensure, LPN's take their place on the medical team, working under the direction of a doctor or registered nurse when caring for acutely ill patients and giving total patient care to convalescing or sub-acute patients in hospitals, nursing homes, and other health care settings.

FIRST SEMESTER	SECOND SEMESTER
PNR 60 Practical Nursing I	PNR 70 Practical Nursing II ...
PNR 61 Vocational Relationships I	PNR 71 Disaster Nursing
RDG 99 Developmtl. Reading .	ENG 99 Composition
	<u>16</u>
	16

SUMMER SESSION

PNR 80 Practical Nursing III ...	10
PNR 81 Vocational Relationships II	1
	<u>11</u>
	11

SECRETARIAL SCIENCE

Any combination of 15 credit hours may be selected from the courses listed below, providing the combination has counselor approval.

SEC 121 Beginning Typing ¹	2	SEC 125 Beginning Shorthand ² .	4
SEC 122 Intermediate Typing ..	3	SEC 126 Inter. Shorthand ²	4
SEC 221 Advanced Typing	3	SEC 225 Advanced Shorthand .	4

¹ Students for whom advanced placement is recommended, should substitute SEC 131.

² Students for whom advanced placement is recommended should substitute SEC 150. Students who can substitute previous training for both SEC 125 and 126 should substitute SEC 150 and SEC 132.

SUPERMARKET MANAGEMENT

The Supermarket Management Certificate program has been designed by the college and representatives of the Supermarket industry for those students with an interest in careers in the fast-growing and important supermarket industry. Specifically, the program has been designed to provide training and experience that could lead to managerial positions in the industry.

The following courses are required:

BUS 109 Intro. to Food		BUS 215 Supermarket Op.	3
Marketing	2	BUS 216 Supermarket Mdse. . .	3

A minimum of 7 credit hours may be selected from any of the following courses:

BUS 111 Intro. to Bus. Org. . . .	3	ECO 201 Principles of Eco. . . .	3
BUS 270 Principles of Mgt.	3	ECO 115 Consumer Economics. .	3
BUS 150 Business Math	3	DPR 101 Intro. to Data Proc. . .	3
BUS 101 Accounting I	3	PSY 145 Psych. in Bus. & Ind. . .	3
BUS 102 Accounting II	3	BUS 130 Business Writing	3
BUS 211 Business Law	3		

TRANSFER PROGRAMS

Harper College offers the first two years of most four year college programs. For example, students interested in the following areas of study can spend their first two years at Harper College qualifying for an associate degree and then transfer to a four year institution without loss of time or credit:

Business

Accounting
 Advertising
 Business Administration
 Commerce
 Finance
 Marketing
 Retailing
 Transportation

Education

Business Education
 Education
 Library Science
 Personnel and Guidance
 Physical Education
 Special Education

Engineering

Architecture
 Chemical Engineering
 Civil Engineering
 Electrical Engineering
 Industrial Engineering
 Mechanical Engineering

Humanities

Art
 English
 Foreign Languages
 Journalism
 Law
 Liberal Arts
 Literature

Humanities (con't.)

Music
 Philosophy
 Speech
 Theology

Medicine

Dentistry
 Medicine
 Nursing
 Optometry
 Pharmacy
 Physical Therapy
 Veterinary Medicine

Natural Sciences and Mathematics

Biology
 Botany
 Chemistry
 Geology
 Mathematics
 Physics
 Zoology

Social Sciences

Anthropology
 Economics
 Geography
 History
 Political Science
 Psychology
 Social Work
 Sociology

The following programs are designed principally for students desiring to meet the requirements for an Associate Degree in Arts or in Science. These programs will, in general, meet transfer requirements to most colleges and universities, but it is important for the student to know that requirements in institutions granting baccalaureate degrees will vary. When the student can inform his counselor exactly which area he wishes to pursue and the institution at which he wishes to complete his work, a program can be arranged to suit his individual needs. In the preparation of his program at Harper College, the student should consult the catalogue of the college which he will attend later. Students who have not yet selected the college at which they will complete their work will find the suggested programs good general guides to follow.

ARCHITECTURAL DESIGN

First Year

FIRST SEMESTER	SECOND SEMESTER
ARC 101 3	ARC 102 3
ARC 103 3	ARC 104 3
ART 110 3	ART 111 3
ENG 101 3	ENG 102 3
MTH 105 4	MTH 5
Physical Education 1	Physical Education 1
<u>17</u>	<u>18</u>

SUMMER SESSION

Social Science 6

Second Year

FIRST SEMESTER	SECOND SEMESTER
ARC 201 4	ARC 202 4
ARC 203 3	ARC 204 3
ARC 205 3	ARC 206 3
ART 105 3	ART 131 3
PHY 101 5	PHY 102 5
Physical Education 1	Physical Education 1
<u>19</u>	<u>19</u>

ART
First Year

FIRST SEMESTER	SECOND SEMESTER
English Composition 3	English Composition 3
Foreign Language 4	Foreign Language 4
Phys. or Biol. Science 4	Phys. or Biol. Science 4
ART 110 3	ART 111 3
ART 121 3	ART 122 3
Physical Education 1	Physical Education 1
<u>18</u>	<u>18</u>

Second Year

FIRST SEMESTER	SECOND SEMESTER
FNA 111 3	FNA 112 3
ART 201 3	ART 202 3
ART 225 3	ART 226 3
ART 236 2	ART 237 2
ART 206 or 296 2	ART 261 2
Social Science 3	ART 291 or 297 2
Physical Education 1	Social Science 3
<u>17</u>	<u>18</u>

BUSINESS
First Year

FIRST SEMESTER		SECOND SEMESTER	
ENG 101	3	ENG 102	3
ECO 201	3	ECO 202	3
Mathematics	3	Mathematics	3
PHI 105	3	Science	3-4
Science	3-4	BUS 101	3
Physical Education	1	Physical Education	1
<u>16-17</u>		<u>16-17</u>	

Second Year

FIRST SEMESTER		SECOND SEMESTER	
ECO 215	3	ECO 216	3
HST 111 or 141	3-4	HST 112 or 142	3-4
BUS 102	3	BUS 201	3
SPE 101	3	PSY 101 or SOC 101	3
Literature or Fine Arts	3	Literature or Fine Arts	3
Physical Education	1	Physical Education	1
<u>16-17</u>		<u>16-17</u>	

Students who enter the University of Illinois without college credit in algebra are required to take the Mathematics Placement Test before registering in the College of Commerce. The student who does not pass the test must take college algebra without credit. The student who has had college algebra or passes the placement test may proceed directly to courses required by the College for graduation.

Foreign Language Requirement. Two years of one foreign language taken in high school is acceptable at the University of Illinois. The foreign language deficiency can be removed by passing an entrance examination or completing one year of foreign language in college without credit.

CHEMICAL ENGINEERING
First Year

FIRST SEMESTER		SECOND SEMESTER	
ENG 101	3	ENG 102	3
CHM 131	5	CHM 132	5
MTH 105	4	MTH 201	5
Social Science	3	MTH 215	3
Physical Education	1	Physical Education	1
	<u>16</u>		<u>17</u>

SUMMER SESSION

Humanities	3
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Second Year

FIRST SEMESTER		SECOND SEMESTER	
CHM 204	5	CHM 205	3
MTH 202	5	MTH 212	3
PHY 201	5	PHY 202	5
Foreign Language ¹	4	Social Science	3
	<u>19</u>	Foreign Language	4
			<u>18</u>

¹ Two years of foreign language, (German, French, or Russian) are required for the Bachelor of Science degree. Two units of high school credit in one of these languages are equivalent to one year of college credit. Check the school to which transfer will be made for foreign language requirements.

CIVIL, ELECTRICAL, GENERAL AND MECHANICAL ENGINEERING
First Year

FIRST SEMESTER		SECOND SEMESTER	
ENG 101	3	ENG 102	3
CHM 121	4	CHM 122	4
EGR 120	3	MTH 215	3
MTH 105	4	EGR 121	3
Social Science	3	MTH 201	5
	<u>17</u>		<u>18</u>

Second Year

FIRST SEMESTER		SECOND SEMESTER	
Social Science	3	MTH 212	3
MTH 202	5	PHY 122	5
PHY 121	5	EGR 211	3
EGR 150	2	Humanities	3
Physical Education	1	Physical Education	1
	<u>16</u>	EGR 212 ¹	3
			<u>18</u>

¹ For Electrical Engineering students, this course may be optional.

ENGINEERING TECHNOLOGY FOR TEACHERS
First Year

FIRST SEMESTER		SECOND SEMESTER	
ENG 101	3	ENG 102	3
CHM 121	4	CHM 122	4
EGR 120	3	EGR 121	3
MTH 103	3	MTH 215	3
MTH 104	3	MTH 105	4
Physical Education	1		<u>17</u>
	<u>17</u>		

Second Year

FIRST SEMESTER		SECOND SEMESTER	
MTH 201	5	Physical Education	1
PHY 121	5	Humanities	3
EGR 150	2	EGR 211	3
PSY 101	3	MTH 202	5
SPE 101	3	PHY 122	5
	<u>18</u>		<u>17</u>

LIBERAL ARTS

The Liberal Arts transfer curriculum lays the foundation of a broad general education. It should be followed by those who wish to become lawyers, historians, philosophers, sociologists, English teachers, social workers, anthropologists and political scientists, and for those who have not yet chosen their field of specialization but who wish to satisfy the general education requirements of the university to which they will transfer.

Though the general education requirements of universities vary in some details, in general the student can be sure he will meet them if he takes at Harper two semesters of transfer-level English composition, two semesters of laboratory science, four semesters of foreign language, two semesters of mathematics, and a number of courses in the social sciences and humanities. He can often count each year of successful high school foreign language as one semester of college foreign language, and he may meet the math requirement of some universities by passing their math proficiency test.

First Year

FIRST SEMESTER		SECOND SEMESTER	
ENG 101	3	ENG 102	3
Social Science	3	Social Science	3
Laboratory Science ¹	4	Laboratory Science ¹	4
Math or elective	3	Math or elective	3
Foreign Language	4	Foreign Language	4
Physical Education	1	Physical Education	1
	18		18

Second Year

FIRST AND SECOND SEMESTER	
English ²	6
Social Science	6
Humanities ³	6
Foreign Language ⁴	6-8
Additional electives ⁵	6-8
	30-34

¹ Physical or biological science or physics, chemistry, botany, or other lab science.

² Advanced English or Literature, or Speech.

³ Humanities 201-202 are recommended, 3 credit hours each. Other humanities areas include art, music, literature and philosophy.

⁴ Consult your counselor for specific foreign language requirements of the university to which you plan to transfer.

⁵ Another lab science may be added. Electives may be drawn also from anthropology, art, economics, geology, geography, history, music, political science, philosophy, psychology, sociology and speech.

MUSIC¹
First Year

FIRST SEMESTER		SECOND SEMESTER	
English 101	3	English 102	3
Science or Math elective ...	3-5	Science or Math elective ...	3-5
Physical Education elective .	1	Physical Education elective .	1
Music 111	3	Music 112	3
Music 115	1	Music 116	1
Group Performance ²	1	Group Performance ²	1
Applied Music elective ³	2-4	Applied Music elective ³	2-4
	<u>14-18</u>		<u>14-18</u>

Second Year

FIRST SEMESTER		SECOND SEMESTER	
Social Science	3	Social Science	3
Music 211	3	Music 212	3
Music 215	1	Music 216	1
Instrmntl. or Vocal Tech. ...	2	Instrmntl. or Vocal Tech. ...	2
Music 112	3	Music 122	3
Group Performance ²	1	Group Performance ²	1
Applied Music elective ³	2-4	Applied Music elective ³	2-4
L. A. elective	2	L. A. elective	2
	<u>17-19</u>		<u>17-19</u>

¹ All majors in music must demonstrate minimum proficiency on the piano.

² To be elected from MUS 130, 136, 140, 145, 150.

³ To be elected from courses numbered 180-199.

SCIENCE AND MATHEMATICS
First Year

FIRST SEMESTER		SECOND SEMESTER	
ENG 101	3	ENG 102	3
Foreign Language	4	Foreign Language	4
Mathematics	3-5	Mathematics	3-5
Laboratory Science	4-5	Laboratory Science	4-5
Physical Education	1	Physical Education	1
	15-18		15-18

Second Year

FIRST SEMESTER		SECOND SEMESTER	
Social Science	3	Social Science	3
Mathematics	3-5	Mathematics	4-5
Laboratory Science	4-5	Laboratory Science	4-5
Elective	3-4	Elective	3-4
Physical Education	1	Physical Education	1
	14-18		15-18

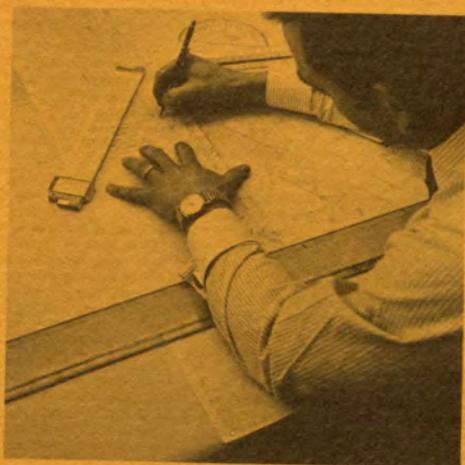
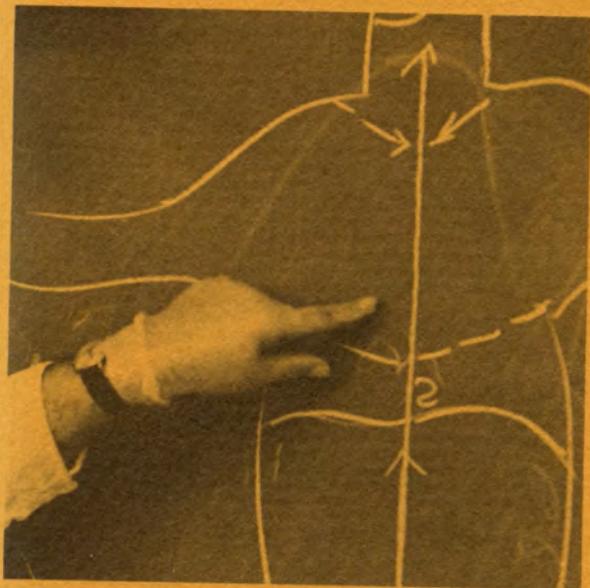
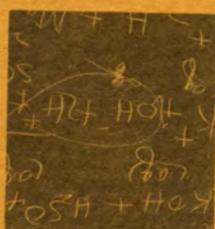
SPEECH AND DRAMA
First Year

FIRST SEMESTER		SECOND SEMESTER	
ENG 101	3	ENG 102	3
BIO 111	4	BIO 112	4
SPE 101	3	SPE 102	3
Foreign Language	4	Foreign Language	4
Math or elective	3	Math or elective	3
Physical Education	1	Physical Education	1
	18		18

Second Year

FIRST SEMESTER		SECOND SEMESTER	
ENG 105	3	ENG 110	3
Foreign Language ¹	4	Foreign Language ¹	4
SPE 111	3	SPE 212 or 107	3
Speech elective	3	Electives	6
PSC 201	3		
	16		16

¹ Consult your counselor for specific foreign language requirements of the college to which you plan to transfer.



COURSE NUMBERING SYSTEM

In general, courses numbered below 100 are not intended for transfer credit. These courses may be counted toward the A.A.S. degree but not the A.A. or A.S. degrees.

Courses numbered 100 or above may be expected to fulfill transfer requirements. In some cases the courses designed primarily for vocational programs may not be acceptable in transfer to all four year institutions. Students should see a counselor for clarification on the transferability of these courses.

Courses numbered 200 and above are intended for the sophomore level.

Sample Course Listing

ANT	102	General Anthropology	(3-0)	3 hrs.
↑	↑	↑	↑↑	↑
course prefix	course number	course title	hours of lecture per week	semester hours of credit
			hours of lab per week	

ANTHROPOLOGY

- ANT 102 General Anthropology (3-0)** **3 hrs.**
Human origins and early man, race and racism, archeology, and the beginning of early civilization.
- ANT 202 Comparative Study of Cultures (3-0)** **3 hrs.**
Methods used by anthropologists to gather and interpret cultural materials. Comparison of various cultures, understanding the culture concept, and examination of the relationship between culture and personality.
Prerequisite: ANT 102.

