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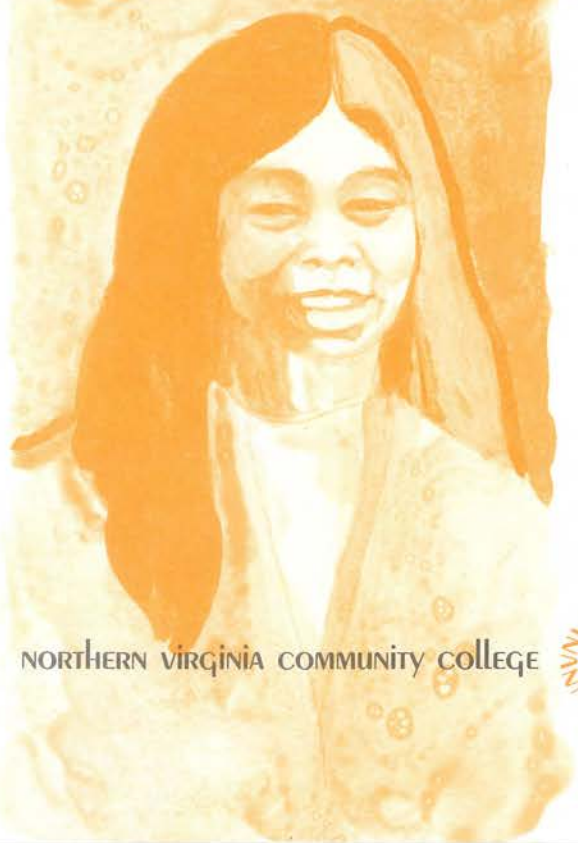

NORTHERN VIRGINIA COMMUNITY COLLEGE

NORTHERN VIRGINIA COMMUNITY COLLEGE

CATALOG 74-75

CATALOG 74-75

ALEXANDRIA CAMPUS

3001 North Beauregard Street
Alexandria, Virginia 22041
Telephone: 703 323-4285

ANNANDALE CAMPUS

8333 Little River Turnpike
Annandale, Virginia 22003
Telephone: 703 323-3333

LOUDOUN CAMPUS

1000 Harry Flood Byrd Highway
Sterling, Virginia 22170
Telephone 703 430-6413

MANASSAS CAMPUS

6900 Sudley Road
Manassas, Virginia 22110
Telephone: 703 368-0184

WOODBRIDGE CAMPUS

3001 Old Bridge Road
Woodbridge, Virginia 22191
Telephone: 703 494-1136

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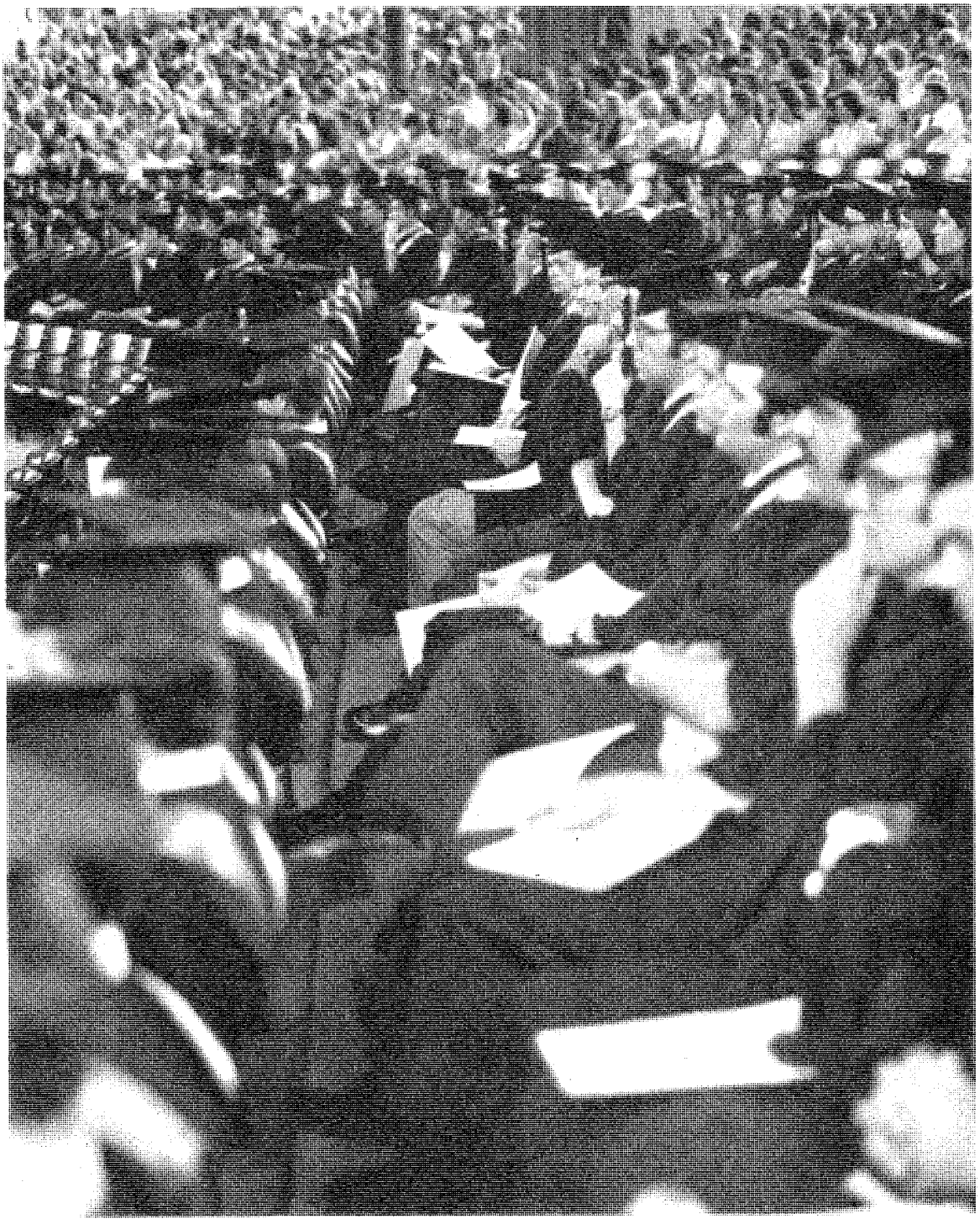


GENERAL INFORMATION

COLLEGE CALENDAR

Fall Quarter—1974

SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER						
1	2	3	4	5	6	7			1	2	3	4	5						1	2	1	2	3	4	5	6	7
8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14
15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21
22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28
29	30						27	28	29	30	31			24	25	26	27	28	29	30	29	30	31				

Registration	September 23-24
Classes Begin	September 26
Last Day to Add or Change Classes	October 2
Last Day to Withdraw Without Grade Penalty	October 16
Veterans Day Holiday	October 28
Thanksgiving Recess	November 28-30
Classes End	December 9
Final Exams	December 11-13

Winter Quarter—1975

JANUARY							FEBRUARY							MARCH						
		1	2	3	4								1							1
5	6	7	8	9	10	11	2	3	4	5	6	7	8	2	3	4	5	6	7	8
12	13	14	15	16	17	18	9	10	11	12	13	14	15	9	10	11	12	13	14	15
19	20	21	22	23	24	25	16	17	18	19	20	21	22	16	17	18	19	20	21	22
26	27	28	29	30	31		23	24	25	26	27	28		23	24	25	26	27	28	29
														30	31					

Registration	January 2-3
Classes Begin	January 6
Last Day to Add or Change Classes	January 10
Last Day to Withdraw Without Grade Penalty	January 24
Last Day to Apply for Graduation in June	January 31
Washington's Birthday Holiday	February 17
Classes End	March 17
Final Exams	March 19-21

Spring Quarter— 1975

MARCH							APRIL							MAY							JUNE						
						1			1	2	3	4	5					1	2	3	1	2	3	4	5	6	7
2	3	4	5	6	7	8	6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14
9	10	11	12	13	14	15	13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21
16	17	18	19	20	21	22	20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28
23	24	25	26	27	28	29	27	28	29	30				25	26	27	28	29	30	31	29	30					
30	31																										

Registration	March 27-28
Classes Begin	March 31
Last Day to Add or Change Classes	April 4
Last Day to Withdraw Without Grade Penalty	April 18
Memorial Day Holiday	May 26
Classes End	June 9
Final Exams	June 11-13
Graduation	June 14

Summer Quarter—1975

JUNE							JULY							AUGUST						
1	2	3	4	5	6	7			1	2	3	4	5						1	2
8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9
15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16
22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23
29	30	31					27	28	29	30	31			24	25	26	27	28	29	30
														31						

(Full Ten-Week Session)

Registration	June 16
Classes Begin	June 17
Last Day to Add or Change Classes	June 23
Independence Day Holiday	July 4
Last Day to Withdraw Without Grade Penalty	July 7
Classes End	August 26
Final Exams	August 27-29

(First Term of Two Five-Week Terms)
Double Class Periods

Registration	June 16
Classes Begin	June 17
Last Day to Add or Change Classes	June 19
Last Day to Withdraw Without Grade Penalty	June 26
Independence Day Holiday	July 4
Classes and Exams End	July 23

(Second Term of Two Five-Week Terms)
Double Class Periods

Registration	July 24
Classes Begin	July 25
Last Day to Add or Change Classes	July 29
Last Day to Withdraw Without Grade Penalty	August 5
Classes and Exams End	August 29

NORTHERN VIRGINIA COMMUNITY COLLEGE

A MULTI-CAMPUS INSTITUTION

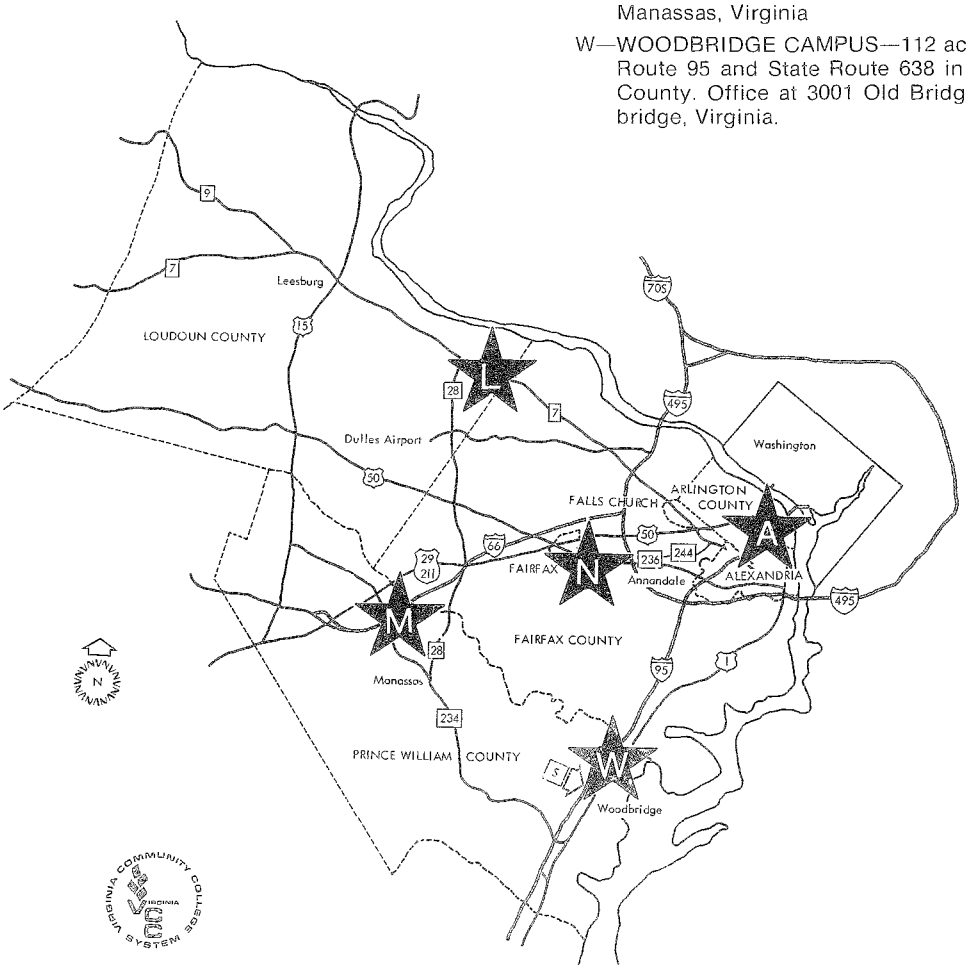
A—ALEXANDRIA CAMPUS—3443 South Carlin Springs Road, Bailey's Crossroads, rented facilities and permanent site 28 acres at 3001 North Beauregard Street, Alexandria. Construction of Phase 1 occupied, Summer 1973.

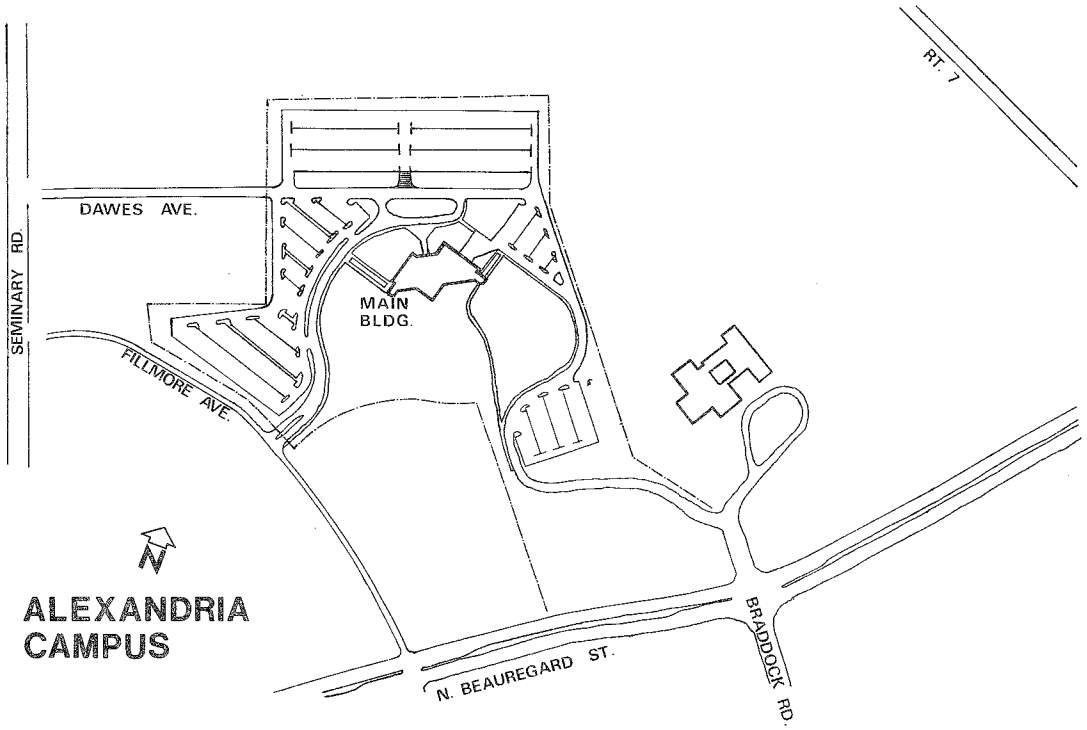
N—ANNANDALE CAMPUS—8333 Little River Turnpike, Annandale, 78 acres, six permanent buildings.

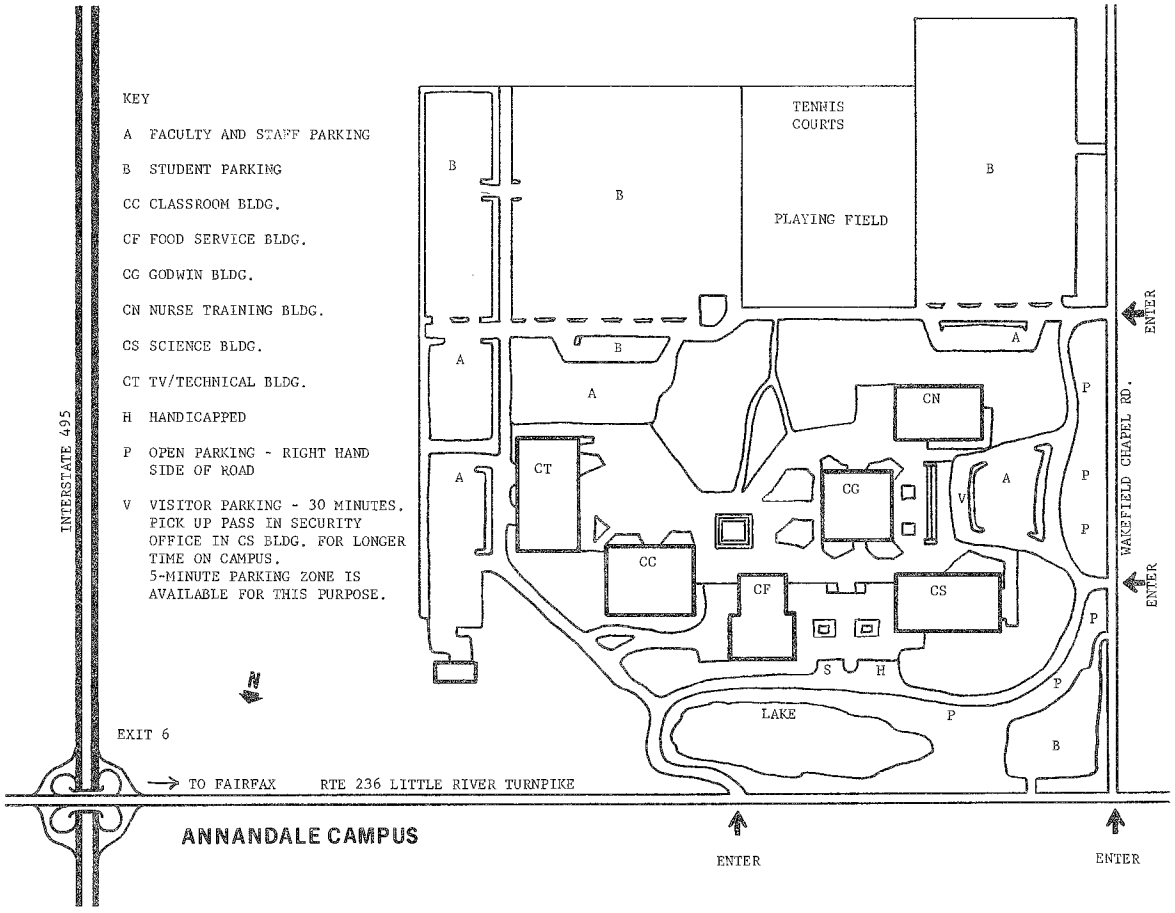
L—LOUDOUN CAMPUS—98 acres on Route 7 in Loudoun County. Office on Route 7 at State Route 637. Mailing address is 1000 Harry Flood Byrd Highway, Sterling, Virginia.

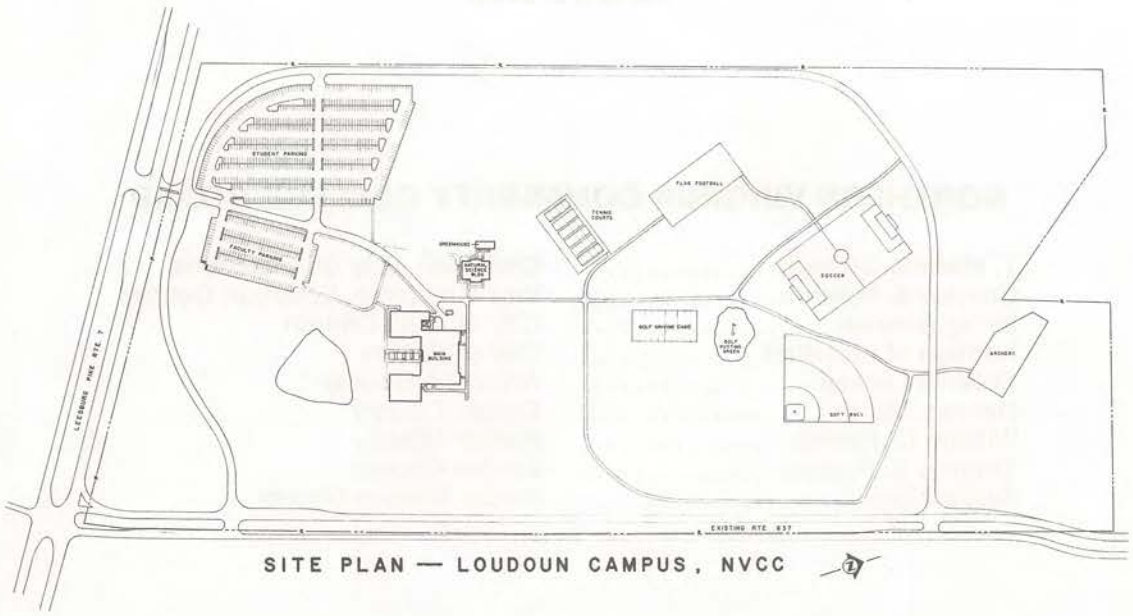
M—MANASSAS CAMPUS—100 acres, off Route 66 on State Route 234 near Manassas. 6900 Sudley Road, Manassas, Virginia

W—WOODBRIDGE CAMPUS—112 acres, adjacent to Route 95 and State Route 638 in Prince William County. Office at 3001 Old Bridge Road, Woodbridge, Virginia.



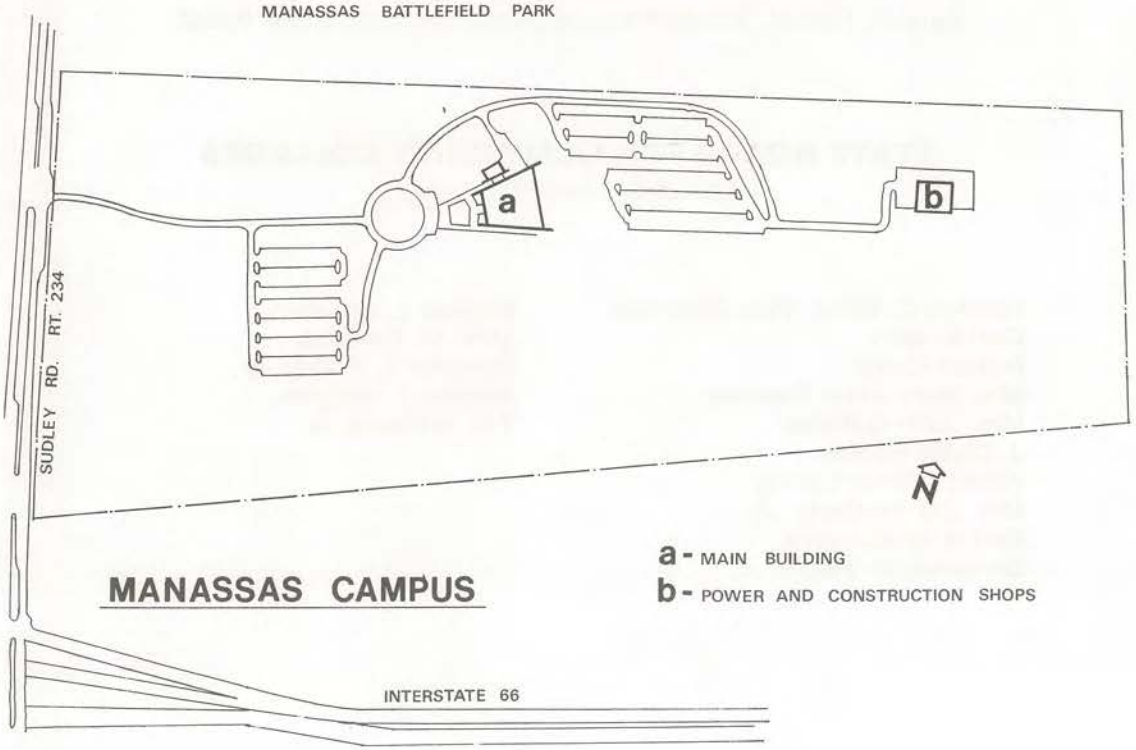

RT. 7
DAWES AVE.
SEMINARY RD.
MAIN BLDG.
FILLMORE AVE.
N
ALEXANDRIA CAMPUS
N. BEAUREGARD ST.
BRADDOCK RD.