ARCHITECTURE

- ARC 101 Basic Design I (0-6)** **3 hrs.**
Basic factors in two-dimensional and three-dimensional design.
- ARC 102 Basic Design II (0-6)** **3 hrs.**
More complex systems of two-dimensional and three-dimensional design. Introduction to color theory.
Prerequisite: ARC 101.
- ARC 103 Building Construction I (2-2)** **3 hrs.**
Wood and masonry construction and allied materials.
- ARC 104 Building Construction II (2-2)** **3 hrs.**
Steel construction and allied materials.
Prerequisite: ARC 103.
- ARC 201 Design I (0-8)** **4 hrs.**
Architectural design problems; emphasis on development and organization of space.
Prerequisite: ARC 102.
- ARC 202 Design II (0-8)** **4 hrs.**
Architectural design problems; emphasis on structure.
Prerequisite: ARC 201 and ARC 104.
- ARC 203 Statics and Strength of Materials I (3-0)** **3 hrs.**
Equilibrium of bodies and systems subjected to parallel, colinear, parallel noncolinear, perpendicular, and general systems of concentrated forces. Distributed bonds, centroids, buoyancy, friction. Stresses and strains in tension and compression; moment of inertia.
Prerequisite: MTH 201.
- ARC 204 Statics and Strength of Materials II (3-0)** **3 hrs.**
Torsion; bending; shear and moment diagrams; stresses in beams; combined bending and aerial load; deflection of beams; statical indeterminacy; columns variation of stress and strain at a point; ultimate load, failure and safety.
Prerequisite: ARC 203.
- ARC 205 Architectural History I (3-0)** **3 hrs.**
Introduction to methodology of art and architectural history and criticism. A cultural-historical oriented examination of architecture and art from antiquity through medieval times.

ARC 206 Architectural History II (3-0) **3 hrs.**
Continuation of ARC 205. Cultural-historical examination of architecture from renaissance to present.
Prerequisite: ARC 205.

ARCHITECTURAL TECHNOLOGY

ATE 101 Introduction to Architectural Technology I (1-6) **4 hrs.**
Pragmatic fundamentals of Architecture consisting of general technical procedures; drafting and sketching; working drawing outline; mechanical and electrical services; estimating format; specification format; computer relationships

ATE 102 Introduction to Architectural Technology II (1-6) **4 hrs.**
Orthographic; oblique, perspective projections; cross referencing; indexing; specifications; cost control budgeting; development of working drawings and specifications.
Prerequisite: ATE 101 or consent of instructor.

ATE 103 Building Materials Technology I (2-4) **4 hrs.**
Typical brick bearing walls and their methods of bonding; wood floor, wall and ceiling construction based on balloon and platform framing.

ATE 104 Building Materials Technology II (2-4) **4 hrs.**
Typical column, beam, girder and cladding assemblies based on bolted and welded construction techniques.
Prerequisite: ATE 103 or consent of instructor.

ATE 105 Computer Mathematics for Architectural Technologies I (3-0) **3 hrs.**
Basic algebra and an introduction to trigonometry; introduction to Fortran IV; application to architectural area and volume computations for gross floor and exterior wall designs.

ATE 106 Computer Mathematics for Architectural Technologies II (3-0) **3 hrs.**
Algebra, trigonometry and analytic geometry related to computer techniques applicable to architectural building materials, SYMAT planning, critical path and building geometry.
Prerequisite: ATE 105.

ATE 201 Comprehensive Building Project I (0-8) **4 hrs.**
Architecture as a profession emphasizing computer technology for building project; finish materials; zoning and building ordinance formats; auto specifications; mechanical and electrical equipment coordination; site utilities; working drawings; shop drawing format; building optimization in estimating.
Prerequisite: ATE 102.

ATE 202 Comprehensive Building Project II (0-8) **4 hrs.**
Analysis of zoning and building code requirements applicable to developing and completing building project; architectural practice; construction scheduling; itemized cost estimate; contingency provisions; general conditions; architect-engineer-contractor fee schedule.

ATE 203 Construction Problem I (2-4) **4 hrs.**
Detailing; investigation and analysis of fire resistivity of materials; construction type; Underwriters Laboratories hourly ratings; fire proofing; sprinkling; insurance requirements.

ATE 204 Construction Problems II (2-4) 4 hrs.
Detailing of stairs; glazing; sealants; millwork; suspended ceiling systems, doors; windows; ceramic tile; roofing; investigation of bronze, aluminum, stainless steel, interior terrazzo; granite; marble.

ATE 205 Computer Graphic and Optimization (3-0) 3 hrs.
Basic principles of differential and integral calculus for computer applications related to graphics, zoning ordinances and building codes.
Prerequisite: ATE 106.

ATE 206 Computer Applications in Architecture (3-0) 3 hrs.
Special problems emphasizing actual job conditions using total computer techniques for building specifications, perspectives, working drawings, and optimization programs in estimating.

ATE 207 Strength of Materials I (3-0) 3 hrs.
Strength of materials with physics integrated. Major concepts in scientific thought, interpretation of physical measurement, and structural development of matter in its various forms applicable to building construction.

ATE 208 Strength of Materials II (3-0) 3 hrs.
Continuation of ATE 207. Interactions of matter interpreted through concepts of force, motion and energy, visible and invisible electromagnetic spectrum, and nature of electric fields and forces; Hooke's Law; elasticity, shear and moment diagrams.

ART

ART 105 Art Appreciation (3-0) 3 hrs.
Introduction to basic principles in architecture, sculpture, painting, and related art. For non-art students and pre-teachers.

ART 110 Drawing I (0-6) 3 hrs.
Introduction to theory and practice in the elements of drawing. Studio and lecture.

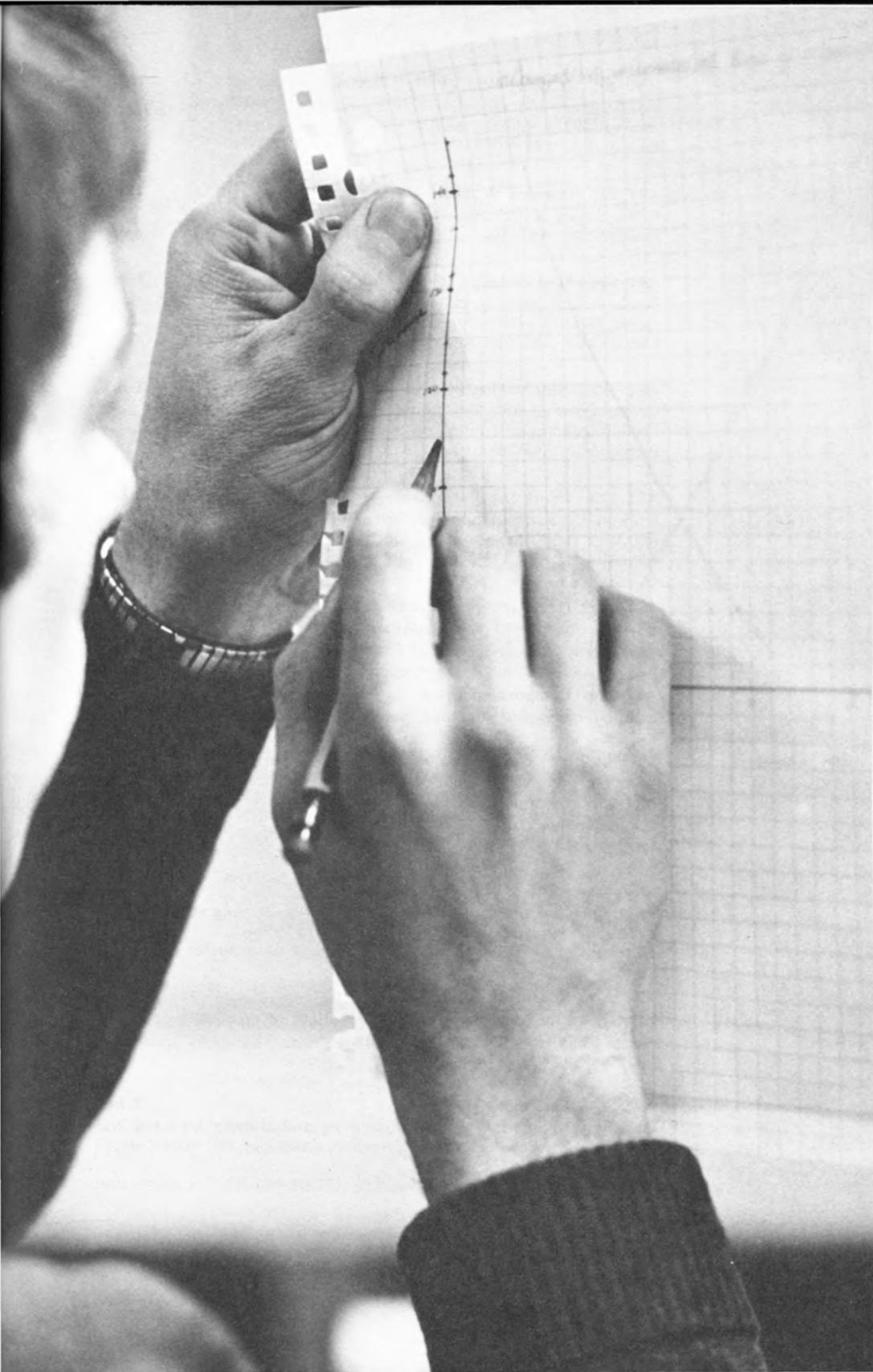
ART 111 Drawing II (0-6) 3 hrs.
Continuation of ART 110. Introduction to theory and practice in elements of drawing. Studio and lecture.

ART 121 Design I (0-6) 3 hrs.
Introduction to theory and practice in the principles of design. Studio and lecture.

ART 122 Design II (0-6) 3 hrs.
Continuation of ART 121. Studio and lecture.

ART 180 Interior Design Workshop I (0-4) 2 hrs.
Discussion and studio work based on principles of art, consumer education, and budgets. Color, furniture styles and arrangements; wall, window and floor treatments; fabrics; lighting; accessories; and room planning. Studio and lecture.
Prerequisite: ART 121 or permission of instructor.

ART 181 Interior Design Workshop II (0-4) 2 hrs.
Continuation of ART 180.



- ART 201 Drawing III (0-6)** **3 hrs.**
Development of interpretive and representational skills through work in a variety of drawing media. Studio and lecture.
Prerequisite: ART 111
- ART 202 Drawing IV (0-6)** **3 hrs.**
Continuation of ART 201. Studio and lecture.
Prerequisite: ART 201.
- ART 206 Print Making I (0-4)** **2 hrs.**
Linoleum and wood block printing, silk screening, etching and lithography. Painting with color combinations. Studio and lecture.
Prerequisite: ART 110, ART 111, or permission of instructor.
- ART 207 Print Making II (0-4)** **2 hrs.**
Continuation of ART 206. Introduction to various experimental print making techniques. Studio and lecture.
Prerequisite: ART 206.
- ART 225 Figure Drawing I (0-6)** **3 hrs.**
Drawing the human figure in action and from still poses. Rapid sketching, long poses, memory work portraiture. Studio and lecture.
Prerequisite: ART 111.
- ART 226 Figure Drawing II (0-6)** **3 hrs.**
Continuation of ART 225. Studio and lecture.
Prerequisite: ART 225.
- ART 236 Composition I (0-4)** **2 hrs.**
Pictorial composition in line, value, pattern and color. Studio and lecture.
Prerequisite: ART 110, or ART 111.
- ART 237 Composition II (0-4)** **2 hrs.**
Continuation of ART 236. Studio and lecture.
Prerequisite: ART 236.
- ART 261 Painting Techniques (0-4)** **2 hrs.**
Painting techniques, color theory and harmony. Painting and sketching of still life, landscape and figures. Studio and lecture.
Prerequisite: ART 110, ART 111, or permission of instructor.
- ART 262 Advanced Painting (0-4)** **2 hrs.**
Painting techniques offering a wider variety of creative experiences and opportunities. Studio and lecture.
Prerequisite: ART 261.
- ART 291 Ceramics I (0-4)** **2 hrs.**
Basic fundamentals of ceramics: forming and shaping by hand and mechanical means, technical information about clay and glazes, stacking and firing kiln.
Prerequisites: ART 110, ART 111, ART 121 or ART 122, or permission of instructor.
- ART 292 Ceramics II (0-4)** **2 hrs.**
Continuation of ART 291.
Prerequisite: ART 291.

ART 296 Sculpture I (0-4) **2 hrs.**
 Development of three-dimensional objective and non-objective form in clay, plaster, wood, and metal; introduction to mold making and casting techniques.
 Prerequisites: ART 110, ART 111, ART 121 or ART 122, or permission of instructor.

ART 297 Sculpture II (0-4) **2 hrs.**
 A continuation of ART 296.
 Prerequisite: ART 296.

BIOLOGY

BIO 101 Biology Survey (3-0) **3 hrs.**
 Survey of science of biology emphasizing chemical and physical properties of living things; over-view of plant and animal kingdoms; systems of control; growth; differentiation; reproduction; genetics; ecology and evolution.

BIO 110 Cellular Biology (3-3) **4 hrs.**
 Structure and ultrastructure of cell; surface-volume relationships; cellular metabolism and energetics; DNA, RNA, and protein synthesis; mitosis and meiosis; genetics, gene action and population genetics.
 Prerequisite: High school biology with C or better, BIO 101 or consent of instructor.

BIO 120 General Botany (3-3) **4 hrs.**
 Survey of plant kingdom emphasizing evolutionary relationships; plants and their growth, structure, physiology, reproduction and ecology.
 Prerequisite: BIO 110.

BIO 130 Microbiology (3-3) **4 hrs.**
 Characteristics and importance of microorganisms; emphasis on identification, anatomy and physiology, control, relationship to health and disease, and economic importance.
 Prerequisite: BIO 110

BIO 140 General Zoology (3-3) **4 hrs.**
 Survey of animal kingdom, based on theory of organic evolution; including morphology, histology, physiology, taxonomy, parasitology, embryology and ecology.
 Prerequisite: BIO 110.

BIO 150 Comparative Vertebrate Anatomy (3-6) **5 hrs.**
 Comparison of organ systems of representative members of Vertebrates, with evolutionary emphasis. Dog fish, necturus, and cat dissected in detail. Primarily for biology majors.
 Prerequisite: grade of B or better in BIO 110.

BIO 160 Human Anatomy and Physiology I (3-2) **4 hrs.**
 Structure and function of cells, tissues, organs, and organ-systems. Skeletal, muscular, circulatory, and digestive systems are studied in detail. (NOTE: For Dental Hygiene students.)

BIO 161 Human Anatomy and Physiology II (3-2) **4 hrs.**
 Continuation of BIO 161. Structure and function of the nervous, respiratory, excretory, endocrine, and reproductive systems.
 Prerequisite: BIO 161.

BIO 170 Bio-Physical Science I (3-2) **4 hrs.**
Interrelationships of content and application of essential principles from anatomy and physiology, chemistry, microbiology, and basic clinical pathology. (A career course for nurses.)

BIO 171 Bio-Physical Science II (3-2) **4 hrs.**
Continuation of BIO 170.
Prerequisite: BIO 170.

BIO 180 Histology and Embryology (2-2) **3 hrs.**
Minute structure and development of tissue of body with particular reference to teeth and supporting tissues. (NOTE: Offered in second year of dental hygiene program.)
Prerequisite: BIO 161.

BIO 190 General Pathology (3-0) **3 hrs.**
Introduction to general pathology; common diseases affecting human body. Diseases of oral cavity emphasized. (NOTE: Offered in second year of dental hygiene program.)
Prerequisite: BIO 161.

BUSINESS

BUS 98 Payroll Accounting (3-0) **3 hrs.**
Preparation of complex payroll records including tax returns for old-age benefits and unemployment insurance. Social Security law-applied.

BUS 99 Business Recordkeeping (3-0) **3 hrs.**
Standard bookkeeping procedures for small firms, both business and professional. Journalizing, posting, and preparing trial balances and financial statements. Procedures for handling petty cash and bank deposits and withdrawals.
Formerly BUS 103.

BUS 101 Accounting I (3-0) **3 hrs.**
Basic accounting and business concepts, principles of recording transactions, special ledgers and statements, end-of-period adjustments, and financial statement preparation.

BUS 102 Accounting II (3-0) **3 hrs.**
Continuation of BUS 101 with emphasis on partnerships, corporations, branches, and departments. Interpretation of financial statements, basic valuation and cost concepts, reporting of manufacturing costs.
Prerequisite: BUS 101.

BUS 111 Introduction to Business Organization (3-0) **3 hrs.**
Nature of business and environment in which it operates. Forms of business ownership; introduction to operative and facilitating facets of business operation: management, marketing, accounting, statistics, business law, finance, investments, insurance, and labor-management relations.

SEC 121 Elementary Typing (4-0) **2 hrs.**
Operation, use and care of typewriter. Typing by touch system, emphasizing speed and accuracy. Basic typing problems.

SEC 122 Intermediate Typing (6-0) **3 hrs.**
Development of speed and accuracy in typing manuscripts, business letters and forms.
Prerequisite: BUS 121 or 1 year or more of high school typing or minimum speed of 40 words a minute.

- SEC 125 Elementary Shorthand (3-2)** **4 hrs.**
Theory leading to development of skill in reading and fluency in writing shorthand.
- SEC 126 Intermediate Shorthand (3-2)** **4 hrs.**
Continued development of skill, emphasis on vocabulary development, mechanics of English, transcription, techniques and speed dictation. Prerequisite: BUS 125 or 1 year of high school shorthand.
- SEC 131 Office Machines I (4-0)** **2 hrs.**
Use of familiar duplicating devices and adding, calculating, and transcribing machines. Prerequisite: BUS 121 or 1 year of high school typing.
- SEC 132 Office Machines II (4-0)** **2 hrs.**
Continuation of BUS 131 with emphasis on advanced skill in the use of one or more of the machines introduced in BUS 131. Prerequisite: BUS 131.
- BUS 140 Salesmanship (3-0)** **3 hrs.**
General salesmanship involving factors of successful selling of goods or ideas. Buying motives, sales psychology, customer approach, and sales techniques.
- BUS 150 Business Math (3-0)** **3 hrs.**
Arithmetic as a tool of business. Topics include fractions, decimals, and percentages, computations of interest, bank discounts, depreciation, commissions, compound interest, payrolls and taxes, and graphs and charts design.
- BUS 201 Intermediate Accounting I (3-0)** **3 hrs.**
Problem solving course in accounting principles begun in BUS 101 and 102. Accounting and reporting process, accounting theory, inventories, tangible and intangible fixed assets. Prerequisite: BUS 102.
- BUS 202 Intermediate Accounting II (3-0)** **3 hrs.**
Accounting for corporations including capital stock, retained earnings, bonds payable, income statement and balance sheet analysis, pensions and leases, fund flow analysis, consignments, and installment sales. Prerequisite: BUS 102.
- BUS 203 Introductory Cost Accounting (3-0)** **3 hrs.**
Use of costs for control and decision making, with emphasis on determining and reporting overhead variance, product costs (process, job order, and standard cost), by-product costs, joint-product costs, and direct and variable costing. Prerequisite: BUS 101.
- BUS 204 Taxes (3-0)** **3 hrs.**
Federal taxes as they apply to the individual and to business, emphasis on individual return, self-employed, and payments.
- BUS 211 Business Law I (3-0)** **3 hrs.**
Law of business transactions. Contracts, agency, employment and partnerships. Uniform Commercial Code.
- BUS 212 Business Law II (3-0)** **3 hrs.**
Law covering negotiable instruments, sales, real estate, bailments and the Uniform Commercial Code where applicable. Prerequisite: BUS 211.

- BUS 217 Advertising (3-1) 3 hrs.**
Purposes of advertising, how advertisements are prepared and delivered in media, and how effectiveness of advertising is measured and evaluated in relation to the selling and marketing processes.
Prerequisite: BUS 245 or consent of instructor.
- BUS 218 Introduction to Finance (3-0) 3 hrs.**
Methods of financing business enterprises and their relationships to personal and company investment policies.
Prerequisite: BUS 111 and BUS 101.
- SEC 221 Advanced Typing (3-0) 3 hrs.**
Development of high speed and proficiency in typing from rough draft, tabulations and statistics. Practice in different office simulation projects: editing and preparing master copies for duplicating processes.
Prerequisite: BUS 122 with a grade of C or better.
- SEC 225 Advanced Shorthand & Transcription (6-0) 4 hrs.**
Development of dictation speed and transcription facility.
Prerequisite: BUS 126 with a grade of C or better or completion of two years of high school shorthand.
- SEC 226 Dictation & Transcription (5-0) 3 hrs.**
Strengthening of the dictation speed and developing competence in transcribing mailable letters.
Prerequisite: BUS 225 with a grade of C or better.
- SEC 228 Speed Shorthand & Specialized Dictation (2-2) 3 hrs.**
High speed dictation transcription through shorthand: legal, medical and technical dictation; testimony, conference, and court reporting. Sustained writing speed of 120 to 160 words per minute.
- SEC 229 Speed Shorthand & Specialized Dictation (2-2) 3 hrs.**
Continuation of BUS 228.
Prerequisite: BUS 228.
- SEC 231 Medical Office Procedures (4-0) 3 hrs.**
Medical vocabulary, dictation and transcription of medical correspondence, case histories, surgical, x-ray, and other reports; and office procedures followed in hospitals and medical offices.
Prerequisite: BUS 122 and BUS 126 or equivalents or consent of instructor.
- SEC 232 Legal Office Procedures (4-0) 3 hrs.**
Legal vocabulary: dictation and transcription of correspondence, legal documents, and forms used in pleadings and briefs; and techniques for handling basic law office procedures.
Prerequisite: BUS 122 and BUS 126 or equivalent or consent of instructor.
- SEC 234 Office Procedures I (3-0) 3 hrs.**
Secretarial responsibilities in areas of typewriting, correspondence, transmittal services, filing, receptionist and telephone techniques, travel and meeting arrangements, and preparation of business, financial, and legal reports. Human relations, grooming, office ethics, and business etiquette included.
- SEC 235 Office Procedures II (3-0) 3 hrs.**
Continuation of Business 234.
Prerequisite: Business 234.

- SEC 236 Secretarial Seminar I (2-0)** **1 hr.**
 First in a sequence of courses offering organized occupational experience in clerical and secretarial duties in modern business office; under supervision of coordinator. Preparation for job interviews and office careers through grooming, diction, and etiquette.
 Restricted to students in secretarial sciences occupational cooperation program.
- SEC 237 Secretarial Seminar II (2-0)** **1 hr.**
 Familiarization with fundamental skills, knowledge and business understandings required in office occupations. On-the-job experience may begin.
 Prerequisite: BUS 236 or consent of program coordinator.
- SEC 238 Secretarial Seminar III (2-0)** **1 hr.**
 Provides opportunities to discuss and share job training problems and solutions encountered in on-the-job work experience.
 Prerequisite: BUS 237 or consent of program coordinator.
- SEC 239 Secretarial Seminar IV (2-0)** **1 hr.**
 Provides opportunity to evaluate current status on the job and to analyze higher level job openings. On-the-job experience is continued.
 Prerequisite: BUS 237 or consent of program coordinator.
- SEC 240 Executive Secretarial Typewriting (4-0)** **2 hrs.**
 Knowledge of up-to-date processes, procedures and skills. Emphasis on the typing procedure used by executive secretaries. Offered as a review course for executive secretaries.
 Prerequisite: Typing speed of 60 words a minute.
- BUS 245 Principles of Marketing (3-0)** **3 hrs.**
 Principles and methods involved in distribution of goods and services. Role and functions of marketing institutions in business system. Product, price, promotion, and distribution channel policies.
 Prerequisite: BUS 111. Prior or concurrent enrollment in ECO 201 recommended.
- BUS 249 Purchasing (3-0)** **3 hrs.**
 Nature and importance of the procurement function in modern business organizations. Principles, tools, methods, and techniques employed for the acquisition of materials, supplies, and equipment.
 Prerequisite: BUS 245 and sophomore standing. Sophomore standing may be waived upon consent of instructor.
- BUS 250 Retailing (3-0)** **3 hrs.**
 Survey of types of retail institutions, including consideration of store location and organizational procedures, buying and merchandising practices, promotional and personnel policies.
 Prerequisite: BUS 245.
- BUS 255 Small Business Management (3-0)** **3 hrs.**
 Organization and operation of small-scale retail, trading, service or manufacturing business. Location, financing, marketing, labor, accounting, and, in the case of manufacturing, production, plus related problems of stock control, taxes and insurance.
 Prerequisite: BUS 111 or consent of instructor.

BUS 262 Accounting Seminar (3)

Cooperative work experience in accounting field. Enrollment in this course is restricted to students enrolled in the accounting aid curriculum. Part of the credit for this course will be given for participation in supervised cooperative work experience program where an organized training plan will be followed in a college approved training station. One lecture hour per week for seminar.

BUS 265 Personnel Management (3-0) 3 hrs.

Personnel problems and labor relations. Employment techniques, wages and hours, job evaluation, training, ratings, collective bargaining, pensions and fringe benefits.

Prerequisite: BUS 270 or consent of instructor.

BUS 267 Office and Administrative Management (3-0) 3 hrs.

Application of fundamental management practices to administrative type work both in the "office" and throughout the organization. Planning organizing and controlling business services, systems and procedures, office automation, cost reduction, and human relations practices.

Prerequisite: BUS 270 or consent of instructor.

BUS 270 Principles of Management (3-0) 3 hrs.

Planning, organizing, actuating and controlling in management. Application of principles and techniques to all activities, in education, business, and government.

Prerequisite: BUS 111.

BUS 281 Marketing Management Seminar I (2-0) 3 hrs.

Principles, practices, and areas of decision-making relative to price, product, promotion, and distribution policies of various types of marketing organizations.

Restricted to students in marketing management occupational programs. Part of the credit given for participation in supervised cooperative work experience in a college approved training station. One lecture hour per week for seminar.

BUS 282 Marketing Management Seminar II (1-2) 3 hrs.

Continuation of BUS 281.

Prerequisite: BUS 281 or consent of program coordinator.

BUS 283 Marketing Seminar III (1-2) 3 hrs.

Continuation of BUS 281 and BUS 282.

Prerequisite: BUS 282 or consent of program coordinator.

CHEMISTRY

CHM 100 Introductory Chemistry (3-2) 4 hrs.

Introduction to fundamental concepts of inorganic, organic, and bio-chemistry: matter, solutions, properties of organic compounds and chemical reactions. For students with no credit in high school chemistry. Meets prerequisite for Harper Nursing Program.

CHM 101 Survey of Organic & Biological Chemistry (3-2) 4 hrs.

Acid-base balance and chemistry and metabolism of carbohydrates, proteins, lipids, vitamins, hormones, nucleic acids, and inorganic elements. Laboratory exercises include study of blood, urine, saliva and teeth. (Restricted to dental hygiene program.)

Prerequisite: CHM 100.

- CHM 110 Chemical Technology Seminar (1-0)** 1 hr.
Orientation for chemical technology students, including objectives of program, occupational and professional employment, and career opportunities. Panel discussions, reports, visitations to industrial laboratories, and guest speakers.
- CHM 121 General Chemistry I (3-3)** 4 hrs.
Fundamentals of inorganic chemistry including chemical arithmetic. For students with no credit in high school chemistry.
Prerequisite: At least one year of high school algebra with a grade of C or better or MTH 95 with a grade of C or better.
- CHM 122 General Chemistry II (3-3)** 4 hrs.
Continuation of CHM 121. Fundamentals and theory: descriptive chemistry of some non-metals and introduction to organic chemistry.
Prerequisite: CHM 121.
- CHM 131 College Chemistry I (3-6)** 5 hrs.
Principles and theories of inorganic chemistry including molecular, atomic, nuclear, and electronic theories of matter and their relations to the periodic table. Oxidation-reduction; chemical thermodynamics; bonding; behavior of gases; kinetics; equilibrium; solutions; etc. are treated quantitatively. Laboratory emphasis upon the interpretation of data.
Prerequisite: One year of high school chemistry with at least a B average and credit or registration in MTH 103.
- CHM 132 College Chemistry II (3-6)** 5 hrs.
For students in chemistry, chemical engineering, or physical science curricula. Continuation of CHM 131. Lab includes qualitative analysis.
Prerequisite: CHM 131.
- CHM 204 Organic Chemistry I (3-6)** 5 hrs.
Application of modern theories of electronic structures to the study of chemical and physical properties of organic compounds.
Prerequisite: CHM 132 or CHM 122 and consent of instructor.
- CHM 205 Organic Chemistry II (3-6)** 5 hrs.
Continuation of CHM 204.
Prerequisite: CHM 204.
- CHM 210 Quantitative and Instrumental Analysis I (3-6)** 5 hrs.
Chemical methods applied in quantitative analysis; formation and properties of precipitates; theory of neutralization; basic procedures in gravimetric analysis, titrimetry.
Prerequisite: Chemistry 122.
- CHM 211 Quantitative and Instrumental Analysis II (3-6)** 5 hrs.
Continuation of CHM 210. Emphasis on instrumental methods of performing analyses. Applications, limitations, and treatment of errors stressed.
Prerequisite: CHM 210.
- CHM 240 Unit Operations I (2-4)** 4 hrs.
Fundamental theories of chemical engineering. Fluid flow, flow measurement, fluid transportation, heat flow.
Prerequisite: CHM 122 and enrollment in Chemical Technology program

CHM 241 Unit Operations II (2-4)**4 hrs.**

Continuation of CHM 240. Evaporation, distillation, filtration, separations, solid handling and conveying.

Prerequisite: CHM 240.

DATA PROCESSING**DPR 101 Introduction to Data Processing (3-0)****3 hrs.**

The history of data processing, scope and significance of data processing, mechanical data processing, punched card unit records, punched card machine functions, electronic data processing equipment, and basic computer concepts.

DPR 103 Key Punching and Verifying (1-4)**2 hrs.**

Development of high level of skill in programming and operating the IBM key punch and verifier, including speed and accuracy in key punching and verifying.

DPR 108 Computer Programming I (4-4)**5 hrs.**

In-depth skill in high level programming languages. COBOL and FORTRAN compiler languages. Extensive laboratory experience in writing, testing, debugging, and documenting programs for business applications.

Prerequisite: DPR 101 and MTH 103, or consent of instructor.

DPR 110 Computer Programming II (4-4)**5 hrs.**

Functional components of computer systems, evolution of computer programming, block diagramming techniques, and program writing, testing, debugging and documentation using a symbolic language. Extensive laboratory experience in planning, writing and testing programs for typical business application.

Prerequisite: DPR 101 and DPR 108, or consent of instructor.

DPR 150 Data Processing Mathematics I (3-0)**3 hrs.**

For data processing students. Concepts of notation, number bases, precision and significance, iterative process, logic, and Boolean algebra.

Prerequisite: college algebra or consent of instructor.

DPR 202 Programming Systems (3-2)**3 hrs.**

Purpose and function of various programming systems. Program compilers, report generators, micro and macro-generators, and utility programs. In-depth study of operating systems — their purpose, structure, and various functions.

Prerequisite: MTH 103 or DPR 150 and either concurrent registration in or completion of DPR 210; or consent of instructor.

DPR 203 Systems Analysis and Design I (3-0)**3 hrs.**

Functions and techniques of systems analysis, design, and development. Analysis of information flow, developing, organizing and using management data, establishing system specifications and equipment needs, and implementation of management information systems. Stresses methods and tools used in systems analysis and design.

Prerequisite: DPR 101 and concurrent registration in BUS 101 or consent of instructor.

DPR 204 Systems Analysis and Design II (3-0)**3 hrs.**

Continuation of DPR 203. Advanced concepts in management information systems. Source data automation, data capture equipment, teleprocessing equipment, time-sharing systems, and total integrated information systems concepts.

Prerequisite: DPR 203.