KEY
A FACULTY AND STAFF PARKING
B STUDENT PARKING
CC CLASSROOM BLDG.
CF FOOD SERVICE BLDG.
CG GODWIN BLDG.
CN NURSE TRAINING BLDG.
CS SCIENCE BLDG.
CT TV/TECHNICAL BLDG.
H HANDICAPPED
P OPEN PARKING - RIGHT HAND SIDE OF ROAD
V VISITOR PARKING - 30 MINUTES. PICK UP PASS IN SECURITY OFFICE IN CS BLDG. FOR LONGER TIME ON CAMPUS. 5-MINUTE PARKING ZONE IS AVAILABLE FOR THIS PURPOSE.
TENNIS COURTS
PLAYING FIELD
INTERSTATE 495
WAKEFIELD CHAPEL RD.
ENTER
LAKE
EXIT 6
TO FAIRFAX
RTE 236 LITTLE RIVER TURNPIKE
ANNANDALE CAMPUS
ENTER
ENTER



SITE PLAN — LOUDOUN CAMPUS, NVCC

MANASSAS BATTLEFIELD PARK



MANASSAS CAMPUS

a - MAIN BUILDING

b - POWER AND CONSTRUCTION SHOPS

INTERSTATE 66

PRESIDENT OF THE COLLEGE

Richard J. Ernst

NORTHERN VIRGINIA COMMUNITY COLLEGE BOARD

T. Marcus Gillespie	Chairman, City of Alexandria
Charles S. Monroe	Vice Chairman, Loudoun County
Irving Berman	City of Falls Church
Kathryn M. Everhart	City of Fairfax
Dolores Leckey	Arlington County
Dalmas Taylor	Fairfax County
William C. Parrish	Fairfax County
Thomas E. Propps	Fairfax County
Sylvia Allen	Prince William County

VIRGINIA COMMUNITY COLLEGE SYSTEM

Dana B. Hamel, *Chancellor, and Secretary to the State Board*

STATE BOARD FOR COMMUNITY COLLEGES

Daniel C. Lewis, *Chairman*

Gordon C. Willis, *Vice Chairman*
Carl E. Bain
Robert Carter
Mrs. Mary Anne Franklin
Mrs. John Galleher
J. Clyde Hooker
Albert Warner Loring
Mrs. J.B. McCarty, Jr.
Earl H. McClenney
Benjamin W. Mears, Jr.
Eugene L. Newman
John W. Parsons
Sumpter T. Priddy, Jr.
William J. Vaughan
Y.B. Williams, Jr.

THE COLLEGE

The College is a two-year institution of higher education established under a state-wide system of Community Colleges in Virginia and serving the counties of Arlington, Fairfax, Loudoun, Prince William, and the cities of Alexandria, Falls Church and Fairfax. The programs of the College are designed to offer the training and education needed by the citizens of Northern Virginia to qualify them for the jobs available in the region, and for further education at four-year institutions.

The College operates on policies established by the State Board for Community Colleges and with the support and advice of a local Community College Board; and is financed primarily by State funds, for maintenance and operating budgets and capital outlay budgets, supplemented by funds from the seven local jurisdictions for purchase of sites, site development, and a small maintenance and operation budget.

LOCATION AND FACILITIES

The multi-campus plan for the College consists of five campus locations. The five sites have been purchased throughout the Northern Virginia area for the convenience of potential students.

The College is presently operating all five campuses. The Alexandria, Annandale, Loudoun and Manassas campuses offer full day and evening programs in permanent facilities. The Woodbridge campus offers evening programs in temporary facilities within the community. A College Services building is under construction at Route 236 (Little River Turnpike) and Wakefield Chapel Road. The offices of the President, Public Relations, Financial and Administrative Services, Instructional Services, Student Services, Media Processing, Personnel, Accountin, College Records and College Applications will be housed there.

The Alexandria Campus is located at 3001 North Beauregard Street, Alexandria. The megastructure accommodate the various campus functions on four levels, including student services, a teaching auditorium and rehearsal hall, faculty and administration, general classrooms, laboratories and studios. Phase II of construction is underway.

The Annandale Campus, located at 8333 Little River Turnpike Route 236) two miles west of Annandale, Virginia, has a general classroom building, a laboratory building, an Administration-Library Building, a Food Services Technology Building, a TV-Technical Building, and a Nurse Training Building.

The Loudoun Campus is located at RR2, Box 165, Sterling, Virginia, Phase I of the new campus on the 98-acre site on Route 7 at State Route 637 in Loudoun County. It is to open for the first time for fall 1974.

The Woodbridge Campus is offering evening courses at Woodbridge Senior High School and Fort Belvoir. Offices are in a trailer at Woodbridge, Virginia. The permanent site, not yet funded for construction by the 1974 Virginia General Assembly, consists of 112 acres adjacent to Route 95 and State Route 638 in Prince William County. The new campus is expected to open for fall 1975.

HISTORY OF COLLEGE

The College was established under the name of Northern Virginia Technical College, as a result of legislation by the 1964 Virginia General Assembly. It became the first of an expanding system of technical colleges in the State.

In early 1965 the College was approved by the State Board for Technical Education, the present College Board was formally established, and the President of the College was appointed. Less than four months later, the College opened in renovated facilities at Bailey's Crossroads with an initial enrollment of 761 students and a staff and faculty of 46. The College was officially opened by Governor Albertis S. Harrison on November 16, 1965.

The 1966 Session of the General Assembly enacted legislation which changed the Virginia Technical College System to the Virginia Community College System. This college became Northern Virginia Community College at that time. The role of the College was expanded to include University Parallel/College Transfer programs. Enrollment increased to 2,226 in the fall of 1966.

A site of 78 acres was purchased by the NVCC Board in 1966 for the Annandale Campus at Annandale, from funds provided by the seven local cooperating jurisdictions. The first permanent building was constructed and opened on the Annandale Campus in 1967. Sites for the Loudoun, Manassas and Woodbridge Campuses were purchased in 1967. The enrollment was 3,359 in the fall of 1967 and jumped to 5,271 in 1968.

Dr. Richard J. Ernst became the second president of the College on September 16, 1968.

The next phase of construction consisted of three buildings opened in early 1969. Local funds from the seven supporting jurisdictions and matching federal funds were used for construction. Normally, state and federal funds are required. One of the three, the Godwin Building, was dedicated in honor of Governor Mills E. Godwin on June 3, 1969. A 28-acre site was purchased for the Alexandria Campus in 1969. That fall, 7,629 students enrolled.

A TV/Technical Building was also completed on the Annandale Campus in 1970, utilizing only local funding. Enrollment that fall was 9,718.

Headcount enrollment rose to 12,047 for fall

1971. A Nurse Training Building was completed in the summer of 1972 on the Annandale Campus. Master site plans were designed for each of the three other campuses, and the 1972 General Assembly approved funds for construction of Phase I of the Loudoun and Manassas Campuses. The Loudoun, Manassas and Woodbridge Campuses opened in the fall quarter of 1972, offering evening courses in local facilities. Temporary offices for the three new campuses were established in the communities served by each. A total of 13,974 students enrolled in fall 1972. During the fiscal year (July 1, 1972-June 30, 1973), 22,533 different students registered for credit courses.

NVCC served another 5,315 students in community service programs.

Alexandria campus moved to permanent facilities as Phase I of construction was completed in spring 1973.

Northern Virginia Community College has the largest enrollment of any college in the Commonwealth of Virginia with 17,260 students for the fall of 1973.

Construction of Phase I for both the Loudoun and Manassas Campuses began in early 1973 with each expected to open on new campuses with full programs in the fall of 1974.

PURPOSE

Northern Virginia Community College is dedicated to the belief that each individual should be given a continuing opportunity for the development and extension of his skills and knowledge along with an opportunity to increase in awareness of his role in and responsibility toward society. The college, operating under an open admissions policy, accepts any person who has a high school diploma or the equivalent, or is at least 18 years of age, and in any case, is able to benefit from a program of instruction. The College is devoted to serving the educational needs of its community and assumes a responsibility for helping meet the requirements for trained manpower in its region through a cooperative effort with local industry, business professions, and government.

Educational opportunities are provided for post high school age youth and adults. These opportunities include high-quality instructional programs at the associate degree level, in occupational and technical programs designed to develop technicians, semi-professional workers and skilled craftsman, as well as programs at the developmental level. A strong counseling program, including a number of other comprehensive student personnel functions, is also provided to help each student make sound decisions regarding his occupational, educational, and personal goals and objectives. These functions include: pre-college and freshman orientation, counseling, job placement, financial aid, student health service, psychological service, veterans affairs, and student activities.

PROGRAMS

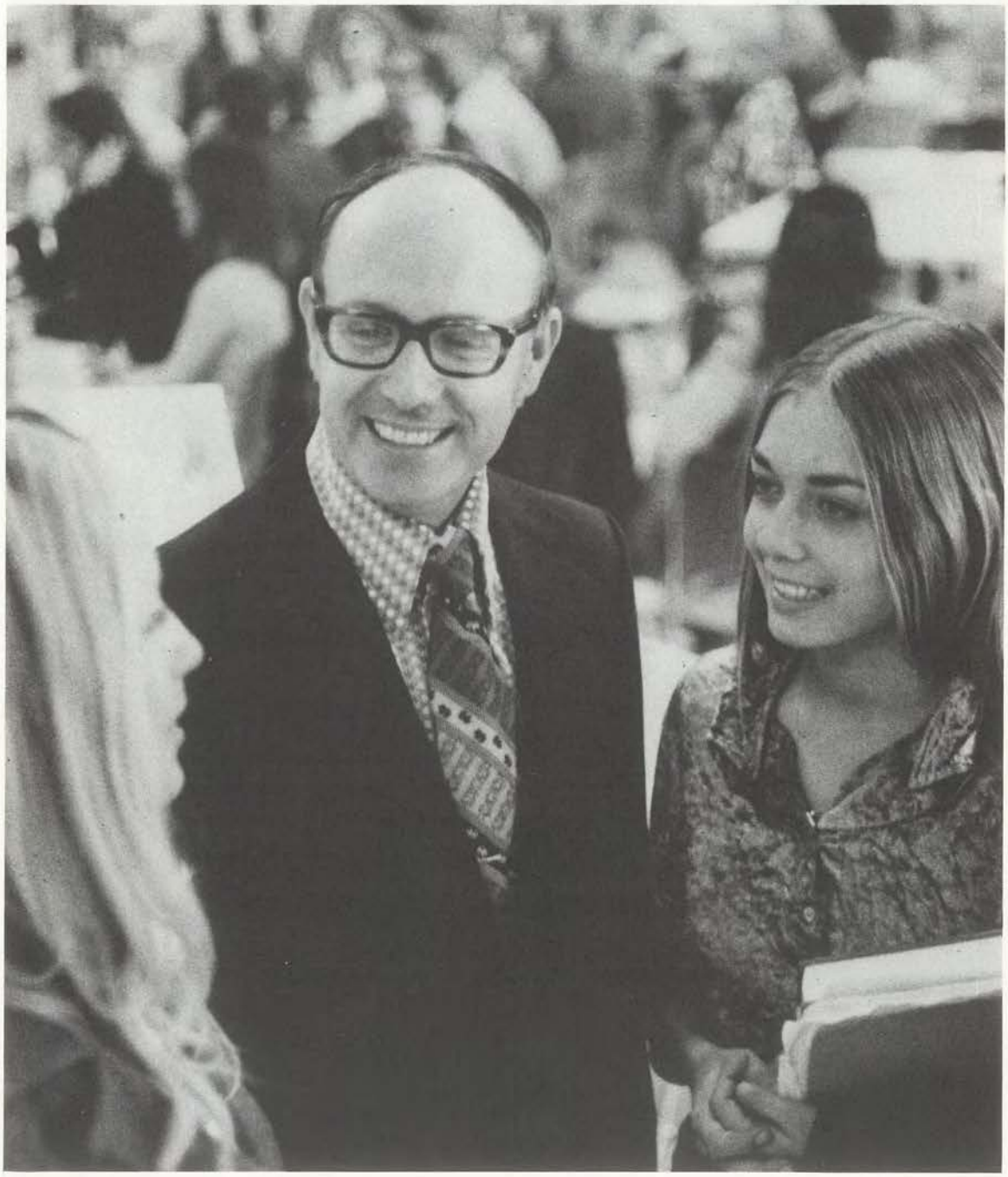
Northern Virginia Community College is a comprehensive institution of higher education, offering programs of instruction generally extending not more than two years beyond the high school level.

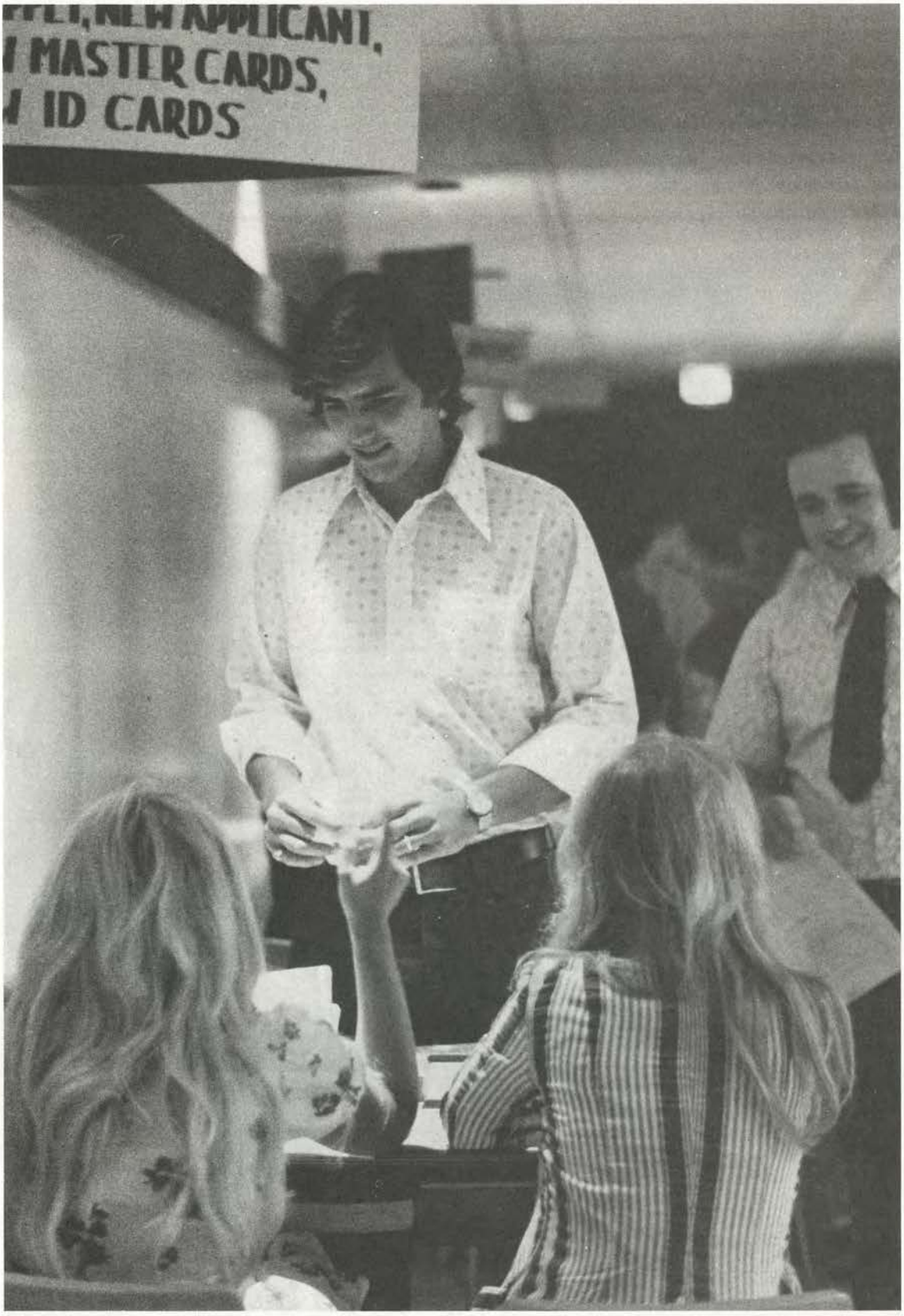
1. *Occupational-Technical Education.* The occupational and technical education programs are designed to meet the increasing demand for technicians, semi-professional workers and skilled craftsmen for employment in industry, business, the professions, and government. The curriculums are planned primarily to meet the needs for workers in the region being served by the College.
2. *University Parallel-College Transfer Education.* The university parallel-college transfer program includes college freshman and sophomore courses in arts and sciences and pre-professional programs meeting standards acceptable for transfer to baccalaureate degree programs in four-year colleges and universities.
3. *General Education.* The programs in general education encompass the common knowledge, skills, and attitudes needed by each individual to be effective as a person, a worker, a consumer and a citizen.
4. *Continuing Adult Education.* These programs are offered to enable the adults in the region to continue their learning. This work includes both degree credit and non-degree credit work offered during the day and evening hours.
5. *Special Training Programs.* Special training may be provided where specific job opportunities are available for new and expanding industries. This special training shall be considered with Virginia's economic expansion efforts and with the needs of employers.
6. *Developmental Studies Programs.* Developmental programs are offered to help prepare individuals for admission to the occupational-technical program and to the university parallel-college transfer program in the Community College. These programs are designed to help develop the basic skills and understanding necessary to succeed in other programs of the Community College.
7. *Specialized Regional and Community Services.* The facilities and personnel of the College are available to provide specialized

services to help meet the cultural and educational needs of the region served by the Community College. This service includes the non-classroom and non-credit programs, cultural events, workshops, meetings, lectures, conferences, seminars, and special community projects which are designed to provide needed cultural and educational opportunities for the citizens of the region.

ACCREDITATION AND RECOGNITION

The College, a division of the Virginia Community College System, is approved by the State Board for Community Colleges in Virginia. The associate degree programs of the College have also been approved by the State Council of Higher Education for Virginia. The College is accredited by the Southern Association of Colleges and Schools.




APPLICANT,
MASTER CARDS,
ID CARDS

ADMINISTRATIVE INFORMATION

ADMISSION REQUIREMENTS

General Admission to the College

Any person who has a high school diploma or the equivalent, or is at least 18 years of age, and in any case is able to benefit from a program of instruction at Northern Virginia Community College, may be admitted to the College as a regular student or accepted as a special student when the following items have been received by the Office of Admissions on his home campus.

For all regular students, the following items are required:

1. A completed "Application for Admission as a Regular Student."
2. A $5 application fee (non-refundable unless the program or course is not offered.)
3. Official transcripts from all high schools, colleges, and universities attended.
4. A completed Northern Virginia Community College Health Form.

For all special students, the following items are required:

1. A completed official application.
2. A $5 application fee (non-refundable unless the program or course is not offered).

   NOTE: Please direct all inquiries concerning applications to the College to: Northern Virginia Community College, Post Office Box 1285, N. Springfield, Virginia 22151.

The College reserves the right to evaluate special cases and to refuse admission to applicants when considered advisable in the best interest of the College.

Persons wishing to apply for the non-credit community service programs should contact the Office of Continuing Education on any campus for additional information.

Applicants will be accepted on a first-come, first-served basis subject to the quotas established for each curriculum. It is important that applications be made early if entrance to the designed program is to be achieved.

To insure consideration for admission or readmission to a desired degree program, an applicant must have submitted an application with all necessary supporting documents to the College at least 30 days prior to registration for the quarter in which admission is being sought. All students not admitted to a degree, certificate, or diploma program shall be considered special students.

General admission to the College does not imply admission to a specific curriculum. A person who has been accepted by the College, before becoming a "regular" student, will be required to meet with one of the College Counselors (a) to discuss the applicant's educational interests, (b) to determine what additional tests he may need, and (c) to plan his application for admission to a specific curriculum or program at the College. He will also be required to submit a health certificate, emergency consent form (forms to be furnished by the College) and any additional information required by the College for admission to a specified program or curriculum.

This College does not discriminate on the grounds of race, color, or national origin and is in compliance with the Civil Rights Act of 1964.

The act of enrolling as a student is an acceptance of the rules and regulations of the College. Any violation may be subject to appropriate institutional action.

Admission to Specific Curricula

In addition to the general admission requirements listed above, specific requirements are usually prescribed for each curriculum of the College. Among the items generally considered in determining the eligibility of a student for admission to a curriculum in the College are his educational and occupational experiences and other reasonable standards to insure that the student possesses the potential to meet program requirements.

The specific requirements for each curriculum in the College are listed in the Curricula of Study section of the College Catalog. Persons who do not meet the requirements for a specific curriculum or course may be eligible to enter the curriculum or course after they have completed preparatory course work.

Persons applying to enter one of the associate degree programs (Associate in Science, Associate in Arts, or Associate in Applied Science) shall be high school graduates or the equivalent or have completed an approved developmental program.

In addition, all students who plan to transfer to a four-year college or university which requires the Scholastic Aptitude Test (SAT) of the College Entrance Examination Board may be requested to submit these test scores to that institution.

Special Admission Requirements for International Students

International Students will not be admitted on a temporary basis. They must complete all general and special requirements for admission. Inter-

national students who are present in the United States on a temporary visa are considered non-residents (domiciliaries) for purposes of tuition payments. Length of stay, payments of taxes, ownership or property, etc., in themselves *do not* qualify them for the status of *legal resident.*

Students who acquired a student visa through acceptance by another school or college will not be considered until they have successfully completed at least one term's work and have secured a written release from the original institution. Students for whom an I-20 form has been submitted must maintain their status as full-time students. The College will not approve nor recommend employment of non-immigrant aliens who are students, except during the summer.

Applicants whose native language is other than English are required to take the "Test of English as a Foreign Language" (TOEFL). The applicant is responsible for making early arrangements for taking the test and should address inquiries to: TOEFL, Educational Testing Service, Princeton, New Jersey 08540, U.S.A. The Bulletin of Information, obtainable without charge, contains a description of the test as well as rules regarding application, fees, reports, and the conduct of the test; lists of examination centers; examination dates; and an application blank. On the application for the test, the student should specify that the scores be sent to Northern Virginia Community College, Post Office Box 1285, North Springfield, Virginia 22151. The results of the TOEFL must be received at NVCC well in advance of the term for which the applicant seeks admission.

International students with TOEFL scores of 550 or greater will generally be admitted to regular credit courses with no special restrictions. Applicants with scores in the range of 500-549 may be admitted with some limitations on their academic load. Applicants with scores below 500 will not be admitted but will be encouraged to pursue language training and to retake the TOEFL exam after that training.

Residence Requirements

Applicants will be required to submit a residence affidavit to determine state residency eligibility for tuition purposes. See the section on tuition in this catalog. The Application Form contains an affidavit which must be completed by those applicants or their parents or guardians. Applicants and parent/guardian are responsible for the complete accuracy of their affidavit. The right to recoup deficiency charges is reserved. If there is any question as to the status of an individual, the applicant should contact the office of Admissions and Records for clarification.

When enrollments must be limited for any curriculum or course, first priority must be given to all qualified students who are legal residents of the political subdivisions supporting the College as listed under General Information, provided such students apply for admission to the curriculum a reasonable length of time prior to registration. The priority list is as follows: (1) residents of the political subdivisions supporting the College, (2) other Virginia residents, (3) out-of-state and International students.