DPR 210 Computer Programming III (3-4) 4 hrs.
Continuation of DPR 110. Programming magnetic tape, random storage devices, optical mark readers, and remote terminal systems, including use of IOCS for input-output devices.
Prerequisite: DPR 110.

DPR 225 Scientific Management Information Seminar (3-0) 3 hrs.
Advanced management information concepts using computer as planning device, including PERT, CPM, systems simulation, and gaming.
Prerequisite: DPR 202, DPR 203, DPR 210, and DPR 250.

DPR 230 Field Project and/or Case Study (1-5) 3 hrs.
Application of data processing skills in practical situation. Field project or case study in local data processing installation. Open only to Data Processing degree candidates.
Prerequisite: G.P.A. of 2.5 or higher, plus DPR 203, DPR 250, and concurrent registration in DPR 202 and DPR 210, or consent of instructor.

DPR 250 Data Processing Mathematics II (4-0) 4 hrs.
Continuation of DPR 150. Elementary statistical methods: measures of central tendency; dispersion; probability; confidence intervals; and correlation. For Data Processing majors.
Prerequisites: DPR 150 and ECO 201, or consent of instructor.

DENTAL HYGIENE

DHY 103 Pre-clinical Dental Hygiene (1-3) 2 hrs.
Operative procedures consist of instruction and practical work on manikin heads in technique of instrumentation and polishing. Proper manipulation of instruments for removal of calcific deposits and their indications — required for admittance to clinical practice.

DHY 111 Dental Radiology (1-0) 1 hr.
Theory of X-ray radiation and dangers, exposure, and protection are introduced in this sequence. Film placement, exposure times, processing, mounting, and film interpretation are covered.

DHY 150 Clinical Dental Hygiene and Radiology I (0-6) 2 hrs.
Clinical practice on patient in dental hygiene clinic. Recording of patient histories, charting, X-ray, prophylaxis, topical medicinal applications, and dental health education. Improved techniques, skill, and speed emphasized in DHY 251-252.

DHY 161 Dental Anatomy (2-4) 4 hrs.
Human dentition and supporting tissues. Penetrating study of oral anatomical structures. Recognize, describe, and reproduce all natural tooth forms.

DHY 170 Orientation to Dentistry and Dental Hygiene (1-0) 1 hr.
Introduction, history, and organization of both the dental and dental hygiene professions. A development of professional attitudes, aims, and objectives of the members of the dental health team.

DHY 201 Seminar (2-0) 2 hrs.
Practice administration, dental ethics and jurisprudence. Orientation in cost accounting and bookkeeping in dental office. Dental office policies and procedures; application of ethics in everyday practice; legal responsibilities of dentist and dental hygienist; jurisprudence; State dental laws governing the practice of dental hygiene.

DHY 220 Community Dentistry I (3-0) 3 hrs.
Preventive Dentistry, Dental Health Education, and Public Health. Preventive aspects of dentistry; emphasis on dental health education, including diet and nutrition, health habits, oral prophylaxis, etiology of caries, dental stains, deposits, and periodontal health. Theories of preventive dentistry, including diseases, their etiology, prevention and cure through public health measures.

DHY 221 Community Dentistry II (2-2) 3 hrs.
Continuation of DHY 271 with field experience in student classroom teaching in district elementary schools. Pursuit of field studies in public health.

DHY 230 Nutrition and Periodontia (2-0) 2 hrs.
Nutritional needs, dietary patterns, selection and preparation of healthful foods and their relation to dental health. Diseases of gingival and periodontal tissues; tissue preservation and cures of diseases.

DHY 240 Dental Pharmacology and Anesthesia (1-0) 1 hr.
Basic dental pharmacopeia, uses of anesthetics, antibiotics, analgesics, hypnotics, and handling of dental office emergencies.

DHY 250 Clinical Dental Hygiene and Radiology II (0-12) 4 hrs.
Continuation of DHY 150.

DHY 251 Clinical Dental Hygiene and Radiology III (0-12) 4 hrs.
Continuation of DHY 251.

DHY 280 Dental Materials and Dental Assisting (2-2) 3 hrs.
Introduction to operations performed, treatments given in dental office, chairside assisting, reception and records. Materials used in restorative dentistry, prosthetic dentistry, and orthodontics, their manipulation and application in dentistry. Product introduction and orientation.

DHY 291 Dental Assisting (1-6) 2 hrs.
Incorporates guest lecture series covering theory and demonstrations in operative dentistry, orthodontics, prosthodontics, oral surgery, pedodontics, endodontics, military dentistry, public health, and allied health services. Field experience through observation and participation in local dental offices, clinics, and military installations.

ECONOMICS

ECO 115 Consumer Economics (3-0) 3 hrs.
Consumer practices with emphasis on buying of investments, shelter, insurance and basic commodities.

ECO 201 Principles of Economics I (3-0) 3 hrs.
Economic problems faced by our society. Basic concepts of production, consumption and distribution.

ECO 202 Principles of Economics II (3-0) 3 hrs.
Continuation of ECO 201. Examination of resource allocation, national income, economic development and international economic relations. Prerequisite: ECO 201.

ECO 215 Economics Statistics I (3-0) **3 hrs.**
 Methods of collection, presentation, and interpretation of quantitative economics data: averages; dispersion, index numbers; time series; analyses; probability; sampling; tests of significance; statistical quality control; secular trend and linear correlation.
 Prerequisite: Credit or registration in ECO 201.

ECO 216 Economics Statistics II (3-0) **3 hrs.**
 Continuation of ECO 215.
 Prerequisite: ECO 215.

EDUCATION

EDU 201 Introduction to Education (3-0) **3 hrs.**
 Organization, structure and operation of schools in United States, including elementary, secondary, college and adult education. Evaluation of each student's potential for this occupation.

EDU 211 Educational Psychology (3-0) **3 hrs.**
 Psychological principles as applied to education. Assessment of aptitudes, capacities, interests and achievements; educational implications of physical, emotional and social development. Student, teacher, school and home as factors in educative process. Classroom observation required.
 Prerequisite: PSY 101 or consent of instructor.

ELECTRONICS

ELT 101 Circuits I, Resistive Circuit Analysis (2-4) **4 hrs.**
 Resistive circuits with time-varying source voltage. Physics of electricity, plus units, definitions, symbols, and notations for electrical quantities. Circuit properties and their applications to significant circuit configurations.

ELT 102 Circuits II, Single Time Constant Circuits (3-3) **4 hrs.**
 R-C and R-L single time constant circuits. Basic switching, circuitry, circuits with square-wave and step voltages as sources, and sinusoidal voltages as sources.

ELT 103 Circuits III, Networks **4 hrs.**
 Networks that will not reduce to simple single-time constant circuits. Only steady-state solutions considered, enabling use of S-plane in circuit analysis.

ELT 105 Electro-Mechanical Drafting (1-6) **3 hrs.**
 Drafting fundamentals and techniques with introduction to electronic and mathematical symbols, basic circuitry, electronic devices and fabrication processes.

ELT 110 Introductory Electronics (0-6) **2 hrs.**
 Laboratory instruments, circuit components, basic measuring techniques and basic circuits used as building blocks in any electronics system.

ELT 111 Electronics I, Resistive (2-3) **3 hrs.**
 Resistive circuits involving electronic devices. Volt-ampere characteristics and physics of diodes, transistors, multielement vacuum tubes, and practical resistive circuits using these devices.

ELT 203 Electronics II, Pulse (3-4) 4 hrs.
Electronic circuits in which electronic devices are operated in a switching mode. Practical circuits are involved, such as clippers, clampers, pulse formers, multivibrators, blocking oscillators, logic circuits, and sweep circuits.

ELT 204 Electronics III, Advanced Electronics (3-4) 4 hrs.
Electronic circuits in which vacuum tubes and transistors are operated in the linear region of their volt-ampere characteristic such that linear equivalent circuits can be applied in the analysis. Power supplies, amplifiers, feedback circuits, oscillators, modulation systems and detectors.

ELT 205 Electronic Instrumentation (3-4) 4 hrs.
Methods of sensing and controlling physical industrial processes. Components involved are transducers, indicators, recorders, and controllers.
Prerequisite: ELT 101, ELT 102, ELT 103, ELT 111, ELT 203, or consent of instructor

ELT 206 Electronic Computers (3-4) 4 hrs.
Principles of digital and analog computers. Operating techniques of digital and analog computers.
Prerequisite: ELT 101, ELT 102, ELT 103, ELT 111, ELT 203 or consent of instructor.

ELT 207 UHF Communications and Reception (3-4) 4 hrs.
Design techniques in UHF circuits, field theory wave equations, and antennas.
Prerequisite: ELT 101, ELT 102, ELT 103, ELT 111, ELT 203 or consent of instructor.

ELT 210 Computer Programming (3-0) 3 hrs.
FORTRAN programming. Solution of electronic and technical problems using IBM 360 series computer.

ELT 211 Analog Simulation I (1-4) 3 hrs.
Analog computing for technologies. Problem preparation and representative solutions of physical problems.
Prerequisite: Consent of instructor.

ELT 212 Analog Simulation II (1-4) 3 hrs.
Continuation of Analog Simulation I.
Prerequisite: Consent of instructor.

ENGINEERING

EGR 120 Engineering Graphics I (0-6) 3 hrs.
Graphical methods in orthogonal projections, developments, topographics, sketching, and plotting and charts and curves. Practical and theoretical analysis of common geometrical magnitudes of points, lines, planes, other surfaces, and pictorials.

EGR 121 Engineering Graphics II (0-6) 3 hrs.
Graphical methods in mathematical calculations, including vectors, limit dimensioning, forces, tolerances, and nomography. Basic conceptual design through working drawings, assembly views, intersections and developments.
Prerequisite: EGR 120.

EGR 122 Graphical Display Systems (0-4) **2 hrs.**
 Application of graphical principles applied to modern digital computers. Graphical output on current display devices. Application made to graphical display system.
 Prerequisite: EGR 120 or consent of instructor.

EGR 150 Analytical Mechanics (Statics) (2-0) **2 hrs.**
 Resultants of force systems; algebraic and graphical conditions of equilibrium of force systems; analysis of forces acting on members of trusses, frames, etc.; forces due to friction; centroids.
 Prerequisite: PHY 121 or PHY 122.

EGR 211 Analytical Mechanics (Dynamics) (3-0) **3 hrs.**
 Displacement, velocity, and acceleration of a particle; relation between forces acting on rigid bodies and changes in motion produced; translation; rotation; plane motion; solutions using principles of force, mass and acceleration, work and energy, and impulse and momentum.
 Prerequisite: EGR 150

EGR 212 Mechanics of Deformable Bodies (3-0) **3 hrs.**
 Elastic and inelastic relationships between external forces (loads) acting on deformable bodies and stresses and deformations produced; tension and compression members; members subjected to torsion and to bending; buckling (columns); combined stresses; repeated loads (fatigue); energy loads, impact; influence of properties of materials.
 Prerequisite: EGR 150.

EGR 215 Surveying I (5-0) **3 hrs.**
 Use of transit and level, reading verniers and angles, linear measurement, extending straight lines, differential and profile leveling, simple transverse survey, computation and keeping notes.
 Prerequisite: MTH 103.

EGR 216 Surveying II (5-0) **3 hrs.**
 Route surveying, circular and parabolic curves, spirals, stadia surveying, U.S. Public Land Surveys, elementary land surveying and fundamentals of engineering astronomy used in surveying.
 Prerequisite: EGR 215.

ENGLISH

ENG 99 Composition (3/6-0) **3-6 hrs.**
 Reading and writing in clear correct English. For students whose linguistic abilities are insufficient for success in college level English.

ENG 101 Composition (3-0) **3 hrs.**
 Improvement of communication skills. Understanding and clear expression of written English.
 Prerequisite: Satisfactory score on a placement test or ENG 99.

ENG 102 Composition (3-0) **3 hrs.**
 Continuation of ENG 101 in the reading and writing of various types of prose. Introduces methods used in writing investigative papers.
 Prerequisite: ENG 101 or consent of Department Chairman.

ENG 103 Report Writing (3-0) **3 hrs.**
 Fundamental of semantics, syntax, and rhetoric as applied to business, industrial, and governmental report writing.
 Prerequisite: ENG 101 or consent of Department Chairman.

ENG 130 Business Writing I (3-0) 3 hrs.

Formal and psychological aspects of business correspondence. Introduction to various kinds of business letters, memoranda, and reports. Improvement of grammar, spelling, and word usage. Study of records administration with rules for indexing and filing.

ENG 201 Advanced Composition (3-0) 3 hrs.

Advanced skills in expository and argumentative writing.
Prerequisite: ENG 102.

ENG 220 Creative Writing (3-0) 3 hrs.

Guided practice in various types of creative writing, emphasizing skills common to creative expression, description, narration and verse.
Prerequisite: ENG 102 or consent of Department Chairman.

FASHION DESIGN**FAS 101 Flat Pattern Design and Draping I (2-4) 4 hrs.**

Basic industrial techniques of pattern making combined with best features of draping. Variety of slopers (bodices, skirts, sleeves, etc.) developed. Accuracy and professional standards stressed. Patterns tested in muslin for fit.

FAS 102 Flat Pattern Design and Draping II (2-4) 4 hrs.

Development of basic sloper set. Patterns tested in muslin for fit.
Prerequisite: FAS 101.

FAS 103 Apparel Design I (1-4) 2 hrs.

Basic principles of using master sloper set to develop patterns for original designs.

FAS 104 Apparel Design II (2-4) 2 hrs.

Development of basic sloper set into patterns. Actual construction of finished garments.
Prerequisite: FAS 103.

FAS 105 Fashion Design Illustration I (0-2) 1 hr.

Basic fashion sketching — front, back, and side views. Relationship of figure and garment. Sketching of original designs.

FAS 106 Fashion Design Illustration II (0-2) 1 hr.

Advanced sketching, fabric rendering. Emphasis on development of individual style. Basic layout and presentation.
Prerequisite: FAS 105 or consent of department chairman.

FAS 107 Textiles & Apparel Construction I (0-4) 3 hrs.

General analysis of fabrics, weaves, printing and dyeing methods, finishes, etc. Professional design room techniques of constructing a garment.

FAS 108 Textiles & Apparel Construction II (0-4) 4 hrs.

Continuation of FAS 107. Tailoring of original designs using design room techniques. Emphasis on styling, fit, and professional finishing.
Prerequisite: FAS 107.

FAS 201 Advanced Flat Pattern Design and Draping I (2-4) 4 hrs.

Continued advanced development of basic sloper set, including coat and suit slopers; basics of grading (sizing); patterns tested in muslin for fit and accuracy.
Prerequisite: FAS 101, FAS 102.

- FAS 202 Advanced Flat Pattern Design and Draping II (2-4) 4 hrs.**
Continuation of FAS 201.
Prerequisite: FAS 101, FAS 102, FAS 201.
- FAS 203 Advanced Diversified Apparel Design I (2-4) 4 hrs.**
Translation of original ideas into completed garments. Visits to manufacturers.
Prerequisite: FAS 103, FAS 104.
- FAS 204 Advanced Diversified Apparel Design II (2-4) 4 hrs.**
Continuation of FAS 203.
Prerequisite: FAS 103, FAS 104, FAS 203.
- FAS 205 Tailoring Techniques I (0-4) 2 hrs.**
Professional assembling procedures, details, and finishes. Particular emphasis on coats and suits.
Prerequisite: FAS 107, FAS 108.
- FAS 206 Tailoring Techniques II (0-4) 2 hrs.**
Continuation of FAS 205. Tailoring of original garments.
Prerequisite: FAS 107, FAS 108, FAS 205.
- FAS 207 History of Costume I (2-0) 2 hrs.**
Survey of costume from early Egyptian to present day. Value of historic costume as inspiration for contemporary design. Trips to Chicago Historical Society.
- FAS 208 History of Costume II (2-0) 2 hrs.**
Continuation of FAS 207. Contemporary fashion trends analyzed.
Prerequisite: FAS 207

FIRE SCIENCE

- FIR 101 Municipal Fire Administration I 3 hrs.**
Organization for fire protection, personnel management, distribution of equipment, records and fire safety problems.
- FIR 102 Introduction to Fire Protection 3 hrs.**
History and philosophy of fire protection: statistics of loss of life and property by fire; agencies involved in fire protection; current legislative developments and career orientation.
- FIR 103 Introduction to Fire Prevention 3 hrs.**
Fire department organizations: inspections, public cooperation and image; recognition of fire hazards, development and implementation of systematic and deliberate inspection program.
- FIR 104 Introduction to Fire Suppression 3 hrs.**
Survey of fire suppression organizations; basic elements of fire tactics; survey of building designs, construction, hazardous materials, extinguishing agents, equipment and apparatus.
- FIR 110 Fire Fighting Tactics and Strategy 3 hrs.**
Efficient and effective utilization of manpower, equipment and apparatus. Pre-planning and problem solving related to fire ground decision making and attack tactics and strategy.
- FIR 115 Building Construction and Codes 3 hrs.**
National, state and local fire codes, laws and ordinances. Building construction and design relative to fire protection.