Students Transferring from Other Colleges

Usually, a student from another college who is eligible for re-entrance at the last college shall also be eligible for admission to the Community College.

It is the role of the Community College to help each student succeed in a program from which he can benefit. Early application and submission of all transcripts is required.

Each student transferring from another college should consult the Admissions and Records Office at the Community College for an assessment of credits. Generally, no credit will be given for subjects with a grade lower than 'C." A transfer student may be advised to repeat courses if it is clearly to his advantage to do so in order to make satisfactory progress in his curriculum.

Such an evaluation (of credits that a student has earned at other institutions) will be made during the admission process after all of the official documents have been received. When the course contains similar or like content and credit, the course will transfer as the equivalent of this institution's course. When the content is unlike any course offered at Northern Virginia Community College, elective credit may be granted. The division in which the student is enrolled will then determine if and how the evaluated transfer credit may be used.

Transfer credit is usually granted during the admission process. Students taking credit courses at other institutions for transfer to Northern Virginia Community College must receive prior written approval of the office of Admissions and Records.

Credit from non-regionally accredited colleges and universities may be transferred according to the recommendations in the current issue of the Directory published by the U.S. Dept. of Health, Education and Welfare or in the current issue of the AACRAO Guide, and/or if the colleges and universities have approval by their state accrediting agencies.

Credit may be allowed for military service schools if this credit is recommended in *A Guide to the Evaluation of Educational Experiences in the Armed Services,* and if work is applicable to the program being pursued.

Advanced Placement

Northern Virginia Community College sub-

scribes to the philosophy that the placement function of the College includes helping the student to accumulate his past experiences, to identify where he is in his educational development, and to move on toward his goals at the most efficient and rapid rate possible. Advanced standing is the administrative placement of a student beyond the basic or first course(s) in a curriculum, allowing college credit for subject matter and/or other appropriate training, upon the submission of evidence showing previous academic study, examination, or occupational experience.

Advanced standing may be granted students who successfully complete examinations in any of the following programs.

1. CLEP Examinations from ETS for Advanced Standing.
   The College Examination Program from the Educational Testing Service has been approved in five basic liberal arts areas and in specific Subject Examination areas, depending on the score attained. Students desiring to participate in the CLEP Program may contact the Counseling Office at their respective campuses for information and applications.
2. USAFI credits for Advanced Standing.
   NVCC will award specific course credit for acceptable scores on USAFI (United States Armed Forces Institute) college-level examinations as reported on the USAFI form, "Official Report of Educational Achievement through the United States Armed Forces Institute," Madison, Wisconsin, 53713. For evaluation the student must have the official USAFI "Report" form sent to his home campus Admissions and Records Office.
3. AP Program for Advanced Standing.
   Specific college course credits will be granted for scores of 3, 4, or 5 on the Advanced Placement Examinations of the College Entrance Examination Board. For evaluation students must have official AP Score Reports forwarded from ETS to NVCC for inclusion in the permanent record in the Admission and Records Office of their home Campus.
4. Locally Constructed (ABLE) Examinations for Advanced Standing.
   Tests not available from outside sources such as the CLEP will be available for a considerable number of NVCC courses through ABLE (Assessment by Local Examination) exams. The College will grant specific course credit for acceptable performance on ABLE examinations. A fee of $5.00 per course is charged for each ABLE exam attempted.

Waiver of Requirements

Veterans may receive a waiver for Physical Education upon submission of a discharge certificate; however, no credit is granted for this waiver. Other credits should be substituted to meet the total requirements of the specific curriculum. Application for granting of credit or waiver should be made in the first quarter of enrollment.

Auditing a Course

Students desiring to attend a course without taking examinations or receiving credit for the course, may do so by registering to audit that course. Students desiring to audit a course will register in the regular manner and pay the regular tuition. Audited courses carry no credit. Students desiring to change status in a course from audit to credit must complete the change during the first week of class or by the second class meeting for those classes which meet only once each week. Changes from credit to audit must be made by the last day for students to withdraw from a class without penalty. (First three weeks of classes.) Permission of the instructor and the Division Chairman is required to audit a course. The student should contact Admissions and Records for instructions.

CLASSIFICATION OF STUDENTS

Classification of Students by Home Campus

All students are required to select a home campus (Alexandria, Annandale, Loudoun, Manassas, or Woodbridge) at the time of application. A change in a student's home campus classification should be made no later than 30 days before the beginning of the preregistration period.

All students records will be maintained at the home campus of the student. All actions, such as registration, dropping of courses, shifting from credit to audit, withdrawal, transcript request, etc., must be accomplished at the home campus.

Students are permitted by cross-campus registration to take classes at any of the five campuses.

ALL STUDENTS ARE CLASSIFIED ACCORDING TO THE FOLLOWING CATEGORIES:

Regular Student

A student is designated as a regular student when his file in the Admissions Office contains all of the information required for general admission to the College as a regular student and when he has been admitted to one of the curricula of the College. A regular student is a full-time or part-time student working toward completion of an associate degree, diploma, certificate, or developmental program, or for transfer to a higher degree granting institution. Thus, the regular student's admission will normally follow a

counseling interview and will be substantiated by a written statement specifying the curriculum to which he is admitted and any developmental work that he must accomplish.

Special Student

A special student is one who is permitted to register under special conditions including the following:

1. A part-time or full-time student not enrolled in an associate degree, diploma, or certificate program who may be taking a course for credit (such students may later apply to the College for admission to a curriculum as a regular student);
2. A part-time student taking a credit course(s) as an audit for no credit;
3. A person who has not yet fulfilled all of the requirements as a regular student but who is admitted under special consideration by the Admission Committee of the College. It is expected that such persons would fulfill all requirements prior to the mid term of the quarter.
4. A high school senior who with the written permission of his high school principal is concurrently enrolled in a college course;

Full-time Student

A student is considered a full-time student if he is carrying 12 or more credits of course work. (Note: The Veterans Administration considers 12 credit hours as full-time except for course work in certificate and diploma programs.)

Part-time Student

A student is considered a part-time student if he is carrying less than 12 credits of course work.

Freshman

A student is classified as a freshman until he has completed 45 credits of work.

Sophomore

A student is considered a sophomore after he has completed 45 or more credits of course work. Transferred credits are included providing they apply toward meeting the requirements of the student's curriculum.

Reapplicant

A student who interrupts his enrollment at the College for one quarter or more (exclusive of the summer) is required to reapply by submitting again the standard application form. In this way, the College is assured of current student information, such as address and telephone number. A second application fee, of course, is not required.

EXPENSES

Application Fee

An application fee of $5 must accompany the application for admission to the College for each regular and special student. This is a one-time charge. No additional application fee shall be charged. This fee is not applicable to tuition, nor refundable unless the program or course is not offered.

Tuition

Full-time Student (12 or more credits):

Virginia Resident	$ 75.00 per quarter
Out-of-State Resident	$250.00 per quarter

Part-time Student (Less than 12 credits):

Virginia Resident	$ 6.25 per credit (or equivalent)
Out-of-State Resident	$21.00 per credit (or equivalent)

TUITION IS DUE AND PAYABLE AT THE TIME OF REGISTRATION EACH QUARTER

Additional charges for non-College support services are necessary for a few specified courses in music, physical education, and aviation. See course description section for estimated costs.

Entitlement to In-State Tuition Fees

In order to qualify for in-state tuition rates, a person must be a legal resident and domiciliary of the State of Virginia. This means that a person must actually have lived as a legal resident in Virginia for one full year (12 months) immediately prior to the beginning date of the school quarter for which he seeks acceptance and that during that year, he must have had a continuing intention to remain permanently and indefinitely in Virginia.

It will be presumed that people falling within the following categories do not have the requisite intent to be a Virginia domicile: holders of temporary visas, persons who by law must maintain their domicile or legal residence in another state, persons who have by their actions selected another state or country as their legal residence. Military personnel and dependants whose home of record is other than Virginia are considered as out-of-state residents.

Unemancipated minors (under age 18) are presumed to maintain the same residence and domicile as their parents.

Being present, maintaining a home, paying taxes, voting and having a Virginia driver's license are factors which bear on the question but do not in themselves establish residency or domicile. It is the responsibility of the applicant to present convincing evidence of his/her intent to be and remain a Virginia domiciliary permanently and indefinitely.

Payment of tuition also enables the student to use the library, bookstore, student lounge, and other facilities of the College except parking. There are no special laboratory or library fees, but students are expected to pay charges for any school property (such as laboratory or shop equipment, supplies, library books and materials) that they damage or lose.

Graduation Fee

A non-refundable graduation fee of $10.00 shall be charged each graduating student to cover the necessary expenses. This fee is payable with the application on or before the announced application cut-off date for any quarter, but not later than January 31, 1975 for the June 1975 commencement.

Identification Cards

Student Identification cards are issued without charge at the time of initial registration. Lost cards will be replaced at a charge of $3.00 upon request, to the home campus Admissions and Records Office. ID cards are required for registration, course changes, transcript requests, Library material use, admissions to special student activities, etc.

Books and Materials

Students are expected to obtain their own books, supplies, and consumable materials needed in their studies. It has been estimated that the cost of these items will average approximately $35-$50 per quarter for a full-time student.

Transcripts

The first copy of a transcript will cost $1.00. All subsequent transcript copies will cost $3.00 each.

Vehicle Registration Fee

A vehicle registration fee of $5.00 a quarter must be paid by any student who wishes to park his car in the student parking lots. There is a $2.00 fee for replacement of lost decal upon presentation of original receipt.

REFUNDS

Full-time Students

No refunds will be made for individual course changes where a course is dropped, and the student continues to be enrolled for at least 12 credit hours.

During the first week of classes, if a full-time student drops individual courses (or, the College cancels a course in which the student is enrolled before the first class meeting and he does not elect to take an alternate course) which would result in his being enrolled for less than 12 credit hours, he will be eligible for partial refund for the difference in hours berween those for which he is enrolled and the 12 credit hours which is considered full time. (See "Determination of Refund" below.)

After the first week of classes, full-time students will not be authorized refunds unless they officially withdraw completely from the College.

If a student registers for a program which is cancelled by the College before the start of classes, and the student does not elect to enter an alternate program, he is eligible for a *total* refund of tuition.

Part-time Students

If a course is cancelled by the College before the first class meeting and the student does not elect to take an alternate course, he is eligible for a *total* refund of tuition for that course.

During the first week of classes, if a student drops a course, he will be eligible for partial refund of tuition for that course. (See "Determination of Refund"below)

After the first week of classes, part-time students will not be authorized refunds unless they officially withdraw completely from the College.

Determination of Refund

To be eligible for refund under any of the circumstances set forth in the foregoing paragraphs, a student must execute an official drop form. Other than where *total* refunds are authorized, refunds will be based upon the length of the course, i.e., full quarter course; six week course; five week course, etc. From the beginning until the passage of one-fifth of the course length of time, the refund will be two-thirds of the tuition. From one-fifth until the passage of one-third of the course length of time, the refund will be one-third of the tuition. After that there will be *no refunds*. (Example: If a student is authorized for a refund after two weeks in a twelve week course he would be entitled to a two-thirds tuition refund. In a six week course he would be entitled to a one-third refund. In a five week course he would not be entitled to a refund.)

Official resignation for a student shall become effective on the date that written notification of intent to resign is received by the Office of Admission and Records and not the date of the last class attended, unless the two dates coincide. Resignations and course withdrawals should be presented in person or by the student's authorized representative. The College cannot undertake to accomplish contact with the student's instructors, except for the most serious of reasons.

OBLIGATION TO THE COLLEGE

All services will be withheld from a student who

owes money to the college for any reason, or who has books or materials outstanding from the Learning Resource Center. This means that no transcripts will be issued, the student will not be permitted to register, no recommendations will be written nor other services provided.

CREDITS

A credit is equivalent to one collegiate quarter hour credit or two-thirds of a collegiate semester hour credit. Usually, one credit for a course is given for approximately three clock hours of work *weekly* by each student as follows:

a. One hour of lecture plus an average of two hours of out-of-class study, or
b. Two hours of laboratory or shop work plus an average of one hour of out-of-class study, or
c. Three hours of laboratory or shop work with no regular out-of-class assignments.
d. Fixed credit and variable hours with behavioral objectives are assigned to each Developmental Course;
e. Variable Credit (1-5 credits) are assigned to all Supervised study, Seminar and Project, and Coordinated Internship courses.

GRADING SYSTEM

A = Excellent—Four grade points per credit
B = Good—Three grade points per credit
C = Average—Two grade points per credit
D = Poor—One grade point per credit
F = Failure—0 grade points
S = Satisfactory—No grade point credit (Applies only to specialized courses and seminars)
R = Re-Enroll—No grade point credit (A grade of "R" implies that the student was making satisfactory progress but did not complete all the course objectives. Students making satisfactory progress shall be graded with an "R" and must re-enroll to complete the course objectives.)
U = Unsatisfactory—No grade point credit (Applies only to specialized courses and seminars)
W = Withdrawal—No credit (A grade of "W" implies that the student was making satisfactory progress in the course at the time of his withdrawal or that the withdrawal was officially made.) See page 22 .
I = Incomplete—No credit (A grade of "I" is assigned only in cases of student absence from a limited number of class sessions near the end of a term or grading period and when the absense was for a verifiable unavoidable reason; i.e., sickness verified by medical statement, accident verified by police records, etc., or absence from final examination for a verifiable and unavoidable reason. Such circumstances must be reported to the Instructor so that the "I" grade can be assigned. It is the joint responsibility of the instructor and student to make up an "incomplete" during the next term following its issuance. All "I" grades not completed in the subsequent quarter will revert to a "W".)
X = Audit—No credit. (Permission of the Instructor and the Division Chairman is required to audit a class.)

The grade point average (GPA) is determined by dividing the total number of grade points earned in courses by the total number of credits attempted. When a course is repeated only the last grade will be used in the GPA computation for graduation. The following example illustrates a GPA of 2.0 obtained by dividing 36 by 18.

Course	Credit Hours Attempted	Grade	Grade Points	Credit Hours Comp'd	Total Grade Points
FREN 101	4	A	4	4	16
ENGL 101	3	B	3	3	9
PSYC 110	3	C	2	3	6
MATH 121	5	D	1	5	5
ECON 160	3	F	0	0	0
ELEC 114	0	W	0	0	0
	18			15	36

Any grade errors or other errors on Grade Reports should be reported to the Office of Admissions and Records at the student's Home Campus within 30 days after the close of the Quarter in which grades were received or these may be assumed to be correct.

GRADING—DEVELOPMENTAL STUDIES COURSES

An "S" (Satisfactory) shall be assigned to indicate satisfactory completion of the course objectives for each developmental course.

Students making satisfactory progress but not completing all of the objectives for a developmental course shall be assigned an "R" (Re-enroll) and be re-enrolled to complete the course objectives.

Students not making satisfactory progress in a developmental course shall be assigned a "U" (Unsatisfactory). These students should consult with a counselor for possible re-evaluation of their goals and a determination of the direction of any subsequent academic work.

Credits earned for developmental courses are not counted in grade point computations toward graduation nor in determining sophomore status.

HONOR ROLL AND DEAN'S LIST

The name of every student who has a cumulative grade point of 3.50 or higher and who

has earned a minimum of 30 quarter hours of credit at the College is placed on the Honor Roll.

A student with a cumulative grade point average of 3.20 or higher who has earned a minimum of 15 quarter hours of credit is placed on the Dean's List.

DEGREES, DIPLOMAS, AND CERTIFICATES

Northern Virginia Community College offers the following degrees, diplomas, or certificates for students who successfully complete approved curriculums at the College.

1. *The Associate in Applied Science degree (A.A.S.)* is awarded to students majoring in one of the occupational-technical curricula and who may plan to obtain full-time employment immediately upon graduation from the College.
2. *A Diploma* is awarded to students who complete one of the two-year diploma occupational curricula.
3. *A Certificate* is awarded to students who complete one of the approved curriculums that are usually less than two years in length.
4. *The Associate in Arts degree (A.A.)* is awarded to students majoring in the liberal arts and who may plan to transfer to four-year colleges or universities after completing their community college programs.
5. *The Associate in Science degree (A.S.)* is awarded to students majoring in specialized curriculums such as business administration, teacher education, pre-engineering, and other pre-professional programs and who may plan to transfer to four-year colleges or universities after completing their community college programs.

GRADUATION REQUIREMENTS

Associate Degree Requirements

To be eligible for graduation with an Associate Degree *(A.A.S., A.A., or A.S.)* from the College a student must:

1. Have made application and been admitted to the program in which he seeks a degree;

2. Have fulfilled all of the course and credit hour requirements of his particular curriculum as outlined in the College Catalog; (The Catalog to be used to determine graduation requirements is the one in effect at the time of a student's initial registration to the College or any subsequent Catalog. In any case, the Catalog to be used shall be no older than five years.)

3. Have been recommended for graduation by the appropriate instructional authority in his curriculum;

4. Have acquired at the college at least twenty percent of the credits applicable to an Associate Degree;

5. Have completed the general education requirements for an Associate Degree;

6. Have earned a grade point average of at least 2.0 on all courses attempted which are applicable toward graduation in his particular curriculum;

7. Have filed an application for graduation in the Office of Admissions and Records on or before January 31, 1975, for June graduation 1975;

8. Have resolved all financial obligations to the College and returned all materials including library books;

Diploma Requirements

To be awarded a Diploma from the College, a student must:

1. Have made application and been admitted to the curriculum in which he seeks a diploma;

2. Have fulfilled all of the course and credit hour requirements of his particular curriculum as outlined in the College Catalog; (The Catalog to be used to determine graduation requirements is the one in effect at the time of a student's initial registration to the College or any subsequent Catalog. In any case, the Catalog to be used shall be no older than five years.)

3. Have been recommended for graduation by the appropriate instructional authority in his curriculum;

4. Have acquired at the college at least twenty percent of the credits applicable to a diploma;

5. Have completed the general education requirements for a diploma;

6. Have filed an application for graduation in the Office of Admissions and Records on or before January 31, 1975, for June graduation 1975;

7. Have resolved all financial obligations to the College and returned all materials including library books;

Certificate Requirements

To be eligible for graduation with a Certificate from the College a student must:

1. Have made application and been admitted to the program in which he seeks a certificate;
2. Have fulfilled all of the course requirements of his particular Certificate curriculum as outlined in the College Catalog which includes achieving at least a passing grade in each course in the curriculum; (The Catalog to be used to determine graduation requirements is the one in effect at the time of a student's initial registration to the College or

any subsequent Catalog. In any case, the Catalog to be used shall be no older than five years.)

3. Have been recommended for graduation by the appropriate instructional authority in the student's curriculum;
4. Have completed the prescribed total quarter hours of credit for the Certificate, at least twenty percent of which must have been taken at the College;
5. Have filed an application for graduation in the Office of Admissions and Records on or before January 31, 1975, for June Graduation 1975;
6. Have resolved all financial obligations to the College and returned all materials including library books.

Certificate of Completion

If a student successfully completes a program of instruction which does not lead to an associate degree or diploma, he may be awarded a Certificate of Completion. Also, if he pursues a degree or diploma program but fails to meet the degree or diploma requirements, he may, upon recommendation of the appropriate instructional division and the Provost, be issued a certificate, provided the portion of study successfully completed is equivalent to an approved certificate program offered at the College.

Graduation Honors

Students who have attended Northern Virginia Community College for a minimum of 45 credit hours in degree and diploma programs and for at least 50% of the credit hours in certificate programs are eligible for graduation honors.

Appropriate honors based upon scholastic achievements are recorded on the student's degree as follows:

Grade Point Average	*Honor*
3.2	Cum laude (with honor)
3.5	Magna cum laude (with high honor)
3.8	Summa cum laude (with highest honor)

ACADEMIC REGULATIONS

Attendance

Regular attendance at classes is required. It is a student's responsibility to attend regularly *only* the section for which he is registered. Credit will not be granted for work in classes in which a student is not registered. When absence from a class becomes necessary, it is the responsibility of the student to inform the instructor prior to the absence whenever possible. Frequent unexplained absences may result in a dismissal from a course. The student is responsible for making up all work missed during an absence. Any instruction missed and not made up will necessarily affect the grade of the student, regardless of the reason for the absence.

Change of Registration

In all cases students should follow established procedures for making any change in their programs after registration. Failure to do so could place their college records in jeopardy. Changes, refunds, etc., are effective as of the time requested and approved. Retroactive changes are usually not permitted.

1. *Withdrawal from a class—*

Withdrawal from a class without academic penalty may be made within the first three weeks after the beginning of a quarter. After that time the student may receive a grade of "W" if his work has been satisfactory or may receive a failing grade of "F" if his work has been unsatisfactory up to the time of official withdrawal. Withdrawal from a class may be permitted during the last three weeks of classes of a given quarter upon the recommendation of the instructor and with the approval of the Provost or his designees.

2. *Addition of a course—*

In most cases a student may not enter a new class after the first week of a quarter. Any request for entry after that period must be approved by the instructor, division chairman concerned and the Provost through the Admissions and Records Office.

3. *Withdrawal from the College—*

A student who wishes to withdraw from the College should contact a counselor to determine the appropriate procedure. Failure to follow established procedures could place the student's college record in doubt and affect his return to this or another college. This must be done in person, except under the most serious circumstances 'hospitalization, death in family, etc.). The Admissions and Records Office should be contacted for instructions.

4. *Cancellation of a section or course by the College—*

A student must follow the withdrawal procedures in order to get a refund or add another course or section to replace the cancelled section.

5. *Transfer of Students between Curriculums—*

A student who wishes to transfer from one curriculum to another must initially consult a counselor before effecting the transfer.

Academic Probation-Suspension Policy

1. Warning

When a student has attempted 12 or more credits and has a G.P.A. below 1.5, or more than

half of his/her credits in grades of "W" or "R" in college credit courses, he will receive a letter from the College expressing concern over his academic progress. A student having attempted 24 or more credits and having a G.P.A. below 1.5 or more than half of his/her credits in grades of "W" or "R" in college credit courses will be considered to be in academic difficulty and a conference with his/her faculty advisor or counselor is strongly recommended.

2. Probation

(a) When a student has attempted 36 or more credits and has a GPA below 1.5, he/she will be placed on academic probation and the words "academic probation" will appear on his/her grade report.

(b) A student attempted 36 or more credits, half of which are in grades of "W" or "R" in college credit courses will be considered to have shown a lack of academic progress.

In both situations 2(a) and 2(b) the student will be required to submit to his/her campus Admissions Committee a statement describing the objectives he/she has established in order to improve his/her academic status.