FIR 120 Hazardous Materials I 3 hrs.
Chemical actions and reactions related to storage, transportation, and handling of hazardous materials, i.e., flammable liquids, combustible solids, oxidizing and corrosive materials, and radio active compounds. Emergency situations and fire fighting and control.

FIR 130 Fire Hydraulics and Equipment 3 hrs.
Properties of fluid states, force, pressure and flow velocities relative to firematic problems in hydraulics, water supply, pumping requirements, gauge and meter interpretation.

FIR 201 Fire Administration II 3 hrs.
Techniques for successful and efficient fire service operations, including communications and fire alarm systems, legal aspects of fire prevention, fire investigation and recording and evaluation of fire data for statistical purposes.

FOOD SERVICE MANAGEMENT

FSM 111 Introduction to Food Service (2-0) 2 hrs.
History and organization of Food Service hospitality industry including career opportunities in various food fields, organizational structures of food service establishments, and operational considerations and problems.

FSM 112 Quantity Food Production (0-10) 4 hrs.
Theory and practice of quantity food preparation, including actual food preparation and practical application of proper nutrition and sanitation practices.

FSM 113 Quantity Food Service (0-10) 4 hrs.
Theory and practice of food service including practical experience in college cafeterias, dining rooms, and catering service.

FSM 114 Food Standards and Sanitation (3-0) 3 hrs.
Function of food ingredients; evaluation of finished products, including convenience food products and uses; food service sanitation standards and procedures.

FSM 115 Nutrition and Menu Planning (2-0) 2 hrs.
Practical applications of nutrition as related to dietary needs of patients in health care institutions and other food service operations. Menu planning theory and methods for all types of food operations and special events; menu planning as a determination of food cost.

FSM 211 Purchasing and Storage (3-0) 3 hrs.
Standards and identification of quality meats, dairy products, produce, groceries, frozen foods, and supplies. Methods of purchasing, purveyor relations and proper storage techniques; purchase standards for convenience foods.

FSM 212 Practical Supervision (2-8) 4 hrs.
Functions and problems of supervision. Actual supervision of underclassmen and food service employees included.

FSM 213 Seminar (2-8) 4 hrs.
Practice in food service management decision making and supervision through experience related to classroom problems.

FSM 214 Cost Control (3-0) 3 hrs.
 Practical applications and theory of various food and beverage cost control systems.

FSM 215 Restaurant Layout and Equipment (3-3) 3 hrs.
 Maximizing employee productivity through various types of food equipment and proper equipment arrangement. Effects of use of convenience foods on equipment planning.

FRENCH

FRN 101 Elementary French (4-0) 4 hrs.
 Beginning course in the language skills of listening, understanding, speaking, reading and writing in their logical sequence.
 Additional time in Lab assigned by instructor.

FRN 102 Elementary French (4-0) 4 hrs.
 Continuation of FRN 101. Situational conversations in French; reading and writing stressed.
 Additional time in Lab assigned by instructor.
 Prerequisite: FRN 101 or one year of high school French.

FRN 201 Intermediate French (4-0) 4 hrs.
 Conversation with emphasis on pronunciation, intonation, stress and rhythm. Grammar Review.
 Additional time in Lab assigned by instructor.
 Prerequisite: FRN 102 or two years of high school French or consent of instructor.

FRN 202 Intermediate French (4-0) 4 hrs.
 Continuation of FRN 201, plus accuracy and speed in reading, study of syntax, and extensive composition.
 Additional time in Lab assigned by instructor.
 Prerequisite: FRN 201 or three years of high school French or consent of instructor.

FRN 205 Intensive Oral Practice (3-0) 3 hrs.
 Conversational practice to develop oral facility; specially designed exercises in pronunciation, stress and rhythm. Individual readings of modern French works discussed in class. Written and oral compositions based on readings.
 Additional time in Lab assigned by instructor.

FRN 210 Introduction to Modern French Literature (3-0) 3 hrs.
 Reading of selected 20th century masterpieces. Introduction to poetry and "analyse de Texte." Oral readings stressing pronunciation and diction. Speaking based on discussions of works read. Writing based on readings and class discussion.
 Prerequisite: FRN 202 or equivalent, or consent of instructor.

GEOLOGY

GEO 101 Physical Geology (2-3) 4 hrs.
 Materials, structure and sculpture of the earth's surface. One-day field trip required.

GEO 102 Historical Geology (2-3) 4 hrs.
 Geological history of the earth including principles employed to reconstruct this history. One-day field trip required.

GEO 201 Rocks and Minerals (2-3) 4 hrs.

Examination in hand specimens of minerals and rocks. Introduction to crystallography, economic minerals, natural resources. Field trip required.

Prerequisites: GEO 101 or CHM 121 or consent of instructor.

GEO 202 Paleontology (2-3) 4 hrs.

Fossil record of life, principles of evolution and ecology. Two-day field trip required.

Prerequisite: GEO 102 or BIO 110.

GERMAN**GER 101 Elementary German (4-0) 4 hrs.**

Beginning course in the language skills of listening, understanding, speaking, reading and writing in their logical sequence.

Additional time in Lab assigned by instructor.

GER 102 Elementary German (4-0) 4 hrs.

Continuation of GER 101. Situational conversations in German; reading and writing stressed.

Additional time in Lab assigned by instructor.

Prerequisite: GER 101 or one year of high school German.

GER 201 Intermediate German (4-0) 4 hrs.

Conversation with emphasis on pronunciation, intonation, stress and rhythm. Grammar Review.

Additional time in Lab assigned by instructor.

Prerequisite: GER 102 or two years of high school German or consent of instructor.

GER 202 Intermediate German (4-0) 4 hrs.

Continuation of GER 201, plus accuracy and speed in reading, study of syntax, and extensive composition.

Additional time in Lab assigned by instructor.

Prerequisite: GER 201 or three years of high school German or consent of instructor.

GER 205 Intensive Oral Practice (3-0) 3 hrs.

Conversational practice to develop oral facility; specially designed exercises for improvement of pronunciation, stress and rhythm. Individual readings of modern German works discussed in class. Written and oral compositions based on readings.

Additional time in Lab assigned by instructor.

GER 210 Introduction to Modern German Literature (3-0) 3 hrs.

Reading of selected 20th century masterpieces. Introduction to poetry. Oral readings stressing pronunciation and direction. Speaking based on discussions of works read. Writings based on readings and class discussions.

Prerequisite: GER 202 or equivalent, or consent of instructor.

HISTORY**HST 111 History of the American People to 1865 (3-0) 3 hrs.**

Survey of American Colonial life and institutions of 17th and 18th centuries. Period from 1763 to 1865; special stress on the social, economic, cultural, political and constitutional development of United States.

HST 112 History of the American People from 1865 (3-0) 3 hrs.
Close of Civil War to present with primary stress on political and economic development, also including social, intellectual and cultural phases. Expanded role of government in national affairs and participation of the United States in international relations.

HST 113 Conference Course (1-0) 1 hr.
Designed to meet interests and needs of qualified majors in history. Must be taken concurrently with HST 111 or HST 112. Specific topics will vary from semester to semester.
Prerequisite: Consent of instructor.

HST 114 Afro-American History (3-0) 3 hrs.
In-depth study of American Negro from African slave trade through slavery, Reconstruction, years of neglect, and Civil Rights Revolution in the United States; and his contributions to American culture.

HST 121 English History to 1689 3 hrs.
Most vital developments in English history from Roman occupation to Glorious Revolution of 1689. Origin and development of Parliament, evolution of Common Law, social and economic patterns and impact of Protestantism.
Prerequisite: Sophomore standing.

HST 122 English History from 1689 3 hrs.
Continuation of History 121 tracing evolution of limited and responsible government in England, period of the Empire, process of democratization and socialization and establishment of British Commonwealth of Nations.
Prerequisite: Sophomore standing.

HST 132 Modern European History, 1500-1830 3 hrs.
Reformation and religious struggle of sixteenth and seventeenth centuries, development of national states of Western Europe and their dynastic and colonial rivalries, commercial revolution and expansion of Europe incident to the great discoveries, rise of Prussia and Russia; struggle for control of Baltic area; French Revolution and its aftermath.

HST 141 History of Western Civilization to 1815 (4-0) 4 hrs.
Political, social, cultural, economic and technological developments from pre-historic times to advent of 1789 French Revolution.

HST 142 History of Western Civilization since 1815 (4-0) 4 hrs.
Continuation of History 141. Political, social, cultural, economic and technological developments with emphasis on such socio-political-economic concepts as nationalism and social-Darwinism.

HST 143 The Far East in the Modern World 3 hrs.
Historical development of China, Japan and India. Evolution of Oriental culture, economy, society, and government, with relation of America and Far East. Impact of Western ideas and institutions.

HUMANITIES

FNA 111 History of Art, I (3-0) 3 hrs.
Art from ancient times to 1600. Area cultural facilities used, particularly the Art Institute of Chicago.

FNA 112 History of Art, II (3-0) 3 hrs.
Continuation of FNA 111 from 1600 to the present.

FNA 212 Theatre Arts: Motion Pictures, Drama, Ballet, Opera, and Music (3-0) **3 hrs.**
 Interrelationships and synthesis in the arts as exhibited in motion pictures, theatre, ballet, opera, and music for the theatre. Process of bringing together various artistic media such as literary elements, musical devices, and visual effects to produce these art forms.

HUM 101 The Creative Nature of Man I (2-2) **3 hrs.**
 Creative personality in Western tradition and the creative process with emphasis upon form, function, influence of the patron, and prevailing attitudes on music, literature and art of representative periods. Lecture-demonstration, discussion, panels and field activity.

HUM 102 The Creative Nature of Man II (2-2) **3 hrs.**
 Representative points of view regarding life and death in Eastern and Western worlds; problems in developing a coherent philosophy of one's own. Focus upon 20th century issues as reflected in contemporary art, music, and literature.

JOURNALISM

JNM 130 Fundamentals of Journalism (3-0) **3 hrs.**
 History and current role of the newspaper, emphasizing leads, stories, editorials, features and reviews; copyreading and makeup.

JNM 131 News Reporting and Writing (3-0) **3 hrs.**
 Techniques of gathering and writing news in political, police, social and civic coverage.
 Prerequisite: JNM 130 or consent of instructor.

JNM 132 College Publications (1-0) **1 hr.**
 Individual guidance through a variety of experiences in the development and publication of the college newspaper and/or yearbook. May be repeated for up to 4 credits.

JNM 133 Feature Writing (3-0) **3 hrs.**
 Specialized news writing stressing human element in news. Techniques, story approaches for individualistic treatment.
 Prerequisite: JNM 130.

JNM 134 Media Adjuncts (2-4) **4 hrs.**
 Planning and production work in advertising, public relations and publications — business, industrial and consumer magazines.

JNM 324 Mass Communication (3-0) **3 hrs.**
 Impact of modern media, subtle and overt, on affairs of men. Influence of political, social, and commercial campaigns and trends on human beings in settings international, national, regional and local.

JNM 235 Copy Reading and News Editing (2-4) **4 hrs.**
 Preparing copy for newspaper publication. Headline writing, copy editing, treatment of story placement and effective display of typographically pleasing make-up.

JNM 236 Radio and Television News (3-0) **3 hrs.**
 Reporting and writing for broadcast news. Emphasis on broadcast style in all phases of newswriting and editing.

JNM 237 Externship Study (0-10)**5 hrs.**

Practical reporting practice and observation in professional one-day-a-week assignments at newspapers, news bureaus and television and radio newsrooms.

Prerequisite: Successful completion of three program semesters.

LAW ENFORCEMENT**LAE 101 Introduction to Law Enforcement (3-0)****3 hrs.**

History, role, development and constitutional aspects of law enforcement and public safety. Review of agencies and their functions involved in processes of administration of criminal justice.

LAE 102 Police Administration and Organization (3-0)**3 hrs.**

Principles of police administration and organization; functions and activities; records; communications; public relations; personnel and training; policy formation; planning, research; inspection, control.

LAE 103 Industrial Security Administration (3-0)**3 hrs.**

Organization and management of industrial security units including government security; protection of commercial and industrial manpower, facilities, and installations; security and police operations; administrative, legal and technical problems; specialized programs for factories, railroads, retail stores, insurance firms, credit bureaus, etc.

LAE 110 Police Operations (3-0)**3 hrs.**

Administration of police line operations, including patrol as basic operation of the police function, investigation, traffic, juvenile, intelligence and other special operational units. Manpower distribution, analysis of operations, enforcement policy, operations during civil disorders and disasters.

LAE 201 Criminal Law I (3-0)**3 hrs.**

Principles of administration and criminal law, theory, history, and purpose. Substantive crimes and their punishment; rules of evidence and general criminal procedures.

LAE 202 Criminal Law II (3-0)**3 hrs.**

Continuation of LAE 201. Principals of arrest, search and seizure; evaluation of evidence and proof including kinds, degrees, admissibility and competence. Rules of evidence of particular importance at operational level in law enforcement. Courtroom and criminal trial procedures.

Prerequisite: LAE 201 or consent of instructor.

LAE 205 Juvenile Procedures (3-0)**3 hrs.**

Organization, jurisdiction and functions of juvenile agencies. Juvenile court movement; juvenile detention; processing and treatment. Statutes and court procedures for juveniles.

LAE 206 Delinquency Prevention and Control (3-0)**3 hrs.**

Problems of juvenile delinquency, theories of causation and prevention programs. Police responsibilities and contacts. Current community, state and federal prevention programs.

LAE 207 Vice and Drug Control (3-0) 3 hrs.

Historical and sociological development of problems in drug addiction and vice control; fundamental understanding of narcotic addiction and effects of hypnotic drugs, the operation of lotteries, book-making, and other types of gambling and prostitution as these factors are involved in the daily routine of police work.

LAE 210 Introduction to Criminology (3-0) 3 hrs.

Crimes and criminals including criminal behavior, explanation of crime, types of crimes and criminals.

LAE 211 Criminal Investigation (2-2) 3 hrs.

Conduct at crime scenes, collection and preservation of physical evidence; methods used in police science laboratory; fingerprints, ballistics, documents, photography and related forensic sciences.

Prerequisite: LAE 210 or consent of instructor.

LAE 212 Traffic Administration (3-0) 3 hrs.

History and growth of traffic problems; organization for traffic control, accident investigation and analysis and interpretation of accidents. Survey of traffic laws including Illinois Vehicle Code.

LAE 215 Police Defense Techniques (4-0) 2 hrs.

Principles necessary for self defense and weaponless control. Psychology in use of force, physical and mental preparation and practice in realistic defense and control techniques. Proper arrest and search procedures for police officer.

Prerequisite: Open only to fourth semester students of Law Enforcement or approval of Coordinator.

LAE 250 Police Field Service (2-8) 3 hrs.

Practicum designed to broaden educational experience through appropriate observation and participation in law enforcement duties. Correlation of theoretical knowledge with practice in participating organizations. Students assigned to local law enforcement agencies for maximum of 10 hours per week in addition to two hour seminar. Open only to fourth semester students.

LAE 252 Industrial Fire Protection, Disaster Control (3-0) 3 hrs.

Administration of fire and accident prevention programs; development of policy, rules and regulations; operations for fire and accident control; equipment facilities, inspections, investigations, and records. Special problems and hazards.

LAE 253 Safety Management (3-0) 3 hrs.

Principles, responsibility, procedures of management for controlling operations to provide safety in business and industry. Analysis of accident costs, organization and operation of a safety program, psychological aspects, physical conditions and radiation hazards.

LAE 254 Interviewing and Case Preparation (3-0) 3 hrs.

Interview and questioning of complainants, witnesses, victims, suspects, and informants; statements, mechanical means for the detection of deception, and case preparation.

LITERATURE
LIT 105 Poetry (3-0) 3 hrs.

Analysis and appreciation of poetry of many periods. Diction, themes, symbols, images, rhythm, and meter.

- LIT 110 Drama (3-0)** **3 hrs.**
Analysis and appreciation of representative plays of various types and eras, with attention to origins and trends. Plays read as literature. See Speech 111 for theatrical production.
- LIT 115 Fiction (3-0)** **3 hrs.**
Novel and short story. Structural analysis, understanding and appreciation of various types.
- LIT 120 Ideas in Prose (3-0)** **3 hrs.**
Significant prose writings in major areas of thought. Ability to understand, enjoy, and evaluate prose material.
- LIT 206 World Literature to 1800 (3-0)** **3 hrs.**
Selected works of universal significance contributed by peoples and civilizations from ancient times to 1800.
- LIT 207 World Literature since 1800 (3-0)** **3 hrs.**
Continuation of LIT 206. Selected works of universal significance contributed by peoples and civilizations from 1800 to the present.
- LIT 211 Shakespeare (3-0)** **3 hrs.**
Survey of Shakespeare's company, theatre, and audience. Discussion of his techniques. Reading and interpretation of representative comedies, tragedies, and histories.
- LIT 221 American Literature from Colonial Days to Civil War (3-0)** **3 hrs.**
American literature as an expression of American life through early social and political documents, novels, short stories, and poems.
- LIT 222 American Literature from the Civil War to the Twentieth Century (3-0)** **3 hrs.**
American prose and poetry to turn of century, including local color stories, literary journalism, criticism, social and historical novels, and drama. Criteria for judging American literary output.
- LIT 231 English Literature to 1800 (3-0)** **3 hrs.**
Survey of English writers from beginning of English literature to 1880. Reading and interpretation of writers such as Chaucer, Malory, Jonson, Donne, Milton, Dryden, Congreve, Swift, Pope, Johnson, and Boswell.
- LIT 232 English Literature 1880-1914 (3-0)** **3 hrs.**
Survey of English writers from Romantic Period to World War I. Reading and interpretation of such writers as Wordsworth, Keats, Byron, Austen, Tennyson, Browning, Dickens, Hardy, Conrad, and Shaw.
- LIT 241 20th Century British and American Literature (3-0)** **3 hrs.**
Survey of important writers and writings in British and American literature since the first world war.

MATHEMATICS

(For all courses numbered "100" and higher, a grade of "C" or higher is required in the prerequisite course.)

- MTH 94 Arithmetic: A College Approach (3-0)** **3 hrs.**
Basic arithmetic principles. Introduction to algebraic concepts.

- MTH 95 Algebra: A College Approach (3-0)** **3 hrs.**
 Concepts of algebra including signed numbers, factoring, linear equations, graphs, exponents, and quadratic equations. Equivalent to one year of high school algebra.
 Prerequisite: Consent of instructor.
- MTH 96 Geometry: A College Approach (3-0)** **3 hrs.**
 Concepts and constructions of plane geometry including lines, angles, polygons, circles, and loci, with an introduction to coordinate geometry. Equivalent to one year of high school geometry.
 Prerequisite: One year of high school algebra with passing grade or MTH 95.
- MTH 101 Fundamentals of Mathematics I (3-0)** **3 hrs.**
 Logic and sets, number system, review of selected topics in algebra and geometry, logarithms, modern algebra.
 Prerequisite: MTH 95 and MTH 96 or one year each of high school algebra and geometry.
- MTH 102 Fundamentals of Mathematics II (3-0)** **3 hrs.**
 Continuation of MTH 101.
 Prerequisite: MTH 101 or consent of instructor.
- MTH 103 College Algebra (3-0)** **3 hrs.**
 Review of graphs, logic, and set theory. Relations and functions, quadratic equations, determinants, sequences, progressions, probabilities, and an introduction to the theory of equations and modern algebra.
 Prerequisite: One and one-half years of high school algebra and one year of plane geometry, or MTH 102.
- MTH 104 Plane Trigonometry (3-0)** **3 hrs.**
 Trigonometric functions and relations, solutions of triangles, logarithms, identities, equations, and applications.
 Prerequisite: One and one-half years of high school algebra and one year of plane geometry, or MTH 102.
- MTH 105 Analytic Geometry (4-0)** **4 hrs.**
 Rectangular and polar coordinates, the straight line, graphs of algebraic and transcendental functions, transformation of coordinates, conic sections, parametric equations, higher plane curves, and an introduction to space geometry.
 Prerequisite: MTH 103 and MTH 104.
- MTH 106 Mathematics I (5-0)** **5 hrs.**
 For students in Electronics and Mechanical Design Technology. Topics in algebra, vectors, trigonometry, and vector algebra.
 Prerequisite: Two years of high school mathematics or consent of instructor.
- MTH 107 Mathematics II (5-0)** **5 hrs.**
 Continuation of MTH 106. Topics in trigonometry, analytic geometry, logarithms, differential and integral calculus introduced.
 Prerequisite: MTH 106 or consent of instructor.
- MTH 111 Pre-calculus Mathematics I (5-0)** **5 hrs.**
 Unifying concepts of functional representation in algebra, trigonometry, and analytic geometry. Axiomatic approach to real and complex number systems. Equivalent to two hours of MTH 103, two hours of MTH 104, and one hour of MTH 105.
 Prerequisite: B or better in MTH 102 or consent of instructor.

- MTH 112 Pre-calculus Mathematics II (5-0) 5 hrs.**
Continuation of MTH 111 extending the concept of functional representation of exponential, logarithmic, implicit quadratic functions of two or more variables, and graphical analyses of functions in polar and parametric representations. Introduction to differentiation and integration. Equivalent to one hour of college algebra, one hour of trigonometry, and three hours of analytic geometry.
Prerequisite: MTH 111.
- MTH 124 Introductory Analysis for Social Scientists I (3-0) 3 hrs.**
Introduction to finite mathematics for students in social sciences: basic ideas of logic, set theory, and vectors and matrices. Problems selected from social sciences and business.
Prerequisite: MTH 101 or 103, or a passing grade on Math Placement test.
- MTH 134 Introductory Analysis for Social Scientists II (4-0) 4 hrs.**
Concepts of functions and relations and basic ideas of calculus.
Prerequisite: MTH 124
- MTH 165 Statistics (3-0) 3 hrs.**
Tabular and graphic representation; normal distribution, dispersion, statistical inference, sampling, distribution of means, regression and correlation analysis, probability — including finite probability by use of set theory. Applications in education, business, natural and social science.
Prerequisite: MTH 101 or consent of instructor.
- MTH 201 Calculus I (5-0) 5 hrs.**
Differentiation of elementary functions with applications to geometry, physics, and other sciences. Differential, approximation formula of integration and introduction to the definite integral.
Prerequisite: MTH 105 or equivalent high school courses with consent of instructor.
- MTH 202 Calculus II (5-0) 5 hrs.**
Continuation of MTH 201 with emphasis on the definite integral as a sum with applications to geometry, mechanics and physics. Series, partial differentiation and multiple integration, introduction to differential equations with application to rectilinear and curvilinear motion.
Prerequisite: MTH 201
- MTH 206 Mathematics III (3-0) 3 hrs.**
For students in Electronics Technology. Continuation of MTH 107 with introduction to differential equations and Laplace transforms.
Prerequisite: MTH 107 or consent of instructor.
- MTH 207 Technical Mathematics IV (3-0) 3 hrs.**
For students in electrical technology. Differentiation of transcendental functions; methods of integration; expansion of functions in series; Fourier series; differential equations; applications.
Prerequisite: MTH 206.
- MTH 208 FORTRAN Computer Programming (3-0) 3 hrs.**
Computer programming using the language of FORTRAN.
Prerequisite: MTH 104 or MTH 107 or MTH 111.

MTH 212 Differential Equations and Orthogonal**Functions (3-0)****3 hrs.**

Solutions of first order and first degree differential equations, linear differential equations with constant coefficients, linear differential equations of higher order, special differential equations of second order, and differential equations of first order but not of first degree. Laplace transforms, matrices and determinants, Fourier series.

Prerequisite: MTH 202.

MTH 215 Introduction to Automatic Digital**Computing (3-0)****3 hrs.**

Topics in machine organization, problem formulation, automatic programming, and applications to computers.

Prerequisite: MTH 105.

MECHANICAL DESIGN**MCD 101 Elements of Drafting (2-4)****4 hrs.**

Lettering, orthographic projection, dimensioning, auxiliary views, shop drawings, free-hand sketching, and methods of reproducing drawings.

MCD 102 Technical Drafting (2-4)**4 hrs.**

Auxiliary projection, intersections and developments, limits and tolerance dimensioning, machine details, pictorial assembly drafting, and product illustration. Instrument drawings and sketches required.

Prerequisite: MCD 101.

MCD 103 Mechanisms (2-4)**4 hrs.**

Basic kinematic nomenclature, common mechanisms, motion characteristics, and applications necessary to obtain desired movements. Sliding, friction, direct contact, intermittent, cams, gears, and flexible type mechanisms.

Prerequisite: PHY 101 or consent of instructor.

MCD 105 Basic Machine Shop (1-4)**3 hrs.**

Fundamentals of machine shop theory and practice. Manufacture of iron and steel. Iron and steel types and classification systems. Machinability, cutting fluids and horsepower requirements. Familiarization with tools, equipment and practices of tool, die, and precision metal working industry. Students make working tools and fixtures.

MCD 108 Manufacturing Processes and Materials (3-0)**3 hrs.**

Materials, principles, utilization, expectations and evaluation of principal manufacturing processes.

Prerequisite: MTH 106 or consent of instructor.

MCD 109 Manufacturing Processes and Materials II (0-6)**3 hrs.**

Continuation of MCD 108. Emphasis on actual practice in such areas as machining, numerical control, welding and heat treating.

Prerequisite: MCD 108.

MCD 201 Machine Component Design (3-3)**4 hrs.**

Design principles applied to machine elements with respect to size, shape, material, geometry, environment, and economy. Clutches, brakes, belts, chains, fasteners, gear shafts, and gears.

Corequisites: MCD 203, MCD 205.

MCD 202 Machine Design (1-4)**3 hrs.**

Continuation of MCD 201. Emphasis on design principles and calculations necessary to determine fits, stresses, loads, deformations, economy, and finishes.

Prerequisite: MCD 201.

MCD 203 Strength of Materials (3-2) 4 hrs.

Internal stresses and deflections of basic load carrying members. Properties of materials, joints, torsion, deflection, combined loads, beams, and columns.

Prerequisite: MTH 107 or consent of instructor.

MCD 205 Hydraulics and Pneumatics (2-4) 3 hrs.

Fluid and air systems. Circuits and their use for control and transmission of power.

Prerequisite: MTH 107 or consent of instructor.

MCD 206 Metallurgy and Heat Treatment (2-3) 3 hrs.

Selected principles and concepts of physical metallurgy. Principles are applied to heat treatment of metals.

Prerequisite: MCD 108.

MCD 210 Computer Programming-Fortran (3-0) 3 hrs.

Fortran computer programming including solution of mechanical and technical problems using modern digital computer techniques.

Prerequisite: MTH 106.

MUSIC**MUS 100 Conducting (1-2) 2 hrs.**

Fundamentals and practice of baton technique and essential principles of musically interpretation of score. Assigned readings, attendance at symphony concerts with score, private consultations, and opportunity to conduct instrumental and vocal groups.

Prerequisite: Consent of instructor.

MUS 101 Fundamentals of Music Theory (3-0) 3 hrs.

Suitable for pre-teachers and non-music majors. Provides background to interpret and understand language of music through study of notation, rhythm, scales, intervals, triads, cadences, basic forms, and musical terms. Students prepared for study of harmony and for practical music activity.

MUS 103 Music Appreciation (3-0) 3 hrs.

For non music majors. Music from primitive to modern times through listening to outstanding examples of various periods, with explanations of content and structure. Vocal and instrumental works, examples of folk music, church music, and symphonic forms.

MUS 111 Theory of Music I (3-0) 3-5 hrs.

Intensive training in fundamentals of musicianship, principally with mechanical aspects of music — clefs, notation, scales, intervals, meters, rhythms, etc. Daily practice in sight singing, melodic, harmonic, and rhythmic dictation, and practice at keyboard.

Prerequisite: successful performance on examination. MUS 101 or equivalent. Corequisite: MUS 115.

MUS 112 Theory of Music II (3-0) 3 hrs.

Harmony, counterpoint, and analysis, with emphasis on eighteenth and nineteenth-century techniques; basic principles in art of musical composition. Written assignments, historical examples, individual research problems, and complete process of writing, preparing, and bringing to performance with voices and instruments specific individual and group projects in musical composition.

Prerequisite: MUS 111. Corequisite: MUS 116.

- MUS 115 Ear Training, Sight Singing and Keyboard Harmony I (0-2)** **1 hr.**
Practice in melodic, harmonic, and rhythmic dictation, sight singing, and practice at keyboard.
Corequisite: MUS 111.
- MUS 116 Ear Training, Sight Singing and Keyboard Harmony II (0-2)** **1 hr.**
Practice in melodic, harmonic, and rhythmic dictation, sight singing, and practice at keyboard.
Corequisite: MUS 112.
- MUS 121 Survey of Music Literature to 1750 (3-0)** **3 hrs.**
Primitive Music; music of East and Near East; contribution of Greeks; Middle Ages; Gothic period; Renaissance; Baroque period culminating with Bach, Handel, Rameau, and Scarlatti. Musical illustrations.
- MUS 122 Survey of Music Literature since 1750 (3-0)** **3 hrs.**
Classical period; Romantic period; Impressionism; twentieth century. Musical illustrations.
- MUS 130 Choir (0-3)** **1 hr.**
Mixed-voice chorus for average or above-average ability. Fundamentals of good choral diction and tone developed in choral works of various styles and types.
Prerequisite: Consent of instructor. Maximum of four credit hours.
- MUS 136 Community Chorus (0-3)** **1 hr.**
Variety of choral experience including larger choral works such as oratorios and cantatas, and selections from grand opera, comic opera, and musical comedy. Maximum of four credit hours.
- MUS 140 Band (0-3)** **1 hr.**
Open to all students proficient in playing of band instruments. Band music of various types and styles. Sight reading and musicianship stressed.
Prerequisite: Consent of instructor. Maximum of four credit hours.
- MUS 145 Instrumental Ensembles (0-3)** **1 hr.**
Ensembles such as string quartets, brass ensembles, stage bands, or other combinations. For students with some proficiency in a musical instrument. To further skills, musical understanding, and enjoyment
Prerequisite: Consent of instructor. Maximum of four credit hours.
- MUS 150 Orchestra (0-3)** **1 hr.**
Open to all students proficient in playing of orchestral instruments. Orchestral music of various types and styles. Sight reading and musicianship stressed.
Prerequisite: Consent of instructor. Maximum of four credit hours
- MUS 161 Woodwind Instrument Class I (0-4)** **2 hrs.**
For students who have had no experience playing an orchestral or band instrument and for instrumentalists already proficient but who desire to play several instruments. Maximum of four credit hours.
- MUS 162 Brass Instrument Class I (0-4)** **2 hrs.**
For students who have had no experience playing an orchestral or band instrument and for instrumentalists already proficient but who desire to learn to play several instruments. Maximum of four credit hours.

MUS 165 Class Piano (0-4) 2 hrs.
Primarily for prospective Kindergarten-Primary and Elementary teachers, playground supervisors, and those wishing to pursue piano as an avocation. Emphasis on skills needed for practical situations.

MUS 166 String Instrument Class I (0-4) 2 hrs.
Similar to MUS 161. For students who desire to learn to play a stringed instrument. Maximum of four credit hours.