3. Suspension

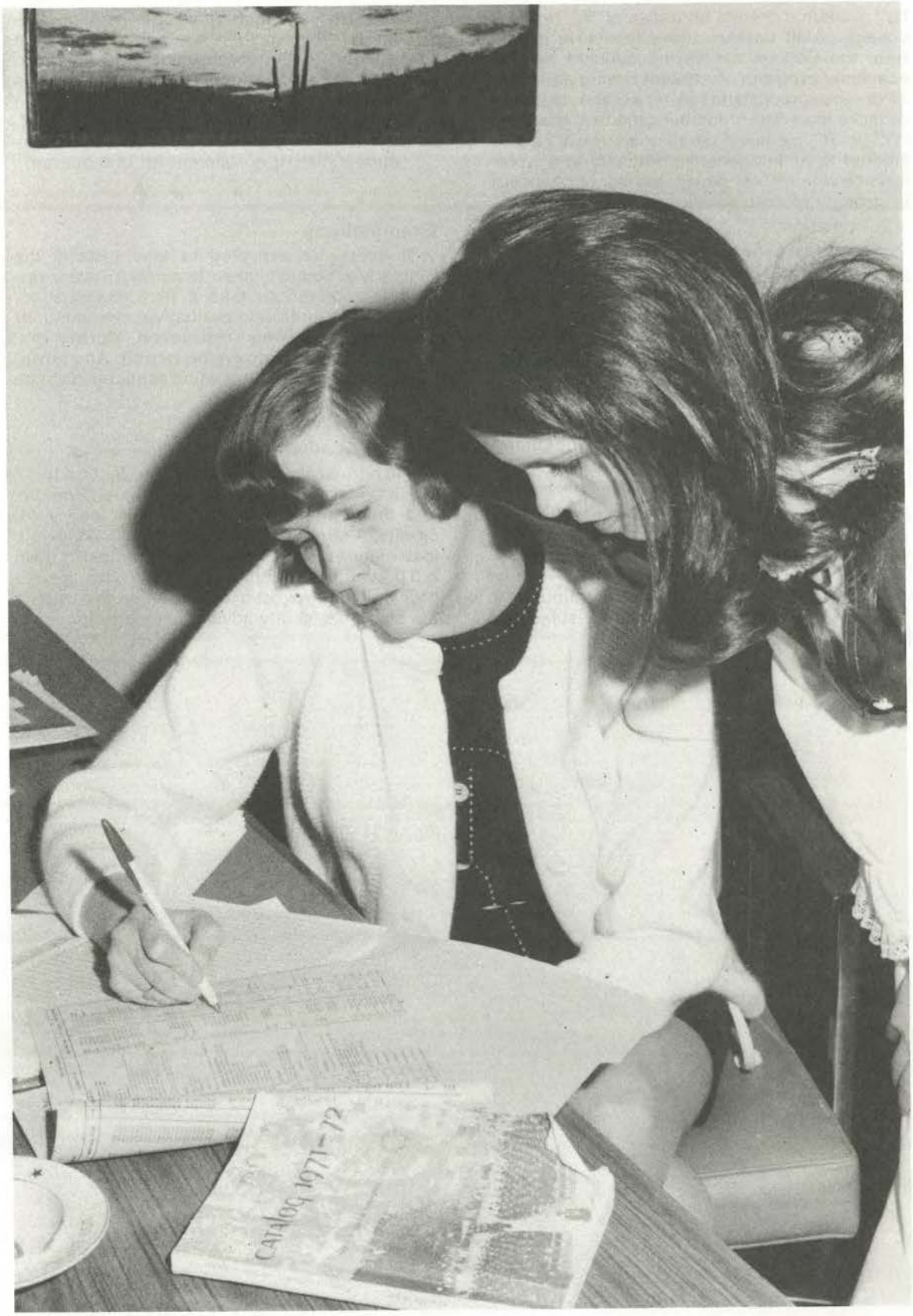
A student failing to respond to the required statement of objectives and continuing to lack academic progress will be subject to suspension. A student will normally be continued on probation no longer than three quarters. Action for an academic suspension by the campus Admissions Committee is considered a college suspension and will be noted on the student's permanent record. Suspension means that a student must terminate his/her enrollment for one quarter.

Examinations

Students are expected to take tests at the regularly scheduled times. In addition, every student is required to take a final examination, receive an appropriate evaluative instrument, or continue receiving instruction during the scheduled final examination period. Any deviation from the final examination schedule must be approved by the Provost.

Normal Academic Load

The normal academic load for students is 15-17 credits. The minimum full-time load is 12 credits and the normal maximum full-time load is 18 credits. A student wishing to carry an academic load of more than 18 credits must ordinarily have a 3.0 average or higher and must have the approval of the Provost or his designee and usually the student's faculty advisor or counselor.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STUDENT SERVICES

The College provides a number of services which are designed to contribute to each student's educational, career, and personal development. These services include counseling, testing, information, faculty advising, financial aid, job placement, health services, student activities, several miscellaneous services and, as described elsewhere in this Catalog, admissions and records. Students are encouraged to take advantage of these services and to feel free to contact, for assistance, the College's Coordinator of Student Services and/or the Dean of Student Services or other staff members of the Student Services Division on each campus.

COUNSELING SERVICES

A staff of one or more professional counselors is available on each Campus to assist students in any facet of their total development whether it be of an educational, career, or personal nature. Interviews with counselors are confidential. Should a student's personal need require assistance beyond the scope of the services of the counselors, referrals will be made to qualified persons.

Counselors can help students explore and develop career goals and appropriate educational plans to achieve these goals. For a new student this may mean planning a developmental program to enable him to become qualified for full admission to one of the curriculums, securing admission to an appropriate curriculum, or planning to transfer to a senior college or university upon completion of his studies at the College. A student who wishes to enroll in a Degree, Certificate or Diploma curriculum plans his first quarter of work at the campus of his choice in consultation with a counselor. Upon selecting a program major with the assistance of a counselor, he is then referred to a faculty advisor who assists him in planning his program of study each succeeding quarter. Students may continue to utilize the educational counseling services of the counselors at any time. A change-of-curriculum is made through a counselor.

The counselors are also specialists in assisting students with their personal and social adjustment and development. In doing this, a counselor may help the student explore the various demands and implications of college life, as well as find meaning for himself as an individual.

In helping students, counselors use appropriate standardized tests and inventories, career, educational and personal information materials, financial aid information, volunteer service placement information, job placement information, and special group programs such as Career Planning Seminars and Personal Exploration Groups.

Counseling services are also made available to citizens of the community on a limited basis.

Testing Services

A testing program available to all students is coordinated by the Counseling Services on each campus. Tests and inventories are available to provide special information for helping students know themselves, their abilities, and their interests. These tests and inventories are administered and interpreted by the counselors at no charge to the student.

Information about national testing programs, such as the "Test of English as a Foreign Language" (TOEFL) and "College Level Examination Program" (CLEP) is also available from the Counseling Services of each campus.

Information Services

1. Orientation

A multi-phased orientation program is offered to new students to assist them in making a success of their college experience at NVCC. The orientation program for regular students begins weeks before registration when the student is asked to meet with a counselor at the College for an interview. In this interview, the student's career and educational interests and goals are explored, the need for any additional tests or other information is determined, his application for admission to a specific curriculum is evaluated, and his first quarter's program of study is planned. As a part of this process, or after admission to a specific curriculum, the student is referred to a faculty advisor for assistance in planning his subsequent program of studies.

The second phase is an Orientation Day, which may be scheduled for all new students prior to registration, for group orientation to the College and a discussion of student services and activities. Some instructional divisions also provide orientation activities for students in selected curricula.

A third phase is an orientation course (GENL 100) which is required of all regular students preferably in their first quarter at the College. This course is taught by the College counselors. Through it students not only gain additional information and experiences to help them succeed at the College but are also given assistance in their educational, career, and personal development. A wide assortment of options are available

to students in this course to provide for individual needs. Counselors serve as facilitators of individual student development so that the college experience is as meaningful and vital as possible for each student.

2. Career, Educational & Personal Information

Students have available in the Counseling Center and in the Learning Resources Center at each campus published materials which supply them with helpful information to make career, educational and personal plans. These include books listing colleges and professional schools and a large collection of current catalogs from many of them. Other books and pamphlets describe the entrance requirements, working conditions, and compensations of thousands of career and job opportunities. Some materials are designed to help students learn how to go about planning their educational and career futures.

3. Student Handbook

A student Handbook is available to provide additional information of interest and importance. The Handbook describes the student activities and organizations. It is important that each student become familiar with the contents of the Student Handbook. Among the many information items of student interest can be found descriptions of: student activities, food services, bookstore information, parking guidelines, statement on student rights and responsibilities, stu-

FACULTY ADVISING

Each student who has been admitted to a specific curriculum through an interview with a counselor is referred in subsequent quarters to a faculty advisor to assist him in planning his program of study each quarter. In order to graduate a student must obtain certification by his faculty advisor that he has met all course requirements for his Degree, Certificate, or Diploma. Regular Students are encouraged to seek information and assistance from their faculty advisors not only in planning their program of study each quarter but also in their career and occupational planning.

Special students are those students who are not enrolled in a specific curriculum major through established placement procedures. They may seek assistance from faculty advisors and counselors for selecting courses during registration periods. When assistance is needed prior to registration, Special Students may seek the help of counselors. Special Students may become Regular Students after submitting all necessary credentials and having an interview with a counselor. After admission to a curriculum they will then be referred to a faculty advisor for further academic advising.

FINANCIAL AIDS

It is the desire of the College that no qualified student be denied the privilege of attendance because of financial need. The Scholarship and Financial Aids Committee—composed of representatives of the administration, the student body and the financial aids and instructional staffs—is appointed by the President of the College for the purpose of providing information concerning aid programs, administering funds granted by donors, determining need, assessing applications and granting awards.

Students wishing to apply for financial aid may secure application blanks from the Financial Aid Officer located on each campus. Application should be made well in advance of the Quarter for which assistance is required.

Work-Study Program

Numerous jobs on campus are available each year under the Work-Study Program. Full-time students who are in financial need may qualify for participation in this program. Application forms are available in the Financial Aids Office on the student's home campus.

Student Loans

Eligible students at Northern Virginia Community College may take advantage of National Direct Student Loans, Nursing Student Loans, Law Enforcement Education Loans and State Assistance Authority Educational Loans. Students who need loans should contact the financial aids officer for information.

There is also a thirty-day-no-interest small loan fund available. This is available for students with immediate and short-term need as determined by the Financial Aids Officer. In addition to demonstrating immediate need, eligible students must give evidence of ability to repay this loan within thirty days. Thus the loan fund becomes "revolving" and available for other students' use. Applications may be secured from the Financial Aids Officer on the student's home campus.

Educational Opportunity Grants

These federally funded Scholarships are available for financially needy students. E.O.G. scholarships are given in conjunction with other types of financial aid. Applications are available in the Financial Aids Office on the student's home campus.

Basic Educational Opportunity Grants

The BEOG program is a federally funded student support program for first-time students attending on a full-time enrollment. The grant award is based on financial need.

College Scholarship Assistance Program

CSAP is a scholarship program provided for full-time, legal residents of Virginia showing financial need to attend a Virginia college. This program is provided through the State Council of Higher Education for Virginia.

PLACEMENT SERVICE

The College maintains placement services for students who wish to secure employment while attending college, during vacations, or after graduation.

The College cooperates with local businesses to assist students in securing part-time employment. An effort is made to place students in fields which relate to their college programs. Students who work more than 20 hours per week are advised to adjust their course loads accordingly. Placement information may be secured from the Placement Officer on each Campus.

STUDENT HEALTH SERVICES

A Student Health Service, staffed by registered nurses is located on the Alexandria, Annandale, Manassas and Loudoun campuses. A nurse is available for individual health counseling, and, for those in need, to refer problems to the appropriate community resources. The nurse on duty provides emergency care for any on-campus illness or injuries.

Two staff members from the Woodburn Center for Community Mental Health Clinic are available for consultations, by appointment, through the Health Services, to assist students, faculty and staff members with problem situations.

A student accident & health insurance policy is available.

STUDENT ACTIVITIES

The student activities program is designed to compliment the instructional program by providing a variety of meaningful, educational, cultural, and social experiences. The Office of the Coordinator of Student Activities assists students and faculty in the planning of extracurricular events and in the development of student organizations. The Student Government provides support to student groups and interested students in the promotion of activities on campus. Student activities and organizations are open to all interested students, faculty and staff.

Those student organizations recognized by the College include:

Campus Student Governments
Phi Delta
Phi Theta Kappa (National Business Fraternity)
Alpha Phi Omega (National Service Fraternity)
American Chemical Society
Anthropology Club
Art Association
Black Student Association
Black Student Union
Bridge Club
Chess Club
Christian Fellowship
College Republicans
Drama Club
Epsilon Kappa Psi (Service Fraternity)
Gamma Sigma Sigma (National Service Sorority)
Ham Radio Club
Harlequin's Cloak Players
HRIM Society
International Club
Lambda Theta Chi (Service Sorority)
Martial Arts
Outing Club
Phi Alpha Epsilon
Phi Beta Lambda (National Business Fraternity)
Physical Education Majors Club
Ski Club
Spanish Club
Student Nurses Association
Tennis Club
Veterans Club

MOBILE INFORMATION AND COUNSELING CENTER

The college maintains a mobile information and counseling unit which visits all seven jurisdictions served. In this way, an effort is made to communicate directly with the citizens of the various communities in an effort to increase awareness of the College's educational programs, activities and services.

VEHICLE REGISTRATION FEE

All students, full or part-time, who wish to use Northern Virginia Community College student parking facilities must register their vehicles with their campus security office. The registration fee is $5.00 per quarter. Vehicles can be registered during registration or during the first week of classes each term.

CHILD CARE CENTERS

Two non-profit Child Care Centers operated by the Northern Virginia Community College Faculty Women's Club enable student-parents to attend college classes while at the same time providing a wholesome child development program for their pre-school aged children from two through six. Under the supervision of a highly qualified staff, the Centers are housed at locations convenient to two of the campuses, the Ravensworth Baptist Church of Annandale and the Culmore United Methodist Church near Bailey's Crossroads. Both Centers serve students

attending one or more campuses and are open Monday through Friday beginning with the first day of classes in the Fall Quarter and continuing until the end of Spring final exam week. Students schedule their children at a Center on a quarterly basis. Hourly and weekly rates are available. Preregistration, including a registration fee, is required. Parent involvement is fostered in all possible ways. Further information and registration packets may be obtained from the Counseling Office of any NVCC campus; also, by telephoning the Annandale Center at 941-1949, and the Culmore Center at 820-6111.

THE LEARNING RESOURCE CENTERS

A Learning Resource Center is designed for each campus, with a Library, Learning Laboratories and Audio-Visual Services.

The total college collection of over 100,000 units of print and non-print materials is accessed through joint union catalogs. Books, periodicals, films, and other resources are loaned among campuses by inter-campus mail couriers.

Library: Open stacks and immediate access to materials are basic to all campuses. Books, newspapers, pamphlets, documents, and other materials are selected primarily for support of the campus instructional programs, as well as for personal intellectual growth and the development of a cultural environment. Extensive use of microforms for information storage and retrieval adds breadth and depth to the resources.

Each campus library offers basic reference and curricular resources and is enriched by access to the total college collection. Staff members provide reference assistance and instruction in the use of the resources.

Learning Laboratories: Instructional design for individualized learning is the major function of the Learning Laboratories. Programmed instruction and audio-tutorial methods are developed and administered by Learning Lab staff. Electronic study carrels are equipped for audio listening and visual projection.

Both specialized and generalized Learning Laboratories are designed to support independent learning within curricular requirements. Trained staff provides access and instruction, administers and grades tests, and provides tutorial services.

Audio-Visual Services: Supports for classroom instruction, community services, library, and learning laboratories are a function of Audio-Visual Services, which also provides assistance in the technological aspects of instructional design. Reprographics and photography have been expanded. Television and other mediated approaches to instruction in all major formats are produced by the Audio-Visual Services.

SCHOLARSHIPS

Private citizens, business agencies, non-profit institutions, and associations have generously donated scholarship awards to the College. These scholarships are either presented in use by, or available for, Northern Virginia Community College students. Many students are selected by the Scholarship and Financial Aids Committee, others by the donor. Some scholarships are continuing in nature while others are temporary. Interested students should see the Financial Aids Officer on their campus for the current availability status of these scholarships.

Bull Run Chapter of the Forty and Eight

A scholarship in the amount of $250, awarded to a student of Nursing.

Daniel F. Hayes Memorial Scholarship

To be awarded to a student in the Health and Public Service Technologies Division.

District of Columbia Dental Society

Scholarships of $250 each to one Dental Assisting and one Dental Laboratory Technology student.

Elizabeth G. Blinebury Memorial Award

This scholarship in the amount of $30 per Quarter is given to a veteran who is a member of the NVCC Veterans Club.

Fairfax County Medical Society Women's Auxiliary

A $225 award for a Nursing student, County resident, having completed two quarters.

Fairfax Education Association

This scholarship of $250 is given to former students of Fairfax County high schools. Application must be made to Organization.

Falls Church Rotary Club

A $760 scholarship for 7 quarters for Nursing students from Falls Church area.

Food Service Executives Association

Scholarships of varying amounts awarded to students in the food service program.

Gretchen Gamble Scholarship Fund

A $100 scholarship to a student in Dental Technology.

IBM Corporation Scholarships

These awards are made to minority group students on the basis of financial need. $2500 to be awarded for 1973-74.

Doctor Lloyd and Elizabeth Iddings Scholarship

Three $125 scholarships to be awarded to students 30 years or older.

Ladies Auxiliary, Virginia Society of Professional Engineers

One scholarship of $275, open to any pre-engineering or engineering technology student attending the College, is to be awarded on the basis of financial need, scholastic aptitude and achievement.

Marriott Foundation

Four scholarships of $250 each annually, given to students in the food service curriculum.

Northern Virginia Board of Realtors

One award of $250 each given to students whose residence is in Northern Virginia and who are majoring in the field of Real Estate.

Northern Virginia Builders Association Auxiliary

Two $250 scholarships preferably for women majoring in Architectural Technology or Interior Design.

Phi Beta Lambda

This scholarship award of $225 is given to a second-year student with 45 credits who is enrolled in the Business Science program, on the basis of scholastic achievement and financial need.

Soroptimist Club of Fairfax County

One scholarship of $250 to be given on the basis of potential as a citizen and financial need.

Springfield Art Guild

Two $100 scholarships for Art majors.

Theta Rho Lambda Chapter, Alpha Phi Alpha

The amount of this annual fund is $700. Scholarships from the fund are awarded on the basis of need.

Virginia Congress of Parents and Teachers

Scholarship recipient selected by Scholarship and Financial Aids Committee.

Virginia Hotel and Motel Association

Scholarships to students in the Hotel, Restaurant and Institutional Management program.

Women's Club of McLean

One scholarship in the amount of $50 to be awarded on the basis of financial need, with preference given to McLean area resident.

AWARDS

Philip Arnow Award in Art

Annual purchase award of $100 for student Art, Annandale Campus.

OTHER SCHOLARSHIPS

There are frequently other funds (e.g., recently donated scholarships) available in addition to those mentioned above. The Scholarship and Financial Aids Committee makes awards from these funds. All divisions and the Financial Aids Officers may nominate students for these and any other scholarships.

VOCATIONAL REHABILITATION

The College cooperates with the State Department of Vocational Rehabilitation in providing education and training for persons with handicaps.

VETERAN'S BENEFITS

The curricula of the College have been approved by the Veterans Administration for the training of eligible veterans, war orphans, and widows under the appropriate Congressional action.

All veterans, widows, and the dependents of qualified veterans who may be eligible for educational benefits should contact the Veterans Administration Regional Office. Initial enrollment applications for educational benefits are available from the Office of Admissions & Records but must be processed by the local V.A. Office. All persons seeking V.A. educational benefits for any given quarter must register and complete the appropriate forms at a specified station during registration for classes. Receipt of benefits in full and on time is dependent on the individual student's attention to these requirements. Full time benefits are available to students who register for and maintain enrollment in twelve or more credits in degree program courses. Questions regarding benefits should be initially directed to the Office of Admissions and Records.

OFFICE OF VETERAN'S AFFAIRS

The College participates in the Veterans Cost of Instruction Program, a federal program

designed to assist Veterans in becoming students and supporting their educational endeavors while enrolled. The OVA coordinates all veterans' related activities for the College. OVA services are found on each campus in the areas of counseling, admissions and records, tutorial assistance and financial aids.

SERVICEMEN'S OPPORTUNITY COLLEGE

Northern Virginia Community College has been identified, by the American Association of Community and Junior Colleges, as a Servicemen's Opportunity College (SOC) and is committed to the concept of providing educational assistance to active-duty servicemen in obtaining their educational goals. A SOC institution offers the following criteria for servicemen:

1. Liberal Entrance Requirement
2. The opportunity for servicemen to pursue educational program goals through courses offered on base, in the evenings, on weekends, and at other non-traditional time frames.
3. Opportunities for servicemen to complete courses through special means or optional non-traditional modes when education is interrupted by military obligations.
4. The aid of special academic assistance.
5. The offering of maximum credit for educational experiences obtained in the armed forces.
   a. USAFI
   b. CLEP
   c. CASE
   (i.e. The major portion of associate degree requirements can be earned through the above non-traditional learning modes.)
6. Residency requirements adaptable to the mobility and special needs of servicemen.
7. The offering of a liberal policy for the transferring of credits from other institutions.
8. The provision of a local advisory council.

INSTRUCTIONAL PROGRAMS

COLLEGE CURRICULA

Applied and Fine Arts
- Majors in:
  - Art Education (A.A. Degree)
  - Art History (A.A. Degree)
  - Commercial Art (A.A.S. Degree)
  - Fine Art (A.A. Degree)
  - Music (A.A. Degree)

Business
- Majors in:
  - Accounting (A.A.S. Degree)
  - Business Administration (A.S. Degree)
  - Business Management (A.A.S. Degree)
  - Data Processing (A.A.S. Degree)
  - Hotel, Restaurant & Institutional Mgt.
    - Specializations in:
      - Hotel/Motel Management (A.A.S. Degree & Certificate)
      - Food Service Management (A.A.S. Degree & Certificate)
      - Dietetic Technician (General) (A.A.S. Degree)
  - Insurance (A.A.S. Degree)
  - Merchandising
    - Specializations in:
      - Fashion Merchandising (A.A.S. Degree)
      - Retail Merchandising (A.A.S. Degree)
      - Supermarket Merchandising (A.A.S. Degree)
  - Real Estate (A.A.S. Degree & Certificate)
  - Secretarial Science
    - Specializations in:
      - Administrative Assistant (A.A.S. Degree)
      - Executive (A.A.S. Degree)
      - Legal (A.A.S. Degree)
      - Medical (A.A.S. Degree)

Engineering Technology
- Majors in:
  - Architecture (A.A.S. Degree)
  - Automotive Technology
    - Specializations in:
      - Diagnostician (A.A.S. Degree)
      - Mechanics (A.A.S. Degree)
  - Automotive Diagnosis & Tune-Up (Certificate)
  - Automotive Machinist (Certificate)
  - Automotive Parts Merchandising (Certificate)
  - Broadcasting (A.A.S. Degree)
  - Building Construction (Certificate)
  - Civil (A.A.S. Degree)
  - Construction Inspection (Certificate)
  - Construction Management (A.A.S. Degree)
  - Drafting and Design (A.A.S. Degree)
  - Electronics (A.A.S. Degree)
  - Engineering (A.S. Degree)
  - Engineering Drafting (Certificate)
  - Mechanical (A.A.S. Degree)
  - Recreation Vehicle - Motorcycle Maintenance (Certificate)
  - Technical Illustration (Certificate)

Educational Services
- Majors in:
  - Early Childhood Development Assistant (Certificate)
  - Early Childhood Development Associate (A.A.S. Degree)
  - *Education (A.S. Degree)
  - Educational Assistant (Certificate)
  - Educational Associate (A.A.S. Degree)

Health Technology
- Majors in:
  - Dental Assisting (Certificate)
  - Dental Laboratory (A.A.S. Degree)
  - Medical Laboratory (A.A.S. Degree)
  - Medical Record (A.A.S. Degree)
  - Nursing (A.A.S. Degree)
  - Occupational Safety and Health (A.A.S. Degree)
  - Physical Therapy (A.A.S. Degree)
  - Respiratory Therapy (A.A.S. Degree)

Liberal and General Studies
- Majors in:
  - *General Studies (A.S. Degree)
  - *Liberal Arts (A.A. Degree)

Public Service Technology
- Majors in:
  - Aviation Technology
    - Specializations in:
      - Air Traffic Control (A.A.S. Degree)
      - Aviation Administration (A.A.S. Degree)
      - Flight Attendant (Certificate)
  - Criminal Justice/Law Enforcement
    - Specializations in:
      - Corrections (A.A.S. Degree and Certificate)
      - Police Science (A.A.S. Degree and Certificate)
      - Security Administration (A.A.S. Degree)
  - Fire Science
    - Specializations in:
      - Administration (A.A.S. Degree and Certificate)
      - Investigation (A.A.S. Degree and Certificate)
      - Management (A.A.S. Degree and Certificate)
  - Recreation and Parks

Science
- Majors in:
  - Horticulture (A.A.S. Degree)
  - Science Technology (A.A.S. Degree and Certificate)
  - *Science (A.S. Degree)

*The first two year requirements for all specialty or major areas of study toward a baccalaureate degree or first professional degree can be met by this transfer oriented curricula.

DEVELOPMENTAL STUDIES PROGRAM

The Developmental Studies Program provides, for students who are not fully prepared for a degree curriculum, an opportunity to obtain the basic skills, knowledges and educational experiences needed for success in the entry-level courses of the College's various programs. Developmental courses are offered in biology, chemistry, English composition, reading, mathematics, and physics. These courses employ a wide variety of instructional methods, materials, and equipment so that students may develop, by the most effective educational means, the specific skills they require. Students may enroll in one-quarter lecture/discussion courses or in individualized courses which allow each student to progress at his own rate. In the latter, students may complete the course at any time they can demonstrate mastery of the minimum required skills.

Students in the Developmental Studies Program may take all of their work at the developmental level, or they may include degree-level courses for which they are qualified. Credits earned in the latter may be transferred to a degree curriculum (if the credits are applicable) upon admission to the curriculum.

Students are urged to consult with the Counseling Services of the College in planning their programs and selecting their courses.

Developmental Studies Program
(Example)*

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL 01	Verbal Studies Lab	5	5	5
ENGL 08	Reading Improvement	5		
MATH 01	Developmental Math	5	5	5
GENL 100	Orientation	1		
PSYC 110	Principles of Applied Psychology		3	
PHED 100	Fundamentals of Physical Activity		1	
PHED	Physical Education Elective			1
NASC 100	Survey of Science			4
	Total Credits	16	14	15

* Courses will vary according to the individual needs of the student. The program illustrated above would be typical for a student needing three quarters to achieve desired skill-levels in English and mathematics.

CONTINUING EDUCATION AND COMMUNITY SERVICE PROGRAMS

In order to fulfill the ever-increasing educational needs of the community, the Northern Virginia Community College offers a well-planned diversified program which includes the following: (1) An opportunity to pursue degree programs, diploma programs, certificate programs and college credit courses six days a week between the hours of 7:30 A.M. until 11:00 P.M.; (2) Classes, forums, lectures, exhibits, short courses, art festivals and music festivals to promote cultural affairs of the community; (3) Various community development programs and seminars which focus attention on social issues; (4) An offering of non-catalogued special courses or programs to the community's several industries, businesses, or professions, directed and taught at the College or at the client's site by the faculty and staff of the College; (5) Special services such as use of College facilities, tours and visits, and others as they are needed.

CONTINUING EDUCATION UNIT

Continuing Education Units (CEU) will be awarded for certain designated community service courses or program offerings meeting the following standards:

a. The non-credit activity is planned in response to an assessment of educational needs for a specific target population.
b. There is a statement of objectives and rationale.
c. Content is selected and is organized in a sequential manner.
d. There is evidence of pre-planning.
e. The activity is instructional and is approved by an academic or administrative unit of the institution best qualified to affect the quality of the program content and to approve the resource personnel utilized.
f. There is provision for registration for individual participants.
g. Evaluation procedures are utilized, and criteria are established for awarding Continuing Education Units to individual students prior to the beginning of the activity.

One Continuing Education Unit represents ten contact hours of participation in an organized educational experience under responsible sponsorship, capable direction, and qualified instructor. (A decimal fraction of a unit may be awarded for an offering of shorter duration.)

COOPERATIVE EDUCATION PROGRAM

Cooperative Education is an academic program designed to provide the student with actual, valuable, and practical work experience which carries college credit for a supervised, paid, learning program with a participating employer. The main objective of Co-op is to bridge the gap between theory and practice by allowing the student to apply skills learned on campus to practical on-the-job learning situations. It is generally up to the individual student to determine if Co-op will enhance his particular academic program, with the cooperation and advisement of the student's faculty advisor and the coordinator for the Cooperative Education program. Students enrolled in Co-op will gain valuable experience not only in the actual

job functions, but also in their introduction to the world of work. The qualifications for participation in the Co-op program are:

1. A student should have a clearly stated set of career goals related to the potential work experience, and must be enrolled in a degree program in the curriculum under which the Co-op work experience falls, or otherwise be in a position to benefit from a career exploration work experience.
2. A student must have a 2.0 grade point average before he may enroll in the Co-op program.
3. A student must have approximately 30 quarter hours of course work, or the equivalent of two full quarters of college work in his curriculum before entrance into the program.
4. A student must be hired by an approved Co-op employer before enrollment into the program. In any case, a student must be approved in writing from the Co-op program coordinator before he may register for Co-op credit.

Credits earned in an approved Cooperative Education program may be substituted for up to 15 hours of course work in the student's total curriculum. Specific course substitution must be approved by the faculty advisor.

The following instructional areas are participating in the Co-op program at the College:

1. Business
2. Health & Public Service
3. Engineering Technology
4. Humanities

For further information, contact your campus Cooperative Education Office.

SPECIAL TRAINING PROGRAMS

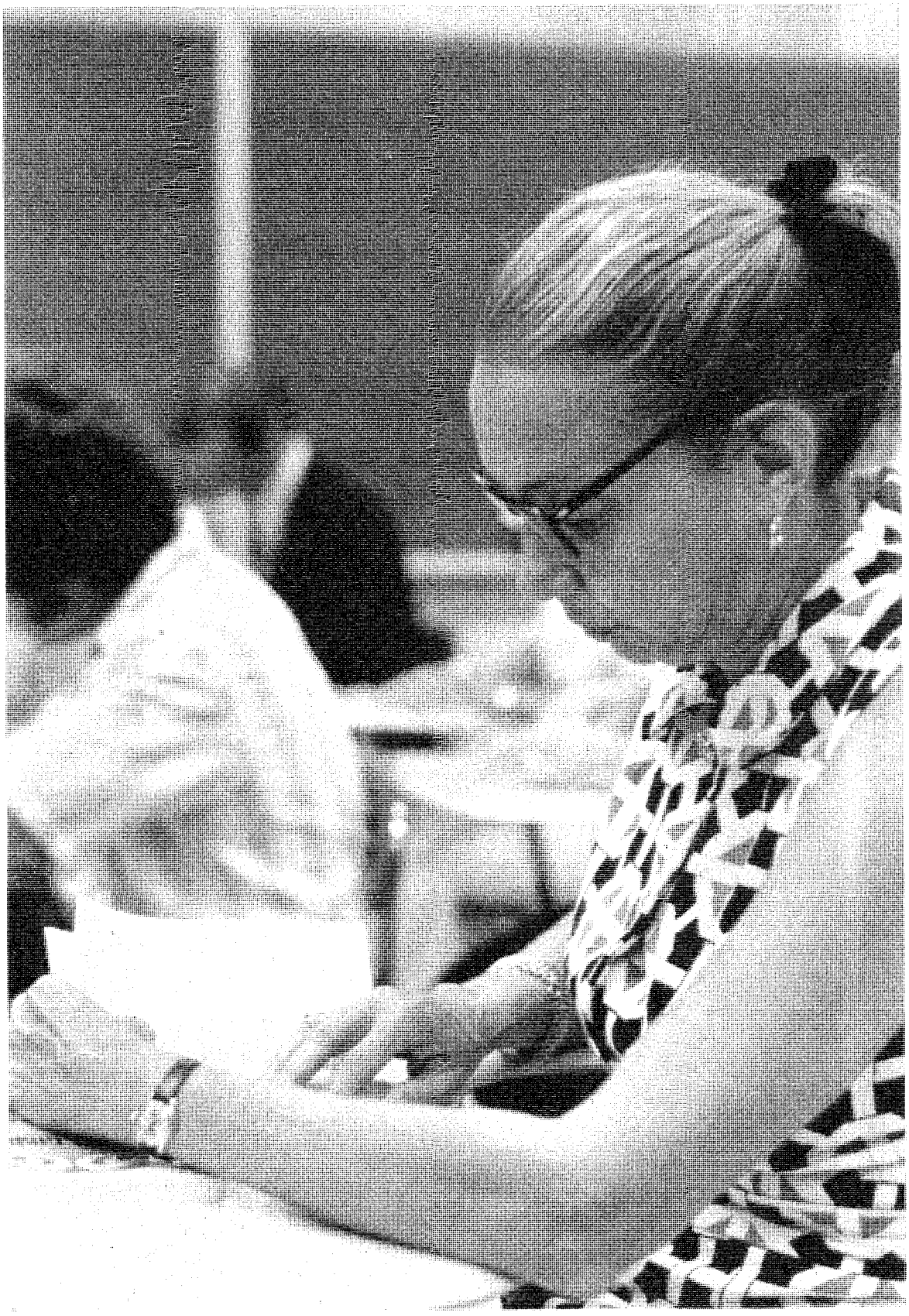
Northern Virginia Community College works closely with the Special Training Division of the Virginia Department of Community Colleges in setting up training programs for industries and businesses that are expanding their facilities or are locating in Virginia for the first time.

Under these programs Virginians are trained in the basic skills required by a wide variety of job opportunities.

A few skills that have been taught by the Special Training Division include sewing operations, welding, electronics, motor winding, furniture construction, electronic assembly, shoe manufacturing, telephone assembly, paper manufacturing, candy making, printing, metal forming, tire manufacturing, supervisory development and machine operation.

Space, where needed, and qualified instructors are provided at State expense.

Further information may be obtained from the Director of Continuing Education and Community Service Programs or the Special Training Division, Virginia Department of Community Colleges, Richmond, Virginia 23219.



CURRICULA OF STUDY

GENERAL INFORMATION PERTAINING TO CURRICULA

In the following section, the degree, diploma, and certificate curricula are listed. They are arranged in alphabetical order according to title of the major or speciality area of study. Each curriculum listing:

1. Provides information concerning occupational or transfer objectives;
2. States special curriculum admission requirements, if any, beyond those for admission to the college;
3. Specifies the required courses and minimum number of hours for completion;
4. Suggests a sequence for taking courses;
5. Provides an outline to follow for completion of the curriculum with full time study.

GENERAL REQUIREMENTS FOR A.A.S. DEGREES

Major Courses and Credit requirements:

1. Approximately 50% of the courses or credit hours in all A.A.S. degree curricula are in the given major area of study.
2. Approximately 25% of the courses or credit hours are in closely related and supporting areas.
3. The **total** number of credit hours required for each curriculum is specified with the minimum number for any degree being 97 credits.

General Education Courses for A.A.S. Degrees.

Each degree curriculum contains a minimum of 25% of the total credit hours in general education areas. Those areas include Humanities, Social Science, Mathematics and Natural Science. *Some substitutions within the Humanities and Social Science areas are allowed for the A.A.S. Degree.* These are as follows:

1. *English* (total of 9 credits required)
   - Alternative A - ENGL 101-102 Communication Skills I-II (6 cr.) *AND* SPDR 136 Oral Communications (3 cr.) *OR* ENGL 137 Technical Writing (3 cr.) *OR* ENGL 180 Business English (3 cr.).
   - Alternative B. - ENGL 111-112-113 English Composition (9 cr.)

   Alternative B may be substituted for Alternative A with approval of counselor or advisor. The courses should be taken in the sequence stated in the given alternatives.
2. *Social Science* (total of 9 credits required)
   - Alternative A - GOVT 180 American Constitutional Government (3 cr.) *AND* ECON 160 American Economics (3 cr.) *AND* PSYC 110 Principles of Applied Psychology (3 cr.)
   - Alternative B - SOSC 101-102-103 Contemporary American Civilization I-II-III (9 cr.)

   Alternative A or B may be taken to satisfy the Social Science requirement for an A.A.S. Degree and they need not be taken in the sequence listed in either alternative.

Special Requirements for A.A.S. Degrees:

1. GENL 100 Orientation (total of 1 credit)
2. PHED Physical Education (total of 3 credits)

   PHED 100 Fundamentals of Physical Activities is required. The remaining 2 credits may be selected from the various 1 credit hour activity courses.

Course Level Requirement

Only courses designated with 100 level and above numbers are counted toward degree requirements.

GENERAL REQUIREMENTS AND ELECTIVES FOR A.A. AND A.S. DEGREES

Elective Requirements

Specified electives are sometimes given according to discipline area requirement. The exact course to be taken is to be chosen with approval of counselor or advisor.

Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated. A full year's sequence of courses is generally easier to transfer than only 1 or 2 quarters of a sequence. Quarter hour and semester hour equivalencies should be calculated if transfer is contemplated to an institution operating on the semester system.

Mathematics Requirement

Mathematics courses for transfer purposes should be selected from one of the following course sequences:

1. For *Non-Science, Non-Mathematics, and Non-Engineering Majors:*
   MATH 191-192-193 Finite Mathematics
   MATH 161-162-163 College Mathematics
   MATH 181-182-183 General College Mathematics
   MATH 141-142-143 Introductory Mathematical Analysis

2. For *Science, Mathematics, and Engineering Majors:*
   MATH 141-142-143 Introductory Mathematical Analysis
   MATH 161-162-163 College Mathematics

Foreign Language Requirement for A.A. Degree in Liberal Arts

Students who wish to receive an Associate in Arts Degree in Liberal Arts must demonstrate proficiency in one foreign language through the intermediate level, either by examination or by completion of course work. Students who have previously studied a foreign language and who wish to continue the same language must make arrangements with the foreign language faculty of the Humanities Division to take a placement test. Students who have successfully completed (within the last two years) the second level in High School of a foreign language should not enroll in 101-102-103 of the same language. They should take 106 or 201, depending on the results of their placement test.

Humanities Requirement

Humanities courses for transfer purposes may be selected from the following fields: Music, Art, Drama, Language, Philosophy, Speech or English. The Humanities course sequence selected should be the one acceptable to the four-year College or University to which transfer is contemplated.

Social Science Requirement

Social Science courses for transfer purposes may be selected from the following fields: Economics, Geography, Government, History, Psychology, Social Science, or Sociology. Anthropology may be found listed as a Sociology course. The social science course sequence selected should be the one acceptable to the four-year College or University to which transfer is contemplated.

Natural Science Requirement

Natural Science courses (with labs) for transfer purposes may be selected from the following fields:

1. For *Science Majors:* Biology, Chemistry, Physics and Geology.
2. For *Non-Science Majors:* Biology, Chemistry, Physics and Geology and the Natural Science 121-122-123 course sequence.

Special Requirements for A.A. and A.S. Degrees

1. GENL 100 Orientation (total of 1 credit)
2. PHED Physical Education (total of 3 credits)
   PHED 100 Fundamentals of Physical Activities is required. The remaining 2 credits may be selected from the various one credit hour activity courses. The physical education requirement of the institution to which transfer is contemplated should be completed prior to transfer if at all possible.

Course Level Requirement

Only courses with 100 level or above numbers are counted toward degree requirements.

Minimum Credit Requirements

A minimum of 97 credits is required for an A.S. or A.A. degree.

GENERAL REQUIREMENTS FOR CERTIFICATE CURRICULA

1. The total minimum number of credits required for the given certificate is specified for each curriculum.
2. All major courses and possible substitutions are given with each curriculum.
3. The required general education component is incorporated in each curriculum listing.

CURRICULA OF STUDY - Campus Location

The curricula of Study are included in the following section of the Catalog in alphabetical order by title. General Education and special (degree requirement) courses for all curricula are offered on all campuses of the College. Highly specialized courses required for some of the A.A.S. degree and certificate curricula are not offered on all campuses. Those campuses offering all of the major courses needed for a given occupational - technical A.A.S. degree or certificate curricula are noted in the following list. Courses for the Associate in Arts and Associate in Science degree curricula are offered at all campuses of the College.

Accounting (A.A.S.)
Architectural Technology (A.A.S. - Alexandria & Annandale)
Art/Commercial Art (A.A.S. - Alexandria & Loudoun)
Art Education (A.A.)
Art/Fine Art (A.A.)
Art History (A.A.)
Automotive Diagnosis and Tune-up (Certificate - Alexandria)
Automotive Machinist (Certificate - Alexandria)
Automotive Parts Merchandising (Certificate - Alexandria)
Automotive Technology/Diagnositican (A.A.S. - Alexandria)
Automotive Technology/Mechanics (A.A.S. - Alexandria & Manassas)
Aviation Technology/Air Traffic Control (A.A.S. - Manassas)
Aviation Technology/Aviation Administration (A.A.S. - Manassas)
Broadcast Engineering Technology (A.A.S. - Annandale)
Building Construction Technology (Certificate - Alexandria & Manassas)
Business Administration (A.S.)
Business Management (A.A.S.)
Civil Engineering Technology (A.A.S. - Annandale)
Construction Inspection (Certificate - Manassas)

Construction Management Technology (A.A.S. - Manassas)
Corrections Science (A.A.S. & Certificate)
Data Processing (A.A.S.)
Dental Assisting (Certificate - Annandale)
Dental Laboratory Technology (A.A.S. - Annandale)
Drafting and Design Technology (A.A.S. - Alexandria - Manassas)
Early Childhood Development Assistant (Certificate - Alexandria)
Early Childhood Development Associate (A.A.S. - Alexandria)
Educational Assistant (Certificate - Alexandria)
Educational Associate (A.A.S. - Alexandria)
Education (A.S.)
Electronics Technology (A.A.S. - Annandale)
Engineering (A.S.)
Engineering Drafting (Certificate - Alexandria - Annandale - Manassas)
Fire Science (A.A.S. & Certificate)
Flight Attendant (Certificate - Manassas)
General Studies (A.S.)
Horticulture Technology (A.A.S. - Loudoun)
Hotel, Restaurant and Institutional Management/Dietetic Technician (General) (A.A.S. - Annandale)
Hotel, Restaurant and Institutional Management/Food Service (A.A.S. & Certificate - Annandale)
Hotel, Restaurant and Institutional Management/Hotel-Motel Management (A.A.S. & Certificate - Annandale)
Insurance (A.A.S. - Alexandria)
Liberal Arts (A.A.)
Mechanical Engineering Technology (A.A.S. - Annandale)
Medical Laboratory Technology (A.A.S. - Alexandria)
Medical Record Technology (A.A.S. - Annandale)
Merchandising (A.A.S.)
Music (A.A.)
Nursing (A.A.S. - Annandale)
Occupational Safety and Health Technology (A.A.S. - Alexandria)
Physical Therapist Assistant (A.A.S. - Annandale)
Police Science (A.A.S. & Certificate)
Real Estate (A.A.S. & Certificate - Annandale)
Recreation and Parks (A.A.S. - Loudoun)
Recreation Vehicle - Motorcycle Maintenance (Certificate - Alexandria)
Respiratory Therapy (A.A.S. - Annandale)
Science (A.S.)
Science Technology (A.A.S. & Certificate - Alexandria)
Secretarial Science/Administrative Assistant (A.A.S.)
Secretarial Science/Executive Secretary (A.A.S.)
Secretarial Science/Legal Secretary (A.A.S.)
Secretarial Science/Medical Secretary (A.A.S.)
Security Administration (A.A.S.)
Technical Illustration (Certificate - Alexandria)

ACCOUNTING

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek full-time employment in the accounting field or for those presently in accounting who are seeking promotion. The occupational objectives include: Accounting Trainee/Accounting Technician/Junior Accountant/Accountant.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information see page 32 .

Accounting Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
[1]ACCT 111-112-113 Acct.	4	4	4
BUAD 100 Intro. to Bus.	3		
MATH 151-152-153 Bus. Math. or BUAD 101-102-103	3	3	3
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Comm.			3
GENL 100 Orientation	1		
BUAD 164-165 Prin. of Bus. Mgt.		3	3
PHED 100 Fund. of Phys. Act.		1	
DAPR 106 Prin. of Data Proc.		3	
DAPR 147 Comp. Prog. - COBOL (or Bus. Elect.)			3
*ECON 160 Amer. Econ.	3		
Total Credits	17	17	16
(Second Year)			
ACCT 221-222-223 Inter. Acct.	4	4	4
BUAD 241-242 Bus. Law	3	3	
BUAD 254 Appl. Bus. Stat.	3		
BUAD 246 Bus. Finance (or Bus. Elect.)	3		
ACCT 234 Cost. Acct.		3	
ACCT 244-245 Bus. Taxes		3	3
ACCT 229 Auditing (or Bus. Elect.)			3
ACCT 298 Sem. & Proj.			3
*PSYC 110 Prin. of Appl. Psyc.	3		
*GOVT 180 Amer. Const. Gov.		3	
PHED Electives	1		1
Total Credits	17	16	14

Total minimum credits for Accounting Major - A.A.S. Degree = 97

*Substitues for English and Social Science courses for an A.A.S. Degree are listed on page 35.

[1]ACCT 211-212-213 may be substituted for ACCT 111-112-113 with approval of division. Three additional hours will be required to meet degree requirements if ACCT 211-212-213 is selected.

ARCHITECTURAL TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: This curriculum is designed to prepare students for full-time employment in architectural offices or elsewhere in the construction industry. The occupational objectives include: Architectural Draftsman, Designer, Field Inspector, Specification Assistant / Urban, Design & City Planning Draftsman/Building Inspector/Building Materials Sales Representative.

Special Curricular Admission Requirements Proficiency in high school Algebra and Geometry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Architectural Technology Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
GENL 100 Orientation	1		
*ENGL 101-102 Comm. Skills	3	3	
*ENGL 137 Tech. Writing			3
MATH 121-122 Engr. Tech. Math	5	5	
ARCH 100 Intro. to Arch. or ARCH 204	3		
ARCH 111-112-113 Arch. Draft.	3	3	3
ARCH 141-142 Matl. & Meth. of Constr.		3	3
ENGR 151 Mechanics (Statics)			4
PHED 100 Fund. of Phys. Act.			1
*Soc. Sci. Elect.	3	3	3
Total Credits	18	17	17
(Second Year)			
PHYS 101-102 Intro. Physics	4	4	
ENGR 152; 154 Mech. (Strength); Mech. Lab	4		
PHED Phys. Act. Elect.		1	1
ARCH 236 Bldg. Elec. Equip.	3		
ARCH 237 Bldg. Mech. Equip.		3	
ARCH 211-212-213 Arch. Draft.	3	3	3
ARCH 210 Site Plan.	3		
ARCH 276 Constr. Est.		3	
ARCH 277 Bldg. Codes & Contract Doc.			3
ARCH 279 Critical Path Meth. Prog.			3
ARCH Sem. & Proj., Coop. Ed. or ARCH 205			2-3
Tech. Elect.		3	3-5
Total Credits	17	17	15-17

Total Minimum Credits for Architectural Technology Major - A.A.S. Degree = 101

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

ART/COMMERCIAL ART

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek full time employment in the Commercial Art field immediately upon completion of the program. The occupational objectives include: Commercial Artist/Designer/Illustrator/Photographer.

Special Curriculum Admission Requirements: Proficiency in high school English and a satisfactory aptitude for drawing. Applicants may be required to submit a portfolio before final admission is granted.

Special Curriculum Completion Requirements: After completion of the first year the students' work will be reviewed to ascertain that development is sufficient to ensure success in the Commercial Art field. The student will then choose an area of concentration for the second year from one of the following fields: Advertising Design, Illustration or Photography.