MUS 180-199 Minor Applied Music Subject 2 hrs.
Minor instrument or voice. One half-hour lesson per week. Minimum of six hours of practice per week. Jury examination required.
Flute & Piccolo, 180; Oboe & English Horn, 181; Clarinets, 182; Bassoons & Contra Bassoons, 183; Saxophones, 184; French Horn, 185; Trumpet, 186; Trombone, 187; Baritone, 188; Tuba, 189; Percussion, 190; Violin, 191; Viola, 192; Cello, 193; String Bass, 194; Harp, 195; Piano, 196; Organ, 197; Voice, 198; Classical Guitar, 199.

MUS 211 Theory of Music III (3-0) 3 hrs.
Harmony, counterpoint, and analysis.
Prerequisite: MUS 112. Corequisite: MUS 211.

MUS 212 Theory of Music IV (3-0) 3 hrs.
Harmony, counterpoint, and analysis.
Prerequisite: MUS 211. Corequisite: MUS 216.

**MUS 215 Ear Training, Sight Singing and Keyboard
Harmony III (0-2)** 1 hr.
Practice in melodic, harmonic, and rhythmic dictation, sight singing, and practice at keyboard.
Corequisite: MUS 211.

**MUS 216 Ear Training, Sight Singing and Keyboard
Harmony IV (0-2)** 1 hr.
Practice in melodic, harmonic, and rhythmic dictation, sight singing, and practice at keyboard.
Corequisite: MUS 212.

MUS 280-299 Major Applied Music Subject (2-0) 4 hrs.
Major instrument or voice. One hour lesson per week. Minimum of twelve hours of practice per week. Jury examination required.
Flute & Piccolo, 280; Oboe & English Horn, 281; Clarinets, 282; Bassoons & Contra Bassoons, 283; Saxophones, 284; French Horn, 285; Trumpet, 286; Trombone, 287; Baritone, 288; Tuba, 289; Percussion, 290; Violin, 291; Viola, 292; Cello, 293; String Bass, 294; Harp, 295; Piano, 296; Organ, 297; Voice, 298; Classical Guitar, 299
Prerequisite: successful audition.

NUMERICAL CONTROL TECHNOLOGY

NMC 93 Numerical Control Drafting (0-4) 2 hrs.
Programming of numerically controlled drafting machines with and without aid of computer. Applications mainly to problems in mechanical industry area. Selected problems done on Numerical Control equipment. Primarily for adults.

NMC 94 Machine Tools — Numerical Control (0-4) 2 hrs.
Practice and theory in operation of Numerical Control machine tool equipment. Primarily for adults.

- NMC 95 Machine Tool — Part Programming I (0-4)** 2 hrs.
Manual programming for Numerical Control machine tools and computer programming for Numerical Control equipment. Students will verify selected Numerical Control tapes on Numerical Control machine tools. Primarily for adults.
- NMC 96 Machine Tool — Part Programming II (0-4)** 2 hrs.
Continuation of NMC 95 with some application of the use of small computers in Numerical Control. Selected problems run on Numerical Control equipment. Primarily for adults.
- NMC 97 ADAPT and APT Part Programming (0-4)** 2 hrs.
ADAPT and APT Numerical Control computer languages. Selected problems run on computer and verified on Numerical Control equipment. Primarily for adults.
- NMC 101 Introduction to Numerical Control (2-0)** 2 hrs.
Numerical controlled machining, numerical control drafting, graphical display systems and computer application of numerical control.
- NMC 105 Part Programming I (1-3)** 3 hrs.
Manual and computer programming of numerical controlled machine tools and drafting machines. Discussion and practice in such numerical control languages as Autospot and Autoprompt. ADAPT and APT Post-processors discussed. Computer used on selected problems.
Prerequisite: MTH 104.
- NMC 201 Numerical Controlled Machining (1-4)** 3 hrs.
Numerical controlled machine tools, their operation, maintenance and programming.
Prerequisite: MTH 106 and MCD 105.
- NMC 210 Computer Programming-FORTRAN (3-0)** 3 hrs.
Solution of numerical control and technical problems using modern digital computer techniques.
Prerequisite: MTH 106.
- NMC 214 Graphic Display Systems (1-4)** 3 hrs.
Numerical Controlled Drafting machine with aid of computer used to develop various phases of working drawings. Emphasis on phases of working drawings more efficiently done by Graphic Display equipment.
Prerequisite: MCD 102 and MTH 106.
- NMC 215 Part Programming II (1-3)** 3 hrs.
Continuation of NMC 105.
Prerequisite: NMC 105.
- NMC 216 Part Programming III (1-3)** 3 hrs.
Continuation of NMC 215 including more advanced problems in ADAPT and APT.
- NMC 220 Special Problems (0-6)** 3 hrs.
Special project required of all sophomores in this curriculum.
Prerequisite: Must be taken during semester of graduation.

NURSING

- NUR 101 Foundations of Nursing I (3-6)** 5 hrs.
Knowledge and skill necessary for giving basic nursing care, including supporting, maintaining, and providing environmental safety, physiologic functioning, comfort, nutrition, and a therapeutic regimen.

- NUR 102 Foundations of Nursing II (3-6) 5 hrs.**
Continuation of NUR 101 including maternal and child health. Principles of growth and development and problems of adolescence and young adulthood integrated with clinical experience.
Prerequisite: NUR 101.
- NUR 201 Nursing in Physical and Mental Illness I (5-15) 10 hrs.**
Basic knowledge and nursing skills needed for giving care to individuals with specific alterations of physiologic function as well as with major health problems.
Prerequisite: NUR 102.
- NUR 202 Nursing in Physical and Mental Illness II (5-15) 10 hrs.**
A continuation of NUR 201, including the change from student to practitioner: discussions on modern issues in nursing, legal and moral responsibilities of the nurse practitioner, and functions of professional organizations.
Prerequisite: NUR 201.

PHILOSOPHY

- PHI 105 Introduction to Philosophy (3-0) 3 hrs.**
Principles and problems of philosophy as seen in different schools of thought. Topics: validity of human knowledge, nature of reality, mind and body, free will and determinism, moral and aesthetic values, religious belief.
- PHI 110 Logic (3-0) 3 hrs.**
Formal reasoning, including language and meaning, deduction and induction, evidence, and the detection of fallacies. Traditional as well as modern modes of analysis.
- PHI 115 Ethics (3-0) 3 hrs.**
Approaches to problems of values and conduct, including such topics as moral goodness, virtue, right, responsibility, goals, and happiness.
- PHI 205 Religions of the World (3-0) 3 hrs.**
Study of selected major religions: Buddhism, Hinduism, Judaism, Islam, and Christianity; their teachings and histories.
Prerequisite: PHI 105 or PHI 110 or PHI 115 or sophomore standing.

PHYSICAL EDUCATION DEPARTMENT

100-level courses are service courses meeting two hours per week for nine weeks for one semester hour of credit. They satisfy the physical education requirements for graduation. Professional courses are numbered 200 and above and are for physical education majors.

MEN

- PED 102 Archery and Personal Defense (0-2) 1 hr.**
Archery — maintenance of archery tackle: establishing and adjusting point of aim; shooting at 60, 50, and 40 yards; instinctive shooting and field archery fundamentals.
Personal Defense — development of skills in non-weapon defenses of rushing, grasping, strangling, bodylicking, fist attacks, and kicking maneuvers — upright and from the ground, falls, frontal attacks, and rear attacks.

- PED 114 Softball and Beginning Wrestling (0-2) 1 hr.**
 Softball — skills, knowledge and attitudes essential in playing 16 inch softball, infield and outfield play, pitching and batting, and interclass competition.
 Beginning Wrestling — basic skills, knowledge, attitudes and conditions; offensive and defensive maneuvers, escapes and reversals, pinning combinations and rules.
- PED 126 Touch Football and Weight Training (0-2) 1 hr.**
 Touch Football — conditioning, team play, ball handling skills, tactics, strategy, officiating procedures and rules; intramural competition.
 Weight Training — program of activities for the overweight, leading to development and maintenance of physical fitness.
- PED 128 Bowling and Beginning Swimming (0-2) 1 hr.**
 Bowling — all levels class; beginners grouped separately for special attention; etiquette, scoring, and techniques.
 Beginning Swimming — for the non-swimmer; skills necessary to remain afloat and swim for fifty to one hundred yards.
- PED 136 Golf and Volleyball (0-2) 1 hr.**
 Golf — fundamentals of grip, stance, and swing using irons and woods; terminology, etiquette, scoring and safety precautions; intramural competition.
 Volleyball — basic skills, team play, practice games, tournaments, and interclass competition.
- PED 142 Small Craft Boating and Fly and Bait Casting (0-2) 1 hr.**
 Small Craft Boating — skills and safety practices in handling small craft; practical experience in canoeing, rowing and small sail craft rigging.
 Fly and Bait Casting — skills in casting and angling; practical experience in nearby waters.
- PED 146 Soccer and Badminton (0-2) 1 hr.**
 Soccer — fundamentals, techniques, rules and strategy, team play, practice games, tournaments and interclass competition.
 Badminton — recreational and conditioning activity; singles and doubles play, strategy, serving, rules and interclass competition.
- PED 152 Track and Field and Basketball (0-2) 1 hr.**
 Track — development of skills, knowledge, and attitudes involved in track and field athletics; sprint start, baton exchange, hurdle form, high jump, long jump, shot put, discus.
 Basketball — skills and attitudes involved in shooting, passing, ball handling, and footwork. Application of team play and strategy in practice games and tournaments.
- PED 164 Tennis and Gymnastics Apparatus (0-2) 1 hr.**
 Tennis — theory and practice; rules of scoring. Development of serve, forehand drive, backhand drive, volley and footwork.
 Gymnastic Apparatus — individual stunts and routines of the side horse, long horse, rings, parallel bars and horizontal bar.
- PED 166 Foil Fencing and Handball (0-2) 1 hr.**
 Foil fencing — fundamental positions, footwork, lunge and recovery, attacks, defensive action, counter and compound attacks; rules, terminology and attitudes.
 Handball — rules, techniques of play in singles, doubles, and cut throat; nomenclature, ethics, sportsmanship, and training methods.

- PED 176 Physical Conditioning and Gymnastic Tumbling (0-2) 1 hr.**
Physical Conditioning — corrective and warm-up exercises; self-testing stunts; importance of relaxation and diet.
Gymnastic Tumbling — basic individual and partner tumbling and balance stunts leading to development of two routines of four or more stunts each.
- PED 182 Speedball and Advanced Wrestling (0-2) 1 hr.**
Speedball — development of skills in passing and receiving, dribbling and kicking, defensive maneuvers, strategy, rules and terminology.
Advanced Wrestling — advanced skills, knowledge, attitudes and conditions, including international styles.
- PED 186 Adult Fitness (0-2) 1 hr.**
For 25-50 year age group: controlled physical fitness and games activity program.
- PED 198 Restricted Activity (0-2) 1 hr.**
For students restricted by health limitations; individual programs adapted to meet specific requirements. Required for students with medical excuses.
- PED 200 Introduction to Physical Education (2-0) 2 hrs.**
Orientation and history of physical education from ancient times to present day. Objectives and aims of physical education and their applications.
- PED 201 First Aid (2-0) 2 hrs.**
Regulation Standard Official American Red Cross in First Aid; principles and practices; immediate and temporary treatment in case of accident or sudden illness before physician arrives. Official First Aid Standard Senior Certificate granted to students who qualify.
- PED 210 Sports Officiating (2-0) 2 hrs.**
Comprehensive instruction on rules and officiating techniques in interscholastic sports; practical experience required in men's intramural program.
- PED 220 Track and Field (2-0) 2 hrs.**
Development and understanding of strategy and rules of track and field. Basic skills of running, jumping, and throwing as performed in track and field; emphasis on knowledge and techniques essential to teaching track and field.
- PED 222 Football (2-0) 2 hrs.**
Analysis, instruction and theories of coaching fundamental skills, coaching and officiating, styles, play and team strategy.
- PED 224 Basketball (2-0) 2 hrs.**
Knowledge and skill in fundamentals and in techniques of team organization; skills of each position, offensive and defensive skills and team play, strategy and officiating.
- PED 226 Baseball (2-0) 2 hrs.**
Analysis, instruction and demonstration of fundamental skills; theory of coaching and officiating; styles of play and team strategy.
- PED 228 Aquatics (2-0) 2 hrs.**
Introduction to skills and safety standards involved in swimming, life saving and survival in water. Certification in Red Cross and YMCA Lifesaving programs may be attained.
Prerequisite: ability to swim 100 yards.

WOMEN

- PED 103 Gymnastics and Free Exercise (0-2) 1 hr.**
 Gymnastics — basic skills on side horse, uneven parallel bars, balance beam, and trampoline. Beginning skills necessary to complete floor exercises; history.
 Free Exercise — exercise.
- PED 107 Archery and Badminton (0-2) 1 hr.**
 Archery — skills in target shooting for leisure time activity.
 Badminton — skills of serving, strategy, play, rules of game and history; practice games and tournaments.
- PED 113 Field Hockey and Volleyball (0-2) 1 hr.**
 Field Hockey — fundamentals of team play based on development of individual game skills; including rules, strategy, history and officiating.
 Volleyball — basic skills, history, importance of team play and strategy; practice games and tournaments.
- PED 121 Tennis and Recreational Games (0-2) 1 hr.**
 Tennis — theory and practice, rules of scoring and strategy, development of serve, forehand and backhand stroke, volley and footwork.
 Recreational Games — skills of shuffleboard, table tennis, deck tennis and other activities.
- PED 127 Track and Field and Body Dynamics (0-2) 1 hr.**
 Track and Field — basic track and field knowledge and skills.
 Body Dynamics — self analysis and body improvement through exercise.
- PED 133 Softball and Basketball (0-2) 1 hr.**
 Softball — fundamental skills, rules, and strategy
 Basketball — skills and attitudes involved in shooting, passing, ball handling, and footwork. Team play and strategy applied in practice games and tournaments.
- PED 143 Golf and Square Dance (0-2) 1 hr.**
 Golf — skill in fundamental grip, stances, and strokes, using iron and woods; terminology, etiquette, scoring and safety precautions.
 Square Dance (coed) — typical steps and figures used throughout the country. Records with and without calls, and student callers.
- PED 147 Soccer and Folk Dance (0-2) 1 hr.**
 Soccer — fundamental skills, rules, strategy and officiating.
 Folk Dance (co-ed) — folk dances from foreign countries and America; including basic steps and history.
- PED 151 Bowling and Beginning Swimming (0-2) 1 hr.**
 Bowling — basic skills, rules, techniques, scoring and history.
 Beginning Swimming — for the non-swimmer; skills necessary to remain afloat and swim for fifty to one hundred yards.
- PED 161 Modern Dance I (co-ed) (0-2) 1 hr.**
 Opportunity to explore movement potential, increase technical proficiency, broaden rhythm background; skills in technique and composition stressed.

PED 163 Modern Dance II (co-ed) (0-2) 1 hr.
Intermediate techniques and composition; performance stressed. See Modern Dance 161.

PED 165 Basic Movements (0-2) 1 hr.
Principles of efficient movement correlated in the basic skills of everyday living, work or recreation.

PED 199 Restricted Activities (0-2) 1 hr.
Physical education activities for students restricted by health limitations, adapted to specific requirements of students with medical excuses.

PED 201 First Aid (co-ed) (2-0) 2 hrs.
Accident prevention and action taken in cases of accidents or sudden illness in home, school, and community; certificates received upon completion.

PED 203 Health (co-ed) (2-0) 2 hrs.
Problems involved in personal and community health; maintenance of high degree of individual mental and physical health.
Prerequisite: BIO 102 or BIO 112 or consent of instructor.

PED 205 Introduction to Physical Education (2-0) 2 hrs.
Orientation and history of physical education from ancient times to the present; objectives and aims of physical education and their applications.

PED 207 Sports Officiating (2-0)
Analysis, instruction and theory of officiating team and individual sports; fundamental skills, history, play and strategy.

PHYSICAL SCIENCE

PHS 101 Physical Science Survey (3-0) 3 hrs.
Non-mathematical consideration of universe, the earth, atmosphere, waves and particles, the elements, and energy sources.

PHS 111 Physical Science I (3-2) 4 hrs.
Motion, structure of matter, electricity and magnetism, waves and particles, and the atom. Course for non-science majors fulfilling laboratory science requirements.
Prerequisite: High school chemistry or physics or consent of instructor.