Commercial Art Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ARTS 154-155-156 Design	3	3	3
ARTS 111-112-113 Hist. and Appre. of Art	3	3	3
ARTS 124-125-126 Drawing	4	4	4
ARTS 170 Intro. to Graphic Skills	3		
ARTS 171 Typography		3	
ARTS 180 Intro. to Photo.			2
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Comm.			3
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 1 Elect.		1	1
Total Credits	17	17	16
(Second Year)			
ARTS 261-262-263 Ad. Design	3	3	3
*SOSC Soc. Sci. Elec.	3	3	3
PHED Phys. Act. Elect.		1	
†AREA OF CONCENTRATION (CHOOSE ONE BELOW)	9-12	9-11	9-11
Total Credits	15-18	16-18	18

Total Minimum Requirements for Commercial Art Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

†AREAS OF CONCENTRATION IN THE SECOND YEAR

ADVERTISING DESIGN: Required: Typography (3-6 cr.), Graphic Techniques (6-9 cr.). Electives to be selected from Design, Illustration, Photography, Filmmaking, Silkscreen, Painting. Other electives with divisional permission.

ILLUSTRATION: Required: Illustration (9 cr.), Graphic Techniques (3-6 cr.). Electives to be selected from Painting, Design, Advanced Drawing, Silkscreen, Photography, Typography. Other electives with divisional permission.

PHOTOGRAPHY: Required: Advanced Photography (9 cr.), Photojournalism (3 cr.), Film-making (3 cr.), History of Photography (3 cr.). Electives to be selected from Silkscreen, Graphic Techniques, Illustration, Painting. Other selectives with divisional permission.

ART EDUCATION

ASSOCIATE IN ARTS DEGREE

Purpose: The Associate in Arts in Art Education major curriculum is designed for students who plan to transfer to a four-year program in a professional art school or to a college or university baccalaureate degree program in Art Education.

Special Curriculum Admission Requirements: Entry into the Art Education Curriculum requires a satisfactory aptitude in visual art and applicants may be required to submit a portfolio for placement. Students with deficiencies in English will require Developmental Studies.

Art Education Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ARTS 111-112-113 Hist. & Appre. of Art	3	3	3
ARTS 124-125-126 Drawing	4	4	4
ARTS 154-155-156 Design	3	3	3
ENGL 111-112-113 Eng. Comp.	3	3	3
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 2 Elect.		1	1
[1]Soc. Sci. Elect.	3	3	3
Total Credits	17	17	17
(Second Year)			
ARTS 251-252-253 Adv. Design	3	3	3
ARTS Approved Studio Elect.	4	4	4
ENGL Amer., Eng., or World Lit.	5		
PHED Phys. Act. Elect.			1
[2]Nat. Sci. (with Lab.)	4	4	4
[3]Electives		4	3
Total Credits	16	15	15

Total minimum Credits for Art Education Major - A.A. Degree = 97

[1]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

[2]Science courses may be selected from Biology, Chemistry, Physics, Geology or the Natural Science 121-122-123 course.

[3]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

ART/FINE ART

ASSOCIATE IN ARTS DEGREE

Purpose: The Associate in Arts in Fine Arts Major curriculum is designed for students who plan to transfer to a four-year program in a professional school or to a college or university baccalaureate degree program in Fine Arts.

Special Admission Requirements: Entry into Fine Arts or Art Education requires a satisfactory aptitude in visual art, and applicants may be required to submit a portfolio for placement. Students with deficiencies in English will require Developmental Studies.

Fine Arts Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ARTS 111-112-113 History & Appre. of Art	3	3	3
ARTS 124-125-126 Drawing	4	4	4
ARTS 154-155-156 Design	3	3	3
ENGL 111-112-113 Eng. Comp.	3	3	3
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 1 Elect.		1	1
[1]Soc. Sci. Elect.	3	3	3
Total Credits	17	17	17
(Second Year)			
ARTS 227-228-229 Adv. Drawing	3	3	3
ARTS 251-252-253 Adv. Design	3	3	3
ARTS Approved Studio Elect.	4	4	4
ENGL Amer., Eng. or World Lit.	5		
PHED Phys. Act. Elect.		1	
[2]Electives		5	5
Total Credits	15	16	15

Total minimum credits for Fine Arts Major - A.A. Degree = 97

[1]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

[2]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

ART HISTORY

ASSOCIATE IN ARTS DEGREE

Purpose: The Associate of Arts in Art History Major curriculum is designed for students who plan to transfer to a college or university baccalaureate degree program in Art History.

Special Curriculum Admission Requirements: Students with deficiencies in English will require Developmental Studies

Art History Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ARTS 111-112-113 Hist. & Appre. of Art	3	3	3
ARTS 124-125-126 Drawing	4	4	4
ARTS 154-155-156 Design	3	3	3
ENGL 111-112-113 Eng. Comp.	3	3	3
GENL 100 Orientation			
PHED 100 Fund. of Phys. Act. & 1 Elect.		1	1
[1]Soc. Sci. Elect.	3	3	3
Total Credits	17	17	17
(Second Year)			
ARTS 200 Intro. to Prim. Arts or approved Art Hist. Elect.	3		
PHIL 216 Aesthetics or Approved Art Hist. Elect.		3	
ARTS 206 Growth of Amer. Art or approved Art Hist. Elect.			3
ART 211-212-213 Painting or approved Studio Elect.	4	4	4
ENGL 271-272-273 World Lit.	3	3	3
[2]Foreign Language	4	4	4
Phys. Act. Elect.	1		
[3]Elective		3	
Total Credits	15	17	14

Total minimum credits for Art History Major - A.A. Curriculum = 97

[1]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

[2]The Language course may be either the first or second year sequence depending on the student's prior knowledge. French and German are preferred.

[3]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

AUTOMOTIVE DIAGNOSIS AND TUNE-UP

CERTIFICATE

Purpose: The curriculum is designed to provide theory and experience and further development for mechanics not having had other educational automotive training. Also to provide a one-year entry program for students desiring automechanics training in diagnosis and tune-up. The occupational objectives include: Tune-up Technician/Service Station General Repair.

Special Curriculum Admission Requirements: Automotive shop or equivalent.

Automotive Diagnosis and Tune-Up Curriculum

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
[1]AUTO 100 Auto Shop Pract. & Safety	3		
AUTO 284-285 Auto Ser. Proc. & Tune-Up	3	3	
AUTO 121-122 Auto Fuel Systems	4	4	
ENGL 101-102 Comm. Skills	3	3	
MATH 118 Intro. to Tech. Math		5	
AUTO 267 Suspension & Braking			4
AUTO 268 Auto Alignment			2
DRFT 144 Auto Drawing Inter.			2
AUTO 198 Sem. & Proj.			2
PSYC 128 Human Relat.			3
Total Credits	13	15	13

Total minimum credits for Auto Diagnosis and Tune-Up Major-Certificate= 41.

[1]Pre or Co-Requisite to all automotive shop courses

AUTOMOTIVE MACHINIST

CERTIFICATE

Purpose: This curriculum includes the necessary theory and machine shop experience to bring the beginning students to a level of competency so that they are ready for full-time employment as beginning automotive machinists or heavy equipment machinist. The occupational objectives include: Automotive Machinists/Motorcycle Engine Machinist.

Special Curriculum Admissions Requirements: Automotive shop or equivalent.

Cooperative Education: Students in this curriculum will obtain on-the-job experience through the Cooperative Education Program. For further information, see page 32.

Automotive Machinist Curriculum

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
[1]AUTO 120 Intro. to Auto Mach. Shop	4		
AUTO 107 Disassembly & Inspect.	3		
ENGL 101 Comm. Skills	3		
MATH 118Intro. to Tech. Math	5		
AUTO 118 Auto Turning Oper.		4	
AUTO 114 Auto Cyl. Block Serv.		4	
HLTH 146 Occup. Injury		3	
Humanities or Soc. Sci. Elect.		3	
AUTO 115 Cyl. Head Ser.			4
AUTO 119 Crankshaft, Camshaft, & Connect. Rod Serv.			4
AUTO 109 Fabr. Tech.			3
AUTO 197 Coop. Ed.			3
Total Credits	15	15	14

Total minimum credits for Automotive Machinist Major-Certificate = 43

Pre or Co-requisite to all auto machinist courses.

AUTOMOTIVE PARTS MERCHANDISING

CERTIFICATE

Purpose: The curriculum is designed to train automotive parts salespeople by providing experience in auto-mechanics, merchandising and parts management. Occupational objectives include: Auto Parts Clerk/Auto Counterman/Auto Parts Deliveryman.

Special Curriculum Admission Requirements: One year high school shop program or equivalent.

Cooperative Education: Students in this curriculum will obtain on-the-job experience through the Cooperative Education Program. For further information, see page 32 .

Automotive Parts Merchandising Curriculum

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
[1]AUTO 100 Auto. Shop Pract. & Safety	3		
AUTO 121 Auto Fuel Sys.	4		
AUTO 284-285 Auto Serv. Proced. & Tune-Up	3	3	
SPDR 136 Oral Comm.	3		
AUTO 201 Auto Sys. Tech.	4		
AUTO 134-135 Auto Inside-Outside Salesman		3	3
AUTO 197 Coop. Ed.		3	3
BUAD 100 Intro. to Bus.		3	
PSYC 128 Human Relat.		3	
AUTO 267 Suspen. & Braking			4
ECON 160 Amer. Econ.			3
AUTO 136 Lub. & Cooling			3
Total Credits	17	15	16

Total minimum credits for Automotive Parts Merchandising Major-Certificate = 48

[1]AUTO 100 must be taken prior to or concurrent with any auto laboratory course.

AUTOMOTIVE TECHNOLOGY/DIAGNOSTICIAN

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to train and develop diagnosticians, technicians, and junior managers in the automotive field. People completing this program will be ready for full-time employment as automotive diagnosticians, technicians, customer service representatives, service managers and tune-up specialists.

Special Curriculum Admission Requirements: Students must pass an automotive proficiency exam or successfully complete AUTO 017.

Automotive Diagnostician Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
[1]AUTO 100 Auto Shop Pract. & Sfty.	3		
AUTO 101 Auto Sys. Tech.	4		
AUTO 181 Auto Diag. Tech.	3		
GENL 100 Orientation	1		
MATH 118-119 Intro. to Tech. Math	5	5	
*ENGL 101-102 Comm. Skills		3	3
PHED 100 Fund. of Phys. Act & 2 Elect.	1	1	1
*GOVT 180 Amer. Const. Govt.			3
AUTO 121-122 Auto Fuel Sys.		4	4
AUTO 241-242 Auto Elec.		4	4
Total Credits	17	17	15
(Second Year)			
AUTO 201-202-203 Auto Sys. Tech.	4	4	4
AUTO 281-282 Auto Diag. Tech.	3	3	
PSYC 128 Human Relat.	3		
Electives	3	3	7
*ENGL 137 Technical Writing	3		
[2]AUTO 287-288 Shop Mgt. Cust. Relat.		3	3
*ECON 160 Amer. Econ.	3		
AUTO 298 Sem. & Proj.			2
Total Credits	16	16	16

Total Minimum Credits for Automotive Diagnostician Major - A.A.S. Degree = 97

[1]Pre or Co-Requisite to all automotive shop courses.

[2]Business courses, cooperative education or AUTO 134-135 may be substituted.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35. .

AUTOMOTIVE TECHNOLOGY/MECHANICS

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: This is an occupational-technical program designed to train automotive mechanics through classroom and practical experience to employment readiness for independent or dealership work in the following areas: Line Mechanic/New Car Make-ready/Tune-Up Specialist/Diagnostician.

Special Curriculum Admission Requirements: Auto shop or equivalent.

Automotive Mechanics Curriculum

(First Year)

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
[1]AUTO	100 Auto Shop Prac. & Sfty.	3		
AUTO	111-112-113 Auto Engines	4	4	4
AUTO	121-122 Auto. Fuel Systems	4	4	
*ENGL	101-102 Comm. Skills		3	3
MATH	118-119 Intro. to Tech. Math	5	5	
AUTO	116 Auto Machine Lab.			3
DRFT	144 Auto Drawing Inter.			2
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act & 1 Elect.		1	1
*GOVT	180 Amer. Const. Govt.			3
		17	17	16

(Second Year)

AUTO	241-242-243 Auto Elec. Sys.	4	4	4
AUTO	151-152 Power Trains	4	4	
*SPDR	136 Oral Comm.	3		
PSYC	128 Human Relations	3		
AUTO	238 Auto Air Cond.		3	
PHED	Phys. Act. Elect.		1	
*ECON	160 Amer. Econ.		3	
AUTO	267 Auto Suspension & Braking			4
AUTO	298 Sem. & Proj.			2
	Elect.	3	5	6
	Total Credits	17	15	15-16

Total Minimum Credits for Automotive Mechanics Major - A.A.S. Degree = 97

[1]AUTO 100 required prior to or concurrent with any auto laboratory course.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

AVIATION TECHNOLOGY/AIR TRAFFIC CONTROL

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare students for entry into the occupational field of Air Traffic Control for employment and advancement training with the Federal Aviation Administration (FAA). Successful completion of the curriculum will normally prepare the student to take the entrance exams for the FAA Air Traffic Control Training Program. Final acceptance of the student for the FAA program is determined by FAA examinations and standards. The Federal Government is the sole employer.

Special Curriculum Admission Requirements: Proficiency in High School Mathematics (Algebra I & Albegra II or Geometry) and acceptance by the Program Head following a personal interview.

Air Traffic Control Curriculum

(First Year)

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
*ENGL	101-102 Comm. Skills	3	3	3
*SPDR	136 Oral Comm			
MATH	181-182-183 General College Math	3	3	3
GENL	100 Orientation	1		
*PSYC	110 Prin. of Appl. Psye.	3		
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
AERO	110 History of Air Trans.	3		
AERO	176 Primary Flight (Optional)	(1)	(1)	(1)
AERO	126 Aviation in the U.S.		3	
AERO	127 Fund. of Flight		3	
AERO	136 The Nat. Airspace System			3
AERO	137 Aviation Safety			3
SOCI	101 Intro. Soc.		3	
[1]SECR	111 Typewriting			3
	Elective	3		
	Total Credits	17	16	16

(Second Year)

DAPR	106 Prin. of Data Processing	3		
AERO	246 Meteorology	4		
AERO	247 Aviation Laws & Regulation	3		
MKTG	131 Traffic & Transportation or elect.	3		
PHYS	101 Intro. Physics	4		
BUAD	110 Human Relat. & Ldrshp. Tng.			3
BUAD	254 Appl. Bus. Statistics		3	
*ECON	160 Amer. Econ.			3
ENGR	121 Eng. Graphics		2	
GEOG	240 Intro. to Phys. Geog. or elect.		3	
*GOVT	180 Amer. Const. Govt.			3
AERO	256 Air Navigation		3	
AERO	257 Radar, Radio Aids & Comm.		4	
AERO	266 Airport Oper. & Mgt.			3
AERO	298 Sem. & Proj.			3
AERO	299 Supervised Study or elect.			3
	Total Credits	17	15	18

Total Minimum Credits for Air Traffic Control Major A.A.S. Degree = 97

NOTE: AERO 290, Coordinated Internship, when available, is highly desirable during one or all the quarters of the second year.

[1]Students proficient in typing may petition for waiver with credit by examination.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

AVIATION TECHNOLOGY/AVIATION ADMINISTRATION

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare graduates to pursue a career in the non-technical field of aviation. The occupational objectives include: Transportation Agent/Reservations Sales Agent/Assistant Airport Manager/Operations Officer/Reservation Assistant/Airline Office Manager/Service Manager/Customer Relations.

Special Curriculum Admission Requirements: A strong background in basic Arithmetic operations and acceptance by the Program Head following a personal interview.

Aviation Administration Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
*ENGL 101-102 Comm. Skills	3	3	3
*SPDR 136 Oral Comm.			
MATH 151-152-153 Bus. Math	3	3	3
GENL 100 Orientation	1		
*PSYC 110 Prin. of Appl. Psyc.	3		
AERO 110 History of Air Trans.	3		
AERO 176 Primary Flight (Optional)	(1)	(1)	(1)
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
AERO 126 Aviation in the U.S.		3	
AERO 136 The Natl. Airspace Sys.			3
AERO 137 Aviation Safety	3		
BUAD 100 Intro. to Bus.		3	
BUAD 164 Prin. of Bus. Mgt.			3
SOCI 101 Intro. Soc.		3	
¹SECR 111 Typewriting			3
Total Credits	17	16	16
(Second Year)			
ACCT 111-112 Accounting	4	4	
BUAD 110 Human Relat. & Ldrshp Tng.			3
BUAD 254 Appl. Bus. Statistics		3	
*ECON 160 Amer. Econ.			3
DAPR 106 Prin. of Data Processing	3		
GEOG 240 Intro. to Phys. Geog. or Elect.		3	
*GOVT 180 Amer. Const. Govt.			3
AERO 247 Aviation Laws & Reg.	3		
AERO 248 Aircraft Support Oper.	4		
AERO 258 Airline Marketing		3	
AERO 266 Airport Oper. & Mgt.			3
AERO 298 Sem. & Proj.			3
AERO 299 Supervised Study or Elect.			3
MKTG 109 Prin. of Salesmanship	3		
MKTG 131 Traffic & Trans. or Elect.		3	
Total Credits	17	16	18

Total Minimum Credits for Aviation Administration Major-A.A.S. Degree = 97

NOTE: AERO 297 Cooperative Education, when available, is highly desirable during one or all of the quarters of the second year.

¹Students proficient in typing may petition for waiver with credit by examination.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

BROADCAST ENGINEERING TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare the student for employment as Engineering Technicians in the broadcasting industry. The occupational objectives include: Commercial or Educational Radio or TV Station Technician/Vidio Tape Station Technician/Sound Reproduction Technician/Recording Company Technician.

Special Curriculum Admission Requirements: High school Algebra and Geometry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Broadcast Engineering Technology Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
*ENGL 101-102 Comm. Skill	3	3	
MATH 121-122-123 Engr. Tech. Math	5	5	5
ELEC 114-115 Fund. of D.C. & A.C.	4	4	
ELEC 116 Intro. to Circuit Analysis			4
ELEC 120 Intro. to Tubes & Transistors	4		
ELEC 125 Intro. to Electronics		5	
ELEC 126 Amplifiers			4
PHYS 101 Intro. Physics			4
Total Credits	18	18	18
(Second Year)			
PHYS 102 Intro. Physics	4		
*English or Speech		3	
*Soc. Sci. Elect.	3	3	3
BCST 126 Broadcast Instr. & Meas.	4		
BCST 146 Fed. Broadcast Reg.		1	
BCST 211-212 Theory of Broadcast Equip.		4	4
BCST 224-225 Broadcast Equip. Maint.		3	3
BCST 298 Sem. & Proj. or Coop. Ed.			2
ELEC 227 Pulse & Switching Circuits	3		
ELEC 241-242-243 Communications	4	4	4
ELEC 287 Adv. Circuits & New Devices			2
Total Credits	18	18	18

Total Minimum Credits for Broadcast Engineering Technology Major - A.A.S. Degree = 104.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

BUILDING CONSTRUCTION TECHNOLOGY

CERTIFICATE

Purpose: The curriculum is designed for persons who seek full-time employment in building construction and related fields or for those presently employed persons in the construction trades who are seeking promotion. The occupational objectives include: Engineering Aide/Construction Supervisor/Building Maintenance Supervisor/Construction Project Manager/Estimator.

Building Construction Technology Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL 101-102 Comm. Skills	3	3	
SPDR 136 Oral Comm.			3
MATH 118-119 Intro. to Tech. Math	5	5	
ENGR 100 Intro. to Engr. Tech.	3		
ARCH 111-112-113 Arch. Draft.	3	3	3
ARCH 141-142 Matl. & Meth. of Constr.		3	3
CIVL 140 Constr. Planning			3
CIVL 181 Surveying			4
Soc. Sci. Elect.	3	3	
Total Credits	17	17	16

(Second Year)

ARCH 237 Bldg. Mech. Equip.	3		
ARCH 236 Bldg. Elec. Equip.		3	
ARCH 277 Bldg. Codes & Contracts Docu.		3	
ARCH 279 Critical Path Meth. Prog.			3
BLDG 234 Matl. Take-Off	3		
BLDG 235 Cost. Est.			3
BUAD 276 Personnel Mgt.		3	
CIVL 182 Surveying	4		
CIVL 227-228 Structural Draft.		2	2
CIVL 246-247 Soils Mechanics	4		
CIVL 254-257 Civl Matl. (Concrete)		4	
CIVL 297 Cooperative Ed.			2-4
CIVL 298 Sem. & Proj.			2
INDT 176 Indus. Safety	2		
Total Credits	16	15	12-14

Total Minimum Credits for Building Construction Technology Major-Certificate = 88.

BUSINESS ADMINISTRATION

ASSOCIATE IN SCIENCE DEGREE

Purpose: The Associate in Science degree curriculum in Business Administration is designed for persons who plan to transfer to a four-year college or university to complete a baccalaureate degree program in business administration.

Special Curriculum Admission Requirements: Satisfactory completion of the following high school units or equivalent as a minimum: 4 units of English; 2 units of mathematics (algebra and geometry); 1 unit of laboratory science; 1 unit of social studies

Business Administration Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
BIOL 101-102-103 Gen. Biol. or CHEM 101-102-103	4	4	4
ENGL 111-112-113 Eng. Comp.	3	3	3
GENL 100 Orientation	1		
HIST 101-102-103 Hist. of West. Civ. or HIST 111-112-113	3	3	3
MATH 161-162-163 College Math or MATH 181-182-183 or MATH 191-192-193	3	3	3
PHED 100 Fund. of Phys. Act.		1	
[1]Electives	3	3	3
Total Credits	17	17	16

(Second Year)

ACCT 211-212-213 Prin. of Acct.	3	3	3
ECON 211-212-213 Prin. of Econ.	3	3	3
ENGL Amer., Eng., or World Lit.	3	3	3
PHED Phys. Act. Elect.		1	1
[1]Electives	6	6	6
Total Credits	15	16	16

Total Minimum Credits for Business Administration Major - A.S. Degree = 97.

[1]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

BUSINESS MANAGEMENT
ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek employment in business management or for those presently in management who are seeking promotion. The occupational objectives include: Administrative Assistant/Management Trainee/Department Head/Branch Manager/Office Manager/Manager of Small Business/Supervisor.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic arithmetic operations.

Business Management Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
[1]ACCT 111-112-113 Accounting	4	4	4
BUAD 100 Intro. to Bus.	3		
BUAD 164-165 Prin. of Mgt.		3	3
MATH 151-152-153 Bus. Math or BUAD 101-102-103	3	3	3
*ENGL 101-102 Comm. Smills	3	3	
*SPDR 136 Oral Comm.			3
*ECON 160 Amer. Econ.	3		
*PSYC 110 Prin. of Appl. Psy.		3	
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act.		1	
*GOVT 180 Amer. Const. Govt.			3
Total Credits	17	17	16
(Second Year)			
[2]BUAD 241-242-243 Bus. Law	3	3	3
BUAD 254 Appl. Bus. Stat.	3		
[3]SECR 111 Typewriting	3		
PHED Phys. Act. Elect.	1		
MKTG 100 Prin. of Mkt.	3		
BUAD 269 Purchasing & Matl. Mgt.	3		
BUAD 246 Bus. Finance		3	
BUAD 276 Personnel Mgt.		3	
ACCT 244 Bus. Taxes		3	
[4]Bus. Elect.		3	3
DAPR 106 Prin. of Data Processing			3
BUAD 110 Human Relat. & Ldrshp. Tng.			3
BUAD 298 Sem. & Proj.			3
Total Credits	16	15	16

Total Minimum Credits for Business Management Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

[1]ACCT 211-212-213 may be substituted for ACCT 111-112-113 with approval of division. Three additional hours will be required to meet degree requirements if ACCT 211-212-213 are selected.