PHS 112 Physical Science II (3-2) 4 hrs.
Continuation of PHS 111 considering basic chemistry, materials of the earth, earth forms and history, sun and stars, the universe.
Prerequisite: PHS 111.

PHYSICS

PHY 101 Technical Physics I — Mechanics and Heat (3-2) 4 hrs.
Statistics, dynamics, energy, specific gravity, electricity, calorimetry, and gas laws. FOR STUDENTS IN CAREER PROGRAMS ONLY (See PHY 121.)
Prerequisite: MTH 106 or concurrent enrollment.

- PHY 102 Technical Physics II — Electricity, Light and Sound (3-2)** **4 hrs.**
Electricity and magnetism: fields, induction, capacitance, direct and alternating current theory and circuits, elements of electronics. Light and sound: waves, reflection, interference, resonance, lenses, diffraction, polarization and Doppler Effect. Introduction to atomic and nuclear theory. For career program students only.
Prerequisite: PHY 101.
- PHY 121 Introductory Physics I (4-3)** **5 hrs.**
Mechanics, heat and sound. Lectures, demonstrations, and laboratory. For students in Arts, Sciences, and Architecture. Others see PHY 201.
Prerequisite: Trigonometry.
- PHY 122 Introductory Physics II (4-3)** **5 hrs.**
Electricity, magnetism, and light. Continuation of PHY 121.
Prerequisite: PHY 121.
- PHY 201 General Physics I — Mechanics, Heat, and Sound (3-5)** **5 hrs.**
Foundations of statics, dynamics, hydraulics, thermodynamics, wave motion. For science, engineering, architecture, and university transfers.
Prerequisite: MTH 201 or concurrent enrollment.
- PHY 202 General Physics II — Electricity, Magnetism, Light (3-5)** **5 hrs.**
Electric and magnetic fields, potentials, geometrical and physical optics.
Prerequisites: PHY 121, MTH 202.
- PHY 210 Introduction to Modern Physics (3-0)** **3 hrs.**
Wave-particle duality, "old" and "new" quantum theory, scattering, elementary particles.
Prerequisites: PHY 202, MTH 212.

POLITICAL SCIENCE

- PSC 201 American Government: Organization and Powers (3-0)** **3 hrs.**
Institutional structure and organization of main parts of national, state and local government in modern America.
- PSC 202 American Government: Functions (3-0)** **3 hrs.**
National, state and local governments. Conceptual and mechanical aspects of governmental functions.
- PSC 203 Due Process (3-0)** **3 hrs.**
Problems encountered by law enforcement officers, including "surveillance", "search and seizure", arrest, interrogation and evidence, and contemporary supreme court holdings on constitutional rights attached to these activities.
- PSC 205 Comparative Government (3-0)** **3 hrs.**
Important governments of Europe, such as France, Germany, Italy, Russia, and England. Essential features of parliamentary and presidential systems as in England and United States. Broad understanding and appreciation of the common governmental problems of the world.

PSC 206 International Relations 3 hrs.
 Critical analysis of international problems of our day — power, role of American foreign policy, and proposals for substitute for war. Emphasis on principles underlying international relations and on locating reliable sources for making informed opinions.

PSYCHOLOGY

PSY 99 Learning and Adjustment to College (3-0) 3 hrs.
 Designed for developmental students; covers topics essential to successful college adjustment — study techniques, educational and vocational planning, social adjustment, and general aspects of college life.

PSY 101 Introduction to Psychology (3-0) 3 hrs.
 Human behavior with reference to perception, learning, individual differences, intelligence, and personality. Developmental method stressed rather than experimental. Reference made to daily life and everyday problems.

PSY 102 Conference Course 1 hr.
 Designed to meet interests and needs of qualified majors in psychology. Must be taken concurrently with PSY 101. Specific topics will vary from semester to semester.
 Prerequisite: Consent of instructor.

PSY 145 Psychology in Business and Industry (3-0) 3 hrs.
 Human behavior and its practical applications in business. Psychological applications in personnel and marketing problems, employee selection, morale, and supervisory practices.
 Prerequisite: PSY 101 or consent of instructor.

PSY 216 Child Psychology I (3-0) 3 hrs.
 Individual child from conception to fetal development, infancy, and latency. Emphasis placed on child rearing practices and techniques that appear beneficial in creation of independent and well-adjusted personality. Child's interaction with parents, siblings, peers, and greater community considered in the formation of the integrated self.

PSY 217 Adolescent Psychology (3-0) 3 hrs.
 Continuation of development of the human through adolescence into middle and later life. Emphasis on continual adjustment required to master new developmental tasks. Importance of fixated behavior stressed where personality growth is arrested. Emphasis on manifested behavior in attempt to understand fellow man in our complex society.
 Prerequisite: PSY 101.

PSY 219 Psychology of Exceptional Children (3-0) 3 hrs.
 Gifted, retarded, socially maladjusted, emotionally disturbed, slow learners, hypersensitive, and physically handicapped child. Designed for parents of children with these problems and teachers of special education classes in elementary schools.

READING

RDG 95 Basic Reading Skills (2-0) 2 hrs.
 Mechanics of reading vocabulary development and comprehension in preparation for college work.

RDG 99 Development Reading (2-0) 2 hrs.
 Increasing speed and efficiency in understanding and analyzing printed page through films, practice materials, and mechanical aids.

RDG 104 Reading Acceleration (2-0) 2 hrs.
 Survey of basic reading techniques designed to accelerate reading rates. Emphasis placed on comprehension drills, skimming, and critical reading. Mechanical aids used to eliminate fixations, remove vocalizing habits, and accelerate present reading rates through perceptual training.

RUSSIAN

RUS 101 Elementary Russian (4-0) 4 hrs.
 Beginning course in the language skills of listening, understanding, speaking, reading and writing.
 Additional time in Lab assigned by instructor.

RUS 102 Elementary Russian (4-0) 4 hrs.
 Continuation of RUS 101. Situational conversations in Russian; reading and writing stressed.
 Additional time in Lab assigned by instructor.
 Prerequisite: RUS 101 or one year of high school Russian.

RUS 201 Intermediate Russian (4-0) 4 hrs.
 Conversation with emphasis on pronunciation, intonation, stress and rhythm. Grammar review.
 Additional time in Lab assigned by instructor.
 Prerequisite: RUS 102 or two years of high school Russian or consent of instructor.

RUS 202 Intermediate Russian (4-0) 4 hrs.
 Continuation of RUS 201, plus accuracy and speed in reading, study of syntax, and extensive composition.
 Additional time in Lab assigned by instructor.
 Prerequisite: RUS 201 or three years of high school Russian or consent of instructor.

RUS 205 Intensive Oral Practice (3-0) 3 hrs.
 Conversational practice to develop oral facility; specially designed exercises in pronunciation, stress and rhythm. Individual readings of modern Russian works discussed in class. Written and oral compositions based on readings.
 Additional time in Lab assigned by instructor.

RUS 210 Introduction to Modern Russian Literature (3-0) 3 hrs.
 Reading of selected 20th century masterpieces. Introduction to poetry. Oral readings stressing pronunciation and diction. Speaking based on discussions of works read. Writing based on readings and class discussions.
 Prerequisite: RUS 202 or equivalent or consent of instructor.

SOCIAL SCIENCE

SSC 101 General Social Science (3-0) 3 hrs.
 Biological, physical and social forces in the development of personality. Groups, institutions, and social change. Contemporary social problems, including race, the family, mental health, and education.

SSC 102 General Social Science (3-0) 3 hrs.
 Continuation of SSC 201.
 Prerequisite: SSC 201.

SOCIOLOGY

SOC 101 Introduction to Sociology (3-0) 3 hrs.
Introductory analysis and description of structure and dynamics of human society. Application of scientific methods to the observation and analysis of social norms, groups, intergroup relations, social change, social stratification, and institutions.

SOC 102 Conference Course 1 hr.
Designed to meet interests and needs of qualified majors in Sociology. Must be taken concurrently with SOC 101. Specific topics will vary from semester to semester.
Prerequisite: Consent of instructor.

SOC 120 Social Patterns of Courtship and Marriage (3-0) 3 hrs.
Courtship, marriage, rearing the family, and various factors contributing to changes in family organization or disorganization.
Prerequisite: SOC 101 or consent of instructor.

SOC 205 Social Problems (3-0) 3 hrs.
Analysis of contemporary social problems. Investigation of theories dealing with conformity and deviance, racial and minority group prejudice, crime and delinquency, personality problems, urbanization, and fundamental institutional problems due to social change.
Prerequisite: SOC 101.

SOC 210 Social Institutions (3-0) 3 hrs.
Primary social institutions: family, religious, educational, economic, and political. Questions considered: who participates, what are the functions, what are the consequences, and an evaluation of the effects of the institution on the society.
Prerequisite: SOC 101 and Sophomore standing.

SPANISH

SPA 101 Elementary Spanish (4-0) 4 hrs.
Beginning course in the language skills of listening, understanding, speaking, reading and writing.
Additional time in Lab assigned by instructor.

SPA 102 Elementary Spanish (4-0) 4 hrs.
Continuation of SPA 101. Situational conversations in Spanish; reading and writing stressed.
Additional time in Lab assigned by instructor.
Prerequisite: SPA 101 or one year of high school Spanish.

SPA 201 Intermediate Spanish (4-0) 4 hrs.
Conversation with emphasis on pronunciation, intonation, stress and rhythm. Grammar review.
Additional time in Lab assigned by instructor.
Prerequisite: SPA 102 or two years of high school Spanish or consent of instructor.

SPA 202 Intermediate Spanish (4-0) 4 hrs.
Continuation of SPA 201, plus accuracy and speed in reading, study of syntax, and extensive composition.
Additional time in Lab assigned by instructor.
Prerequisite: SPA 201 or three years of high school Spanish or consent of instructor.

SPA 205 Intensive Oral Practice (3-0) 3 hrs.
 Conversational practice to develop oral facility; specially designed exercises in pronunciation, stress and rhythm. Individual readings of modern Spanish works discussed in class. Written and oral compositions based on readings.
 Additional time in Lab assigned by instructor.

SPA 210 Introduction to Modern Spanish Literature (3-0) 3 hrs.
 Reading of selected 20th century masterpieces. Introduction to poetry. Oral readings stressing pronunciation and diction. Speaking based on discussions of works read. Writing based on readings and class discussions.
 Prerequisite: SPA 202 or equivalent or consent of instructor.

SPEECH

SPE 101 Fundamentals of Speech (3-0) 3 hrs.
 Theory and practice of oral communications. Development of poise, confidence, and skill in speech organization and delivery. Emphasis on frequent speaking, development of standards of criticism, and selection and organization of material.

SPE 102 Public Speaking (3-0) 3 hrs.
 Development of proficiency in the logic of argument and skill in speaking. Psychological principles underlying successful platform behavior; forms of public address. Analysis and delivery of one such form as a semester assignment.
 Prerequisite: SPE 101 or consent of instructor.

SPE 107 Oral Interpretation 3 hrs.
 A performance course offering opportunities for selection, preparation and presentation of various types of literature; development of facility in use of body and voice in oral reading.
 Prerequisite: SPE 101 or consent of instructor.

SPE 111 Introduction to the Theatre (3-0) 3 hrs.
 Introduction to theatrical and dramatic art. Emphasis on providing student with the tools of analysis which give him insight into the total imaginative process that makes up art of the theatre.

SPE 205 Discussion and Debate 3 hrs.
 Principles, techniques and types of discussion and debate; experience in various types of discussion and debate activities.
 Prerequisite: SPE 101.

SPE 212 Acting (3-0) 3 hrs.
 Methods used in art of acting; stress on practical acting situations.
 Prerequisite: SPE 111 or consent of instructor.

SPE 213 Directing 3 hrs.
 Introduction to the director's craft, its application to educational and community theatre; the director as artist, administrator, interpreter and leader; play selection, casting, blocking, rehearsal and performance.
 Prerequisite: SPE 212 or consent of instructor.

HARPER COLLEGE CALENDAR 1969-70

First Semester

New Faculty Orientation	Sept. 2-5
All Faculty Report	Sept. 8, 9
Registration	Sept. 10-12
Classes Begin	Sept. 15
Last Day for Late Registration	Sept. 19
Last Day for Adding Classes	Sept. 26
Last Day for Refund	Oct. 10
Last Day for Withdrawals	Oct. 24
Midterm	Oct. 31
Thanksgiving Vacation	Nov. 27, 28
Classes Resume	Dec. 1
Christmas Vacation Begins	Dec. 19 (12 p.m.)
Classes Resume	Jan. 5
Final Exams	Jan. 19-23

Second Semester

Registration	Jan. 28-30
Classes Begin	Feb. 2
Last Day for Late Registration	Feb. 6
Last Day for Adding Classes	Feb. 13
Last Day for Refund	Feb. 27
Last Day for Withdrawals	March 13
Midterm	March 20
Spring Vacation	March 26-29
Good Friday	March 27
Easter Sunday	March 29
Classes Resume	March 30
Memorial Day	May 30
Final Exams	June 1-4
Graduation	June 5

Summer Session (8 Weeks)

Registration	June 11, 12
Classes Begin	June 15
Independence Day	July 4
Classes Resume	July 6
Final Exams	August 6, 7

ADMINISTRATION

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Harvey, James	Vice-President of Student Affairs
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Olson, Omar L.	Dean of Continuing Education
Fischer, Guerin	Dean of Guidance
Voegel, George H.	Dean of Learning Resources
Birkholz, John R.	Dean of Transfer Programs
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Powell, Robert M.	Chairman of Communications Division
Smith, Robert C.	Chairman of Engineering and Technology Division
Makas, George P.	Chairman of Humanities Division
Thompson John H.	Chairman of Life and Health Sciences Division
Collister, Larew M.	Chairman of Mathematics and Physical Sciences Division
King, S. Larry	Chairman of Social Sciences Division
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Upton, John H.	Director of Governmental Services and Project Development
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Hill, Thomas	Programmer
Remelski, Renie	Programmer
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Januszko, John	Food Service Manager
Herron, Suzanne	Service Supervisor

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27	Incompletes
98	Journalism Courses
99	Law Enforcement Courses
17	Library and Learning Resources Center
100	Literature Courses
101	Mathematics Courses
104	Mechanical Design Courses
105	Music Courses
107	Numerical Control Technology Courses
108	Nursing Courses
30	Orientation
32	Parking
109	Philosophy Courses
109	Physical Education Courses — Men
112	Physical Education Courses — Women
113	Physical Science Courses
113	Physics Courses
28	Placement Services

114	Political Science Courses
28	Probation
115	Psychology Courses
115	Reading Courses
19	Types of Admissions
22	Residency
116	Russian Courses
27	Selective Retention
116	Social Science Courses
117	Sociology Courses
117	Spanish Courses
118	Speech Courses
127	Staff
31	Student Activities
30	Student Government
16	Summer Sessions
28	Transcripts
28	Transfer of Credit
64	Transfer Programs
23	Tuition
24	Tuition Refund Policy
11	William Rainey Harper
24	Withdrawals

CURRICULUMS

Career Degree

38	Accounting Aide
39	Architectural Technology
40	Chemical Technology
41	Data Processing Technology
42	Dental Hygiene
43	Electronics Technology
44	Fashion Design
46	Food Service Management
47	Journalism
48	Law Enforcement
49	Marketing Management
50	Mechanical Design
51	Numerical Control Technology
52	Nursing
53	Secretarial Science

Transfer Degree

65	Architectural Design
66	Art
67	Business
68	Chemical Engineering
69	Engineering: Civil, Electrical, General, and Mechanical
69	Engineering Technology for Teachers
70	Liberal Arts
71	Music
72	Science and Mathematics
72	Speech and Drama

Certificate

56	Accounting Aide
56	Architectural Technology
57	Business and Industrial Security
57	Child Service
57	Clerical Assistant
58	Data Processing
58	Data Processing Clerical
59	Electronics
59	Fashion Design
60	Fire Science
60	Law Enforcement
61	Mechanical Drafting
61	Mechanical Technician
62	Numerical Control Technician
62	Practical Nursing
63	Secretarial Science
63	Supermarket Management