[2]Business Electives may be substituted for BUAD 243.

[3]Waiver of this course may be granted for the student who has satisfactorily completed one year of typing in high school. Students may also petition for credit by examination.

[4]Business Electives may be chosen from BUAD, DAPR, ACCT or MKTG Courses.

CIVIL ENGINEERING TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare the student for employment as an Engineering Technician, specializing in either Building Construction or Land Surveying. Occupational objectives include: Structural Designer/Surveying and Planning Assistant/Highways and Building Departments Inspector/Construction Supervisor and Foreman/Civil Engineering Technician.

Special Curriculum Admissions Requirements: High School Algebra and Geometry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Civil Engineering Technology Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
GENL 100 Orientation	1		
*ENGL 101-102 Comm. Skills	3	3	
ENGL 137 Tech. Writing			3
MATH 121-122 Engr. Tech. Math	5	5	
ENGR 100 Intro. to Engr. Tech.	2		
ENGR 151 Mech. (Statics)			4
ARCH 111-112 Arch. Draft.	3	3	
ARCH 141-142 Matl. & Meth. of Const.		3	3
CIVL 181-182 Surveying		4	4
*Soc. Sci. Elect.	3		3
Total Credits	17	18	17
(Second Year)			
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
PHYS 101-102-103 Intro. Physics.	4	4	4
ENGR 152-154 Mech. and Mech. Lab.	4		
*Soc. Sci. Elect.		3	
CIVL 246-247; 254-257 Soil Mech. & Concrete Tech. or CIVL 281-282	4	4	
CIVL 227-228 Struct. Draft. or Civl 201-202	2	2	
CIVL 217-218 Steel Des. & Concrete Des. or Tech. Elec.		4	4
CIVL Sem. & Proj. or Coop. Ed.			2
MATH 123 Engr. Tech. Math or Tech. Elect.			2-5
Total Credits	15	18	13-16

Total Minimum Credits for Civil Engineering Technology Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

CONSTRUCTION INSPECTION

CERTIFICATE

(Pending Approval)

Purpose: The curriculum is designed for persons who seek full-time employment in areas of construction inspection or for those presently employed who are seeking advancement and further training. The occupational objective is one of the areas of construction inspection.

Construction Inspection Curriculum

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
BLDG 100 Intro. to Constr. Insp. & Sfty.	3		
BLDG 111 Prin. of Res. Bldg. Constr. Insp.	3		
BLDG 107 Plan Review & Bldg. Codes	3		
MATH 118-119 Intro. to Tech. Math	5	5	
ENGL 101-102 Comm. Skills	3	3	
ENGL 137 Tech. Writing			3
BLDG 112 Prin. of Concrete & Concrete Constr.		3	
BLDG 121 Prin. of Elec. Insp.		3	
CIVL 246-247 Soil Mech. & Soil Mech. Lab		4	
BLDG 113 Prin. of Steel Frame Constr. Insp.			3
BLDG 122 Prin. of Mech. Insp.			3
BLDG 123 Prin. of Plumbing Insp.			3
BLDG 197 Coop. Ed.			2-4
Total Credits	17	18	14-16

Total Minimum Credits for a Construction Inspection Major - Certificate = 49

CONSTRUCTION MANAGEMENT TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to qualify personnel in both engineering technology and management for employment in all areas of a construction firm. Occupational objectives include: Engineering Aide/Construction Project Manager/Construction Supervisor/Estimator/Building Maintenance Supervisor.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Construction Management Technology Curriculum

(First Year)

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
ARCH 111-112 Arch Draft.	3	3	
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Comm.			3
GENL 100 Orientation	1		
MATH 118-119 Intro. to Tech. Math	5	5	
ENGR 100 Intro. to Engr. Tech.	2		
*Soc. Sci. Elect.	3	3	3
ARCH 141-142 Matl. & Meth. for Const.		3	3
CIVL 181 Surveying			4
CIVL 140 Const. Planning			3
Total Credits	17	17	16

(Second Year)

CIVL 182 Surveying	4		
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
ARCH 237 Bldg. Mech. Equip.	3		
CIVL 246-247 Soils Mech. & Lab.	4		
INDT 176 Indust. Safety	2		
Elective	3		
CIVL 227-228 Struct. Draft		2	2
BUAD 276 Personnel Mgt.		3	
ARCH 277 Bldg. Codes & Contract Docu.		3	
CIVL 254, 257 Civil Matl. (Concrete)		4	
ARCH 236 Bldg. Elect. Equip.		3	
ARCH 279 Critical Path Meth. Prog.			3
ARCH 276 Constr. Est.			3
CIVL 297 Coop. Ed.			2-4
CIVL 298 Sem. & Proj.			2
Total Credits	17	16	13-15

Total Minimum Credits for Construction Management Technology Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

CORRECTIONS SCIENCE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to provide a broad foundation which will prepare the student to enter into full-time employment in any of the varied fields of correction; i.e., probation, penology, parole, or to those presently in a corrections position who are seeking promotion. Occupational objectives include: Local, State, and Federal Corrections Officer/Probation and Parole Aide.

Special Curriculum Admission Requirements: Students must possess excellent moral character, provide a written record of conduct, (the requirement is waived for employees of Governmental Criminal Justice Agencies) and participate in a personal interview with a Police Science - Corrections Faculty Member. This curriculum included under the Safe Streets Act of 1968 for L.E.E.P. grants and loans. See Financial Aids Counselor for further details. Program adjustments may be made with faculty approval to enable a student to transfer to a four year criminal justice program.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Corrections Science Curriculum

(First Year)

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
LWNF 120 Intro. to Corrections	3		
LWNF 126 Prev. & Control of Juvenile Del.	3		
LWNF 127 Crim. Offenses			3
LWNF 176 Criminology	3		
LWNF 155 Assess. of the Correct. Process			3
LWNF 156 Corrections & the Comm.		3	
LWNF 128 Criminal Behavior		3	
GENL 100 Orientation	1		
*ENGL 101-102 Comm. Skills	3	3	
SOCI 101-102-103 Intro. to Soc.	3	3	3
PHED Fund. of Phys. Act. & 2 Elect.	1	1	1
*ENGL 137 Tech. Writing or SPDR 136			3
*SOSC 101-102-103 Contemp. Amer. Civ.	3	3	3
Total Credits	17	16	16

(Second Year)

LWNF 124-125 Jail Operation Mgt.		3	3
LWNF 129 Treat. of the Offender	3		
LWNF 157 Assess. of Crim.	3		
LWNF 159 Legal Challenge to Corrections	3		
LWNF 228 Law Enforce. & the Comm.			3
LWNF 237 Admin. of Justice		3	
LWNF 290 Coord. Intern.			3
LWNF 298 Sem. & Proj.			3
[1]SOCI 186-187 Social Problems	3	3	
[1]PSYC 210 Social Psych.	3		
*SPDR 136 Oral Comm.		3	
PSYC 257 Law Enforce. Psych.		3	
PBSV 256 Interviewing Skills			3
Total Credits	15	15	15

Total Minimum Credits for Corrections Science Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

[1]Substitution of appropriate psychology or sociology courses made with program head approval.

CORRECTIONS SCIENCE

CERTIFICATE

Purpose: The certificate curriculum in corrections is designed for those students who wish to take principle courses which relate directly to the corrections field. Courses taken in the certificate program can be applied to the A.A.S. Degree.

Special Curriculum Admission Requirements: The same admission requirements apply as stated for the corrections - A.A.S. Degree curriculum.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32 .

Corrections Science Curriculum

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
LWNF 120 Intro. to Corrections	3		
LWNF 176 Criminology	3		
LWNF 126 Prev. & Control ofJuvenile Del.		3	
LWNF 128 Crim. Behavior		3	
LWNF 127 Crim. Offenses			3
LWNF 156 Correction & the Comm.		3	
LWNF 157 Assessment of Crim.			3
GENL 100 Orientation	1		
ENGL 101-102 Comm. Skills	3	3	
SOCI 101-102-103 Intro. Soc. or Elect.	3	3	3
SOSC 101-102-103 Contemp. Amer. Civ.	3	3	3
SPDR 136 Oral Comm.			3
Total Credits	16	18	15

Total Minimum Credits for a Corrections Major - Certificate = 49

DATA PROCESSING

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to provide the specialized skills and knowledge necessary for employment in the data processing field with either industry or government. The occupational objectives include: Computer Programer/Computer Operator/Related data processing occupations.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and one unit of algebra or equivalent.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Data Processing Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
DAPR 106 Prin. of Data Proc.	3		
DAPR 138 Computer Sys. Arch.		3	
DAPR 144 Computer Prog. (Computer Concepts) or DAPR equivalent		3	
DAPR 147 Computer Prog. (COBOL)			3
BUAD 100 Intro. to Bus.	3		
BUAD 164 Prin. of Bus. Mgt.			3
[1]ACCT 111-112-113 Accounting	4	4	4
*ENGL 101-102 Comm. Skills	3	3	
GENL 100 Orientation	1		
MATH 101-102 Fund. of Math or BUAD 101-102 or Math Elect.	3	3	
PHED 100 Fund. of Phys. Act.	1		
*SPDR 136 Oral Comm. or ENGL 180			3
*PSYC 110 Prin. of Applied Psyc. or BUAD 110			3
Total Credits	18	16	16
(Second Year)			
DAPR 256 Computer Prog. (ADV COBOL)	4		
DAPR 281 System Analysis I	3		
DAPR 286 Computer Prog. Applicat.		4	
DAPR 287 Computer Oper. Sys.		3	
DAPR 298 Sem. & Proj.			5
DAPR Computer Prog. Elect.		4	4
BUAD 245-255 Appl. Bus. Statistics	3	3	
*ECON 160 Amer. Econ.	3		
*GOVT 180 Amer. Const. Govt.			3
PHED Phys. Act. Elect.		1	1
Electives	3		3
Total Credits	16	15	16

Total Minimum Credits for Data Processing Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

DENTAL ASSISTING

CERTIFICATE

Purpose: The curriculum is designed to prepare the student to perform competently those duties performed by a Dental Assistant under supervision of a dentist as defined by the Rules and Regulations Governing the practice of Dentistry. Successful completion of the curriculum will normally prepare the student for the American Dental Assistants Association Certification Examination.

Special Curriculum Requirements: Each student will have a personal interview with the program Head of the Dental Technologies and/or faculty in the Dental Assisting Program.

Special Curriculum Completion Requirements: Any student whose overall GPA falls below 2.0 in any one quarter must obtain permission from the Program Head to continue the major in Dental Assisting.Students are responsible for transportation to and from facilities used for clinical laboratory experiences.

Special Accreditation Status: The program has been approved by the Council on Dental Education of the American Dental Association.

Dental Assisting	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
DENT 108 Intro. to Dental Health Care	3			
DENT 110 Intro. to Dental Matl.	4			
DENT 126 Oral Anatomy	4			
SECR 156 Pers. Devel.	3			
NASC 111-112 Health Science	4	4		6
DENT 121-122-123 Chairside Assist.		4	4	
DENT 146 Radiographics Tech.		3		
DENT 112 Clin. Proc.			4	
DENT 150 Gen. & Oral Pathology		3		
GENL 100 Orientation		1		
ENGL 101 Comm. Skills		3		
DENT 136 Pharmacology			2	
DENT 147 Nutrition			3	
SECR 136 Filing & Records Mgt.			3	
[1]SECR 111 Typewriting				3
PSYC 110 Prin. of Appl. Psych				3
GOVT 180 Amer. Const. Govt.				3
SPDR 136 Oral Comm.				3
Total Credits	18	16	16	18

Total Minimum Credits for Dental Assisting Major - Certificate = 70

[1]With Typing proficiency demonstrated, elective may be substituted.

DENTAL LABORATORY TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare the individual to construct and repair all types of dental prosthetic appliances according to the dentist's prescription. The occupational objectives include: dental laboratory technician work in commercial or public dental laboratory or in a dental office.

Special Curriculum Admission Requirements: The student must perform a manual dexterity test and must participate in a personal interview with Counseling Services and the Dental Laboratory Program Head.

Special Curriculum Admission Requirements: Any student whose overall GPA falls below a 2.0 must obtain permission from the program head to continue the major in Dental Laboratory Technology.

Dental Laboratory Technology Curriculum

(First Year)

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
DENT 108 Intro. to Dental Health Care	3		
DENT 137 Dental Anatomy & Phys.	4		
DENT 141-142-143 Dental Lab. Tech.	7	7	7
NASC 121-122-123 Natural Sci.	4	4	4
*ENGL 101-102 Comm. Skills		3	3
GENL 100 Orientation		1	
BUAD 110 Human Relat. & Ldrshp. Tng.			3
PHED 100 Fund. of Phys. Act.			1
Elective		3	
Total Credits	18	18	18
(Second Year)			
DENT 244-245-246 Dental Lab. Tech.	7	8	8
DENT 210 Dental Materials	4		
DENT 298 Sem. & Proj.			2
PHED Phys. Act. Elect.	1	1	
*SPDR 136 Oral Comm.		3	
*Soc. Sci. Elect.	3	3	3
Total Credits	15	15	13

Total Minimum Credits for Dental Laboratory Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

DRAFTING AND DESIGN TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: This curriculum is designed for persons who seek full-time employment in the drafting and/or machine design fields, or for those presently in the drafting area who are seeking promotion. The occupational objectives include: Drafting Supervisor/Draftsman/Fixture Design Draftsman/Machine Design Draftsman.

Special Curriculum Admission Requirements: Proficiency in high school English and Mathematics to include two units algebra and one unit geometry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Drafting and Design Curriculum

(First Year)

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Conn.			3
MATH 121-122-123 Engr. Tech. Math	5	5	5
DRFT 111-112-113 Tech. Draft	2	2	2
PHYS 101-102-103 Intro. Physics	4	4	4
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 1 Elect.		1	1
INDT 111 Matl. & Processes of Manuf.			3
*Soc. Sci. Elect.	3		
Total Credits	18	15	18
(Second Year)			
DRFT 211-212-213 Adv. Tech. Draft.	3	3	3
DRFT Draft. Elect.	2		
ENGR 151-152-154 Mechanics	3	4	
INDT 112 Matl. & Processes of Manuf.	3		
INDT 176 Indus. Safety	2		
INDT 226 Plant Layout (or Elective)			3
INDT 270 Indus. Mgt.			3
MECH 131-132 Machine Lab.		2	2
MECH 215 Jig & Fixture Design		3	
DRFT 298 Sem. & Proj.			2
Tech. Elect		1-3	1-3
*Soc. Sci. Elect.	3	3	
PHED Phys. Act. Elect.	1		
Total Credits	17	16-18	14-16

Total Minimum Credits for Drafting and Design Major - A.A.S. Degree = 98

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

EARLY CHILDHOOD DEVELOPMENT ASSISTANT

CERTIFICATE

Purpose: The curriculum is designed to prepare individuals for employment in situations wherein care and maintenance of young children is the primary object. Occupational Objectives include: Aides in Child Development Centers/DayCare Centers/Nursery School/Residential Facilities/Family Day Care Homes.

Early Childhood Development Assistant Curriculum

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
GENL 100 Orientation	1		
ENGL 101-102 Comm. Skills	3	3	
PHYS 130 Child Growth & Dev.			3
PSYC 128 Human Relations	3		
PHED 108 Phys. Act. for Child.	3		
HLTH 110 Concepts of Pers. & Comm. Health		3	
HLTH 106 First Aid & Safety			3
EDUC 121 Intro. to Early Child. Ed.	3		
EDUC 111-112-113 Tech. in Child Study	3	3	3
EDUC 198 Sem. & Proj.			3
EDUC 136 Matl. & Equip. for Inst. Aides			3
EDUC 137 Creat. Act. for Children or MUSC 109		3	
SOCI 116 Child-Parent Comm. Relat. or BUAD 116, or GOVT Elect.		3	
Total Credits	16	15	15

Total Credits for Early Childhood Development Assistant Major - Certificate = 46

EARLY CHILDHOOD DEVELOPMENT ASSOCIATE

ASSOCIATE IN SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek full-time employment involving the care and direction of young children, or for those persons presently employed in these situations who wish to update and enhance their competencies. Occupational objectives include: Assistants, Managers, and/or Directors in Day Care and Child Development facilities.

Early Childhood Education Development Curriculum

(First Year)

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
GENL 100 Orientation	1		
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Comm.			3
PSYC 130 Child Growth & Dev.	3		
PSYC 128 Human Relations		3	
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
PHED 108 Phys. Act. for Children		3	
HLTH 110 Concepts of Pers. & Comm. Hlth.	3		
EDUC 121-122-123 Childhood Ed.	3	3	3
EDUC 111-112-113 Tech. in Child Study	3	3	3
EDUC 137 Creative Act. for Child			3
EDUC 198 Sem. & Proj.			3
Total Credits	17	16	16

(Second Year)

EDUC 136 Matl. & Equip. for Inst. Aides	3		
EDUC 210 Intro. to Spec. Ed.	3		
EDUC 186 Child Study		3	
EDUC 106 Lang. Arts for Children		3	
EDUC 236 Child Dev. Programs, Plan. & Mgt.			3
EDUC 217 Models of Child Dev. Prog.		3	
EDUC 298 Sem. & Proj.			3
SOCI 101 Intro. Soc.	3		
SOCI 116 Child-Parent Comm. Relat.		3	
SOCI 236 Marriage & the Fam.			3
HLTH 156 Child Health & Nutrition	3		
HLTH 106 First Aid & Safety or Elect.	3		
HLTH 216 Infant-Toddler Care & Dev.			3
MUSC 109 Music for Children		3	
Electives		3	3
Total Credits	15	18	15

Total Minimum Credits for Early Childhood Development Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

EDUCATIONAL ASSISTANT

CERTIFICATE

Purpose: The curriculum is designed to prepare the student to assist with children in an educational setting. Occupational Objectives include: Instructional Aide/Day Care Center Assistant.

Educational Assistant Curriculum

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
EDUC 121-122-123 Child. Educ.	3	3	3
EDUC 161 Educ. Tech.	3		
EDUC 198 Sem. & Proj.			3
EDUC 136 Matl. & Equip. for Inst. Aides			3
ENGL 101-102 Comm. Skills	3	3	
SPDR 136 Oral Comm.			3
GENL 100 Orientation	1		
Soc. Sci. Elect.	3	3	3
PSYC 128 Human Relations or PSYC 130	3		
HLTH 110 Concepts of Per. & Comm. Hlth.	3		
PHED 108 Phys. Act. for Child. or PHED 109		3	
Total Credits	16	15	15

Total minimum credits for Educational Assistant Major - Certificate = 46

EDUCATIONAL ASSOCIATE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare pre-service and in-service students as instructional assistants who will function in those instructional areas designated by the classroom teacher. Occupational objectives include: Instructional Assistant/Day Care Center Supervisor/Pre-School or Nursery School Assistant.

Educational Associate Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
EDUC 121-122-123 Child. Educ	3	3	3
EDUC 161-162 Educ. Tech.	3	3	
HLTH 110 Concepts of Per. & Comm. Health	3		
HLTH 156 Child Health & Nutrition		3	
HLTH 104 First Aid			2
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 137 Oral Comm.			3
PHED 100 Fund. of Phys. Act. and 1 Elect.		1	1
PHED 108 Phys. Act. for Child.	3		
GENL 100 Orientation	1		
PSYC 110 Prin. of Appl. Psych.		3	
PSYC 128 Human Relations			3
MUSC 109 Music for Children			3
ART 196 Art Workshop or EDUC 137			3
Total Credits	16	16	18

(Second Year)

EDUC 163 Educ. Tech		3	
EDUC 117 Intro. to Reading Meth.	3		
EDUC 140 Modern Math Concepts	3		
EDUC 116 Lib. Utiliz. for Inst. Asst.		3	
EDUC 136 Matl. & Equip. for Inst. Asst.			3
EDUC 298 Sem. & Proj.			3
EDUC 150 Modern Science Concepts		3	
*Soc. Sci. Elect.	3	3	3
PSYC 130 Child Growth & Dev. or PSYC 236	3		
PSYC 246 Educ. Psyc.		3	
SECR 111 Typing	3		
PHED Phys. Act. Elect.		1	
Electives			8-9
Total Credits	15	16	17-18

*Substitutes for English and Social Science courses for an A.A.S. on page 35.

EDUCATION

ASSOCIATE IN SCIENCE DEGREE

Purpose: The curriculum is designed for persons who plan to transfer to a four-year college or university to complete a baccalaureate degree program in Teacher Education. The curriculum is designed to accommodate all teacher education majors or speciality areas of study - elementary and secondary.

Special Curriculum Admission Requirements: Satisfactory completion of the following high school units or equivalent as a minimum: 4 units of English, 2 units of Mathematics (algebra and geometry), 1 unit of Laboratory Science, and 1 unit of Social Science.

Education Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL 111-112-113 Eng. Comp.	3	3	3
GENL 100 Orientation	1		
HIST 111-112-113 Amer. Hist.	3	3	3
*MATH Mathematics	3	3	3
[1]Nat. Science (with Lab.)	4	4	4
[2]Electives	3	3	3
Fund. of Phys. Act.			1
Total Credits	17	16	17

(Second Year)

ENGL Amer., Eng. or World Lit.	3	3	3
[3]Soc. Sci. Elect.	3-5	3	3
PSYC 201-202-203 Gen. Psyc.	3	3	3
PHED Phys. Act. Elect.		1	1
SPDR 130 Prin. of Pub. Speaking or Elect.			5
[2]Electives	6	6	3
Total Credits	15-17	16	18

Total Minimum Credits for Education Major - A.S. Degree = 97

*Math courses to be selected are listed on page 35.

[1]Science courses may be selected from the following: Biology, Chemistry, Physics, Geology or the Natural Science 121-122-123 course.

[2]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

[3]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

ELECTRONICS TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek employment in the field of electronics, Additionally, the successful student is prepared for transfer into a baccalaureate program in Electronics Technology that is offered by a limited number of universities. Occupational objectives include: Electronics Technician/Instrument and Laboratory Technician/Radio and Television Technician/Electronics Product Sales Representative/Communication Technician.

Special Curriculum Admission Requirements: High School Algebra and Geometry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, on page 32.

Electronics Technology Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
*ENGL 101-102 Comm. Skills	3	3	
MATH 121-122-123 Engr. Tech. Math	5	5	5
ELEC 114-115 Fund. of D.C. & A.C.	4	4	
ELEC 116 Intro. to Circuit Analysis			4
ELEC 120 Intro. to Tubes & Transistors	4		
ELEC 125 Intro. to Elec.		5	
ELEC 126 Amplifiers			4
PHSY 101 Intro. Physics			4
Total Credits	18	18	18
(Second Year)			
PHYS 102 Intro. Physics	4		
*Soc. Sci. Elect.	3	3	3
*English or Speech			3
ELEC 227 Pulse & Switching Circuits	3		
ELEC 241-242-243 Communications	4	4	4
ELEC 276 Instr. & Meas.	4		
ELEC 250 Intro. to Computers		4	
ELEC 260 Control Circuits		4	
ELEC 249 Prin. of TV Electronics			3
ELEC 287 Adv. Circuits & New Devices			2
ELEC 298 Sem. & Proj. or Coop. Ed.			2
DRFT 256 Drafting		2	
Total Credits	18	17	17

Total Minimum Credits for Electronics Technology Major - A.A.S. Degree = 106

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

ENGINEERING

ASSOCIATE IN SCIENCE DEGREE

Purpose: The curriculum is designed to prepare the student to transfer into a baccalaureate degree program in one of the following engineering fields: Aerospace Engineering, Agricultural Engineering, Architectural Engineering, Ceramic Engineering, Civil Engineering, Electrical Engineering, Engineering Mechanics, Engineering Science, Engineering Technology, Industrial Engineering, Mechanical Engineering, Metallurgical Engineering, Mining Engineering, Nuclear Engineering, Ocean Engineering.

Special Curriculum Admission Requirements: The following high school units: 4 units of English, 4 units of Mathematics or equivalent, 1 unit of lab science (2 units preferred-Chemistry & Physics).

Engineering Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
GENL 100 Orientation	1		
ENGL 111-112-113 Eng. Comp.	3	3	3
MATH 141-142-143 Intro. to Math Anal.	5	5	5
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
ENGR 101-102 Intro. to Engr., Intro. to Engr. Meth.	2	2	
ENGR 103 Concept. Design and Anal.			2
ENGR 121-122-123 Engr. Graphics	2	2	2
CHEM 111-112-113 Gen. Inorganic Chem.	4	4	4
Total Credits	18	17	17
(Second Year)			
[1]Soc. Sci. Elect.	3		3
[2]Humanities Elect.		3	
MATH 241-242-243 Adv. Math Analysis	4	4	4
PHYS 221-222-223 Gen. Univ. Physics	4	4	4
HIST History or Elect.	3		
ENGR 251; 253 Engr. Mech. (Statics & Dynamics)	4	4	
ENGR 252 Engr. Mech or ELEC 217-218			4-5
ENGR 206 Engr. Econ.		3	
Total Credits	18	18	15-17

Total Minimum credits for the Engineering Major - A.S. Degree = 103

[1]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

[2]Humanities courses may be selected from the following: Music, Arts, Drama, Language, Philosophy, Speech or English.

ENGINEERING DRAFTING

CERTIFICATE

Purpose: The curriculum is designed to prepare the student for employment after a course of study normally one academic year in length. Alternatively the successful student can choose to transfer into one of the A.A.S. programs after completing the certificate program. Usually, substantial amount of credit can be so transferred. Occupational objectives inlcude: Architectural Draftsman/Mechanical Engineering Draftsman/Structural/Draftsman/Engineering Aide.

Engineering Drafting Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
GENL	100 Orientation	1		
ENGL	101-102 Comm. Skills;	3	3	
ENGL	137 Tech. Writing			3
MATH	11-12-13 Elem. of Math	3	3	3
ENGR	10 Intro. to Tech. Engr.	2		
ENGR	53 Elem. of Statics & Str. of Matl.		3	
	Non-Tech. Elect.	3-4		
DRFT	111-112 Tech. Draft. (Tech.)	4	4	
DRFT	113-114 Tech. Draft. I (Tech.)	4	4	
DRFT	211 Adv. Tech. Draft. (Tech.)			3
ARCH	111-112-113 Arch. Draft. (Arch.)	3	3	3
INDT	111-112 Matl. & Pro. of Indus. (Tech.)		3	3
MECH	131-132 Machine Lab. (Tech.)		2	2
ARCH	141-142 Matl. & Meth. of Constr. (Arch.)		3	3
	Sem. & Proj. or Coop. Ed.			2
	Total Credits	15-17	15-18	14-16

Total Minimum Credits for an Engineering Major - Certificate = 44

[1]Courses are identified for each area of emphasis as follows: (Tech.) required for Technical Drafting emphasis. (Arch.) required for Architectural Drafting emphasis.

FIRE SCIENCE/ADMINISTRATION

ASSOCIATE IN APPLIED SCIENCE DEGREE

Specialization in Administration

Purpose: The curriculum is designed for persons seeking employment in the broad field of the fire service with specialization in fire investigation, administration, and management. The occupational objectives include: Fire Suppression/Communications/Insurance Investigation/Equipment Sales & Service.

Fire Science Curriculum

(First Year)

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
FIRE	100 Intro. to Fire Sci.	3		
FIRE	106 Fund. of Fire Serv. Admin.	3		
FIRE	108 Fund. of Fire Suppression	3		
FIRE	116 Fund. of Fire Prevention		3	
FIRE	120 Fire Protection Equip. & Sys.			3
FIRE	141 Fire. Admin.		3	
*ENGL	101-102 Comm. Skills	3	3	
MATH	101-102 Fund. of Math		3	3
GENL	100 Orientation	1		
NASC	121-122-123 Natural Sciences	4	4	4
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
	Electives			6
	Total Credits	17	17	17

(Second Year)

FIRE	206 Fire Rescue Pract.	3		
FIRE	208 Water Disbrib. Sys.			3
FIRE	216 Fire Hydra. & Equip.			4
FIRE	227 Bldg. Constr. & Codes		4	
FIRE	298 Sem. & Proj.			3
PHED	Phys. Act. Elect	1		
	*Soc. Sci. Elect.	3	3	3
*ENGL	137 Tech. Writing	3		
BUAD	110 Human Relat. & Ldrshp. Tng.	3		
BUAD	276 Personnel Mgt.		3	
*SPDR	136 Oral Comm.		3	
	Electives	3	3	3
	Total Credits	16	16	16

Total Minimum Credits for Fire Science Major-A.A.S. Degree = 99.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

FIRE SCIENCE

CERTIFICATE

Specialization in Administration

Fire Science Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
FIRE	100 Intro. to Fire Sci.	3		
FIRE	106 Fund. of Fire Serv. Admin.	3		
FIRE	116 Fund. of Fire Prevention		3	
FIRE	120 Fire Protection Equip. & Sys.			3
FIRE	141 Fire Admin.		3	
FIRE	146 Fire Admin. & Law			3
ENGL	101-102 Comm. Skills	3	3	
MATH	11-12 Elem. of Math or MATH 101-102		3	3
NASC	121-122-123 Natural Science	4	4	4
GENL	100 Orientation	1		
BUAD	110 Human Relat. & Ldrshp. Tng.	3		
	Soc. Sci. Elect.			3
	Total Credits	17	16	16

Total Minimum Credits for Fire Administration Major Certificate = 49

FIRE SCIENCE/INVESTIGATION

ASSOCIATE IN APPLIED SCIENCE DEGREE

Specialization in Investigation

Purpose: The curriculum is designed for persons seeking employment in the broad field of the fire service with specialization in fire investigation, administration, and management. The occupational objectives include: Fire Suppression/Communications/Insurance Investigation/Equipment Sales & Services.

Fire Science Curriculum

(First Year)

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
FIRE	100 Intro. to Fire Sci.	3		
FIRE	106 Fund. of Fire Serv. Admin.	3		
FIRE	111-112 Hazardous Matl.		3	3
FIRE	116 Fund. of Fire Prevention		3	
FIRE	120 Fire Protection Equip. & Sys.			3
FIRE	146 Fire Admin. & Law			3
*ENGL	101-102 Comm. Skills	3	3	
GENL	100 Orientation	1		
MATH	101-102 Fund. of Math	3	3	
NASC	121-122-123 Natural Science	4	4	4
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
	Electives			3
	Total Credits	17	17	17

(Second Year)

FIRE	206 Fire Rescue Pract.	3		
FIRE	207 Radiation Cont. Sys.	3		
FIRE	227 Bldg. Constr. & Codes		4	
FIRE	237 Arson Detect. & Inv.		3	
FIRE	298 Sem. & Proj.			3
LWNF	231-232-233 Crim. Law Evid. & Procedures	3	3	3
PHED	Phys. Act. Elect.	1		
	*Soc. Sci. Elect.	3	3	3
ENGL	137 Tech. Writing		3	
*SPDR	136 Oral Comm.			3
	Elective	3		3
	Total Credits	16	16	15

Total Minimum Credits for Fire Science Major A.A.S. Degree = 98.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

FIRE SCIENCE

CERTIFICATE

Specialization in Investigation

Fire Science Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
FIRE	100 Intro. to Fire Sci.	3		
FIRE	146 Fire Admin. & Law	3		
FIRE	116 Fund. of Fire Prevention		3	
FIRE	120 Fire Protection Equip. & Sys.			3
FIRE	111-112 Hazardous Matl.		3	3
FIRE	237 Arson Detect. & Inv.			3
ENGL	101-102 Comm. Skills	3	3	
MATH	11-12 Elem. of Math or MATH 101-102	3	3	
NASC	121-122-123 Natural Science	4	4	4
GENL	100 Orientation	1		
	Soc. Sci. Elect.			3
	Total Credits	17	16	16

Total Minimum Credits for Fire Investigation Major Certificate = 49

FIRE SCIENCE/MANAGEMENT

ASSOCIATE IN APPLIED SCIENCE DEGREE

Specialization in Management

Purpose: The curriculum is designed for persons seeking employment in the broad field of the fire service with specialization in fire investigation, administration, and management. The occupational objectives include: Fire Suppression/Communications/Insurance Investigation/Equipment Sales & Service.

Fire Science Curriculum

(First Year)

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
FIRE	100 Intro. to Fire Sci.	3		
FIRE	108 Fund. of Fire Suppression	3		
FIRE	109 Fire Suppression Oper.			3
FIRE	111-112 Hazardous Matl.		3	3
FIRE	116 Fund. of Fire Prevention		3	
FIRE	120 Fire Protection Equip. & Sys.			3
*ENGL	101-102 Comm. Skills	3	3	
MATH	101-102 Fund. of Math	3	3	
GENL	100 Orientation	1		
NASC	121-122-123 Natural Sciences	4	4	4
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
	Electives			3
	Total Credits	17	17	17

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(Second Year)			
FIRE	137 Fire Fight. Tact. & Strat.		3	
FIRE	206 Fire Rescue Pract.	3		
FIRE	207 Radiation Cont. Sys.	3		
FIRE	208 Water Distrib. Sys.			3
FIRE	216 Fire Hydra. & Equip.			4
FIRE	227 Bldg. Constr. & Codes		4	
FIRE	298 Sem. & Proj.			3
PHED	Phys. Act. Elect.	1		
	*Soc. Sci. Elect.	3	3	3
*SPDR	136 Oral Comm.	3		
*ENGL	137 Tech. Writing		3	
	Electives	3	3	3
	Total Credits	16	16	16

Total Minimum Credits for Fire Science Major A.A.S. Degree = 98.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

FIRE SCIENCE

CERTIFICATE

Specialization in Management

Fire Science Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
FIRE	100 Intro. to Fire Sci.	3		
FIRE	108 Fund. of Fire Suppression	3		
FIRE	109 Fire Suppression Oper.			3
FIRE	111-112 Hazardous Matl.		3	3
FIRE	116 Fund. of Fire Prevention		3	
FIRE	120 Fire Protection Equip. & Sys.			3
ENGL	101-102 Comm. Skills	3	3	
MATH	11-12 Elem. of Math or MATH 101-102	3	3	
NASC	121-122-123 Natural Science	4	4	4
GENL	100 Orientation	1		
	Soc. Sci. Elective			3
	Total Credits	17	16	16

Total Minimum Credits for Fire Management Major Certificate = 49

FLIGHT ATTENDANT

CERTIFICATE

Purpose: The curriculum is designed to prepare the student to compete for Flight attendant jobs in the field of aviation and prepare for full-time employment with the airlines and airports in non-flying jobs. Occupational objectives include: Steward/Stewardess/Customer Service Representative.

Special Curriculum Admission Requirements: Students are advised to determine both special and general qualifications for employment as Flight attendants prior to entering this curriculum. Information can be obtained from Aviation Technology faculty or counselor.

Flight Attendant Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL	101 Comm. Skills	3		
GENL	100 Orientation	1		
GEOG	240 Intro. to Phys. Geography			3
HLTH	104 First Aid		2	
PSYC	128 Human Relat.	3		
SPDR	136 Oral Comm.			3
SOCI	106 Gen. Soc.			3
AERO	110 Hist. of Air Trans.	3		
AERO	126 Aviation in the U.S.		3	
AERO	136 The Natl. Airspace Sys.		3	
AERO	140 Flt. Attendant's Orient.	3		
AERO	146 Flt. Attendant's Duties & Resp.		3	
AERO	147 Flt. Attendant's Grooming & Apparel			3
AERO	176 Primary Flight (Optional)	(1)	(1)	(1)
AERO	258 Airline Marketing		3	
AERO	266 Airport Oper. & Mgt.			3
	Elective	3	3	3
	Total Credits	16	17	18

Total minimum credits for Flight Attendant Major Certificate = 51

GENERAL STUDIES
ASSOCIATE IN SCIENCE DEGREE

Purpose: The curriculum is designed for persons who are interested in transfer to a four-year College or University, and wish the flexibility of either broadening or narrowing as much as possible their first two years of undergraduate study. A student entering College with uncertain educational goals will have sufficient flexibility to take courses in a wide variety of areas of study.

General Studies Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL Eng. Comp.	3	3	3
HIST Elect. in History	3		
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
[1]Humanities Elect.	3		
[2]Soc. Sci. Elect.	3		
[3]Electives	0-4	8-11	8-11
Total Credits	14-18	15-18	15-18
(Second Year)			
[3]Electives	15-18	15-18	15-18

Total Minimum Credits for a General Studies Major A.S. Degree = 97

[1]Humanities courses may be selected from the following: MUSIC, ART, DRAMA, LANGUAGE, PHILOSOPHY, SPEECH, or ENGLISH.

[2]Soc. Sci. courses may be selected from the following: ECONOMICS, PSYCHOLOGY, SOCIOLOGY (ANTHROPOLOGY), SOCIAL SCIENCE, GOVERNMENT, HISTORY

[3]Electives may be selected according to interest. It is recommended that a student select a year's sequence or combination of courses which total 5 credits or more if transfer is desired. A student desiring to transfer should consult the College or University to which transfer is contemplated in addition to seeking the guidance of a counselor and/or faculty advisor.

All requirements for the degree are included in the first year as specified prefixes and specified electives. Any course offered by the College numbered 100 or above is applicable toward meeting the graduation requirements with the General Studies major and may be taken as an elective. However, if transfer is planned, seek advisor approval of all electives.

HORTICULTURAL TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE
(Pending Approval)

Purpose: The curriculum is designed for students who seek full-time employment in one of the several areas related to the horticultural industry or for those presently working who seek further knowledge and advancement. The curriculum offers specialization in Landscape Grower and Floral Design areas. The occupational objectives include: Manager of nurseries or greenhouses/Manager of Maintenance Operations such as golf courses, cemeteries, home lawn care and gardens/Retail Merchandising of Horticultural products in Florist Shops, Department Stores, and Nurseries/Floral Designer/Grower/Nurserymen.

Special Curriculum Admission Requirements: The student should have a high school background in biology and chemistry and two units of high school math (two years of high school algebra or one year of algebra and one year of geometry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Horticulture Technology Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
HORT 100 Intro. to Hort.	4		
MATH 151-152-153 Bus. Math	3	3	3
*ENGL 101-102 Comm. Skills	3	3	
SPDR 136 Oral Comm.			3
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 2 elect.	1	1	1
CHEM 110 Hort. Chem.	4		
HORT 101-102 Plant Propagation		4	4
*ECON 160 Amer. Econ.		3	
*PSYC 110 Prin. of Appl. Psych.		3	
HORT 120 Soils			4
*GOVT 180 Amer. Const. Govt.			3
Total Credits	16	17	18

(Second Year - Landscape - Grower)			
BUAD 174-175 Small Bus. Mgt.	3	3	
MKTG 100 Prin. of Mktg.	3		
HORT 130 Envir. Factors in Plant Growth	3		
HORT 210 Plant Pests	4		
HORT 256 Woody Plants	3		
HORT 290 Coord. Intern.	1-5		
MKTG 109 Prin. of Salesmanship		3	
HORT 220 Nursery Mgt.		4	
HORT 211 Plant Pest Control		4	
HORT 257 Herbaceous Plants		3	
HORT 240 Turf Green Mgt.			4
HORT 250 Landscape Planning			2
HORT 280 Govt. Hort. Require.			3
HORT 230 Greenhouse Mgt.			4
HORT 110 Tools & Equipment			3
Total Credits	17	17	16

Total minimum credits for Landscape Grower Major - A.A.S. Degree = 101

(Second Year - Floral Design)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
BUAD 174-175 Small Bus. Mgt.	3	3	
MKTG 100 Prin. of Mktg.	3		
HORT 130 Envir. Factors in Plant Growth	3		
HORT 210 Plant Pests	4		
HORT 270 Floral Design & Arranging	2		
HORT 290 Coord. Intern.	1-5		
MKTG 109 Prin. of Salesmanship		3	
HORT 211 Plant Pest Control		4	
HORT 257 Herbaceous Plants		3	
HORT 266 House & Conservatory Plants		4	
HORT 250 Landscape Planning			2
HORT 280 Govt. Hort. Require.			3
HORT 230 Greenhouse Mgt.			4
HORT 260 Flower Shop Mgt.			4
HORT 298 Sem. & Proj.			1-5
Total Credits	16	17	14

Total minimum credits for Floral Design Major - A.A.S. Degree = 98

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

HOTEL, RESTAURANT & INSTITUTIONAL MANAGEMENT/DIETETIC TECHNICIAN (General)

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to enable students to be successfully employed as an assistant to the Chief Dietician at a hospital, nursing home, college feeding complex and other food establishments. The graduate may also assist the director of food service operations at these institutions.

Dietetic Technician Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
HRIM 111-112-113 Food Science	3	3	3	
HRIM 124-125 Prin. of Food Prep.	4	4		
HRIM 134 Nutrition			3	
HRIM 147 Rest./Inst. Org. & Mgt.		3		
HRIM 236 Sanitation	3			
HRIM Elective			3	
*ENGL 101-102 Comm. Skills	3	3		
*SPDR 136 Oral Comm.			3	
MATH 151-152 Bus. Math	3	3		
ACCT 111 Accounting			4	
GENL 100 Orientation	1			
HLTH 100 Intro. to Health Careers		1		
PHED 100 Fund. of Phys. Act.			1	
HRIM 190 Coord. Internship				3
Total Credits	17	17	17	3
(Second Year)				
HRIM 135; 235-235 Nutrition; Diet Therapy		3	4	3
HRIM 221-222 Quantity Food Prep.		4	4	
HRIM 264 Food Cost Control			3	
HRIM 277 Personnel Mgt.				3
HRIM 298 Sem. & Proj.				3
[1]HRIM Elective		3		3
*SOSC 101-102-103 Contemp. Amer. Civ.		3	3	3
HLTH 110 Concepts of Per. & Comm. Hlth.		3		
PHED Phys. Act. Elect.			1	1
Total Credits		16	15	16

Total minimum credits for Dietetic Technician Major - A.A.S. Degree = 101

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

[1]HRIM Electives may be selected from HRIM 140, 186, 265, 266, HLTH 124, BUAD 110.

HOTEL, RESTAURANT & INSTITUTIONAL MANAGEMENT/FOOD SERVICE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to enable the student to enter executive training and management positions in Food Establishments, College Feeding Complexes, Resorts or Private Clubs. The curriculum specializes in the Food Service management phase of the hospitality industry.

Food Service Curriculum

(First Year)

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
HRIM 124-125 Prin. of Food Prep.	4	4	
HRIM 140 Prin. of Baking			4
HRIM 146-147 Hotel/Rest. Org. & Mgt.	3	3	
HRIM 111-112-113 Food Science	3	3	3
HRIM 236 Sanitation	3		
HRIM 186 Equip. Layout & Design			3
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Comm.			3
MATH 151-152 Bus. Math		3	3
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
Total Credits	17	17	17

(Second Year)

HRIM 221-222 Quantity Food Prep.	4	4	
[1]HRIM Electives	6	3	3
HRIM 264 Food Cost Control		3	
HRIM 266 Food Purch.		3	
HRIM 298 Sem. & Proj.			3
HRIM 277 Personnel Mgt. for HRI			3
HRIM 286 Catering			3
ACCT 111 Accounting	4		
*SOSC 101-102-103 Contemp. Amer. Civ.	3	3	3
Total Credits	17	16	15

Total minimum credits for Food Service Major - A.A.S. Degree = 99

[1]HRIM Electives may be selected from: HRIM 135, 136, 156, 265, 289, 290, 297; ACCT 126

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

HOTEL, RESTAURANT & INSTITUTIONAL MANAGEMENT

CERTIFICATE

Specialization in Food Service Management

Purpose: The curriculum is designed for persons seeking employment in the hospitality industry and for those presently employed who desire updating in their occupational specialty.

Food Service Management Curriculum

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
HRIM 124-125 Prin. of Food Prep.	4	4	
HRIM 140 Prin. of Baking			4
HRIM 147 Rest./Inst. Org./Mgt.		3	
HRIM 236 Sanitation	3		
HRIM 266 Food Purch.		3	
HRIM 277 Personnel Mgt. for HRI			3
[1]HRIM Elective	3	3	3
GENL 100 Orientation	1		
PSYC 110 Prin. of Appl. Psyc. or BUAD 110			3
ENGL 101 Comm. Skills	3		
Total Credits	14	13	13

Total minimum credits for Food Service Management Major Certificate = 40

[1]HRIM Elective for Food Service Management Specialization may be selected from:
HRIM, 134-135, 186, 221, 234, 264, 286, 289, 290, 297
MATH 151-152

HOTEL, RESTAURANT & INSTITUTIONAL MANAGEMENT/HOTEL-MOTEL

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to enable the student to enter executive training and management positions in Hotels, Motels and Motor Hotels, and Clubs. The curriculum specializes in the Hotel/Motel management phase of the public hospitality industry.

Hotel/Motel Curriculum

(First Year)

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
HRIM	124-125-221 Food Prep.	4	4	4
HRIM	146 Hotel/Motel Org. & Mgt.	3		
HRIM	156 Club Mgt.		3	
HRIM	168 Exec. Housekeeping			3
HRIM	111-112-113 Food Science	3	3	3
*ENGL	101-102 Comm. Skills	3	3	
*SPDR	136 Oral. Comm.			3
ACCT	111-112-126 Accounting	4	4	3
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act.		1	
	Total Credits	18	18	16

(Second Year)

HRIM	236 Sanitation	3		
HRIM	287 Front Off. Procedures	3		
HRIM	264 Food & Bev. Cost Control		3	
HRIM	266 Food Purch.		3	
HRIM	188 Mktg. of Hospitality Ser.		3	
HRIM	277 Personnel Mgt. for HRI			3
HRIM	286 Catering			3
HRIM	289 Hotel/Motel Law			3
'HRIM	Electives	3		3
PHED	Phys. Act. Elect.	1		1
MATH	151-152 Bus. Math	3	3	
*SOSC	101-102-103 Cont. Amer. Civ.	3	3	3
	Total Credits	16	15	16

Total minimum credits for Hotel/Motel Major - A.A.S. Degree = 99

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

'HRIM Electives may be selected from: HRIM 134, 147, 186, 265, 290, 297

HOTEL, RESTAURANT & INSTITUTIONAL MANAGEMENT

CERTIFICATE

Specialization in Hotel/Motel Management

Purpose: The curriculum is designed for persons seeking employment in the hospitality industry and for those presently employed who desire updating in their occupational specialty.

Hotel/Motel Management Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
HRIM	124-125 Food Prep.	4	4	
HRIM	146 Hotel/Motel Org. & Mgt.	3		
HRIM	168 Exec. Housekeeping			3
HRIM	277 Personnel Mgt. for HRI			3
HRIM	287 Front Off. Procedures	3		
'HRIM	Elective	3	6	3
ENGL	101 Comm. Skills		3	
PSYC	110 Prin. of Appl. Psyc. or BUAD 110			3
GENL	100 Orientation	1		
	Total Credits	14	13	12

Total minimum credits for Hotel/Motel Management Major Certificate = 39

'HRIM Electives for Hotel/Motel Management Specialization may be selected from:

HRIM 156, 236, 264, 265, 266, 286, 289, 290, 297
MATH 151, 152

INSURANCE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek full-time employment in the insurance field or for those presently in insurance who are seeking promotion. The program is designed to support two major areas of insurance, life underwriting and casualty insurance. The occupational objectives include: Insurance Sales and Marketing/Insurance Office Trainee/Claim Representative/Adjuster Trainee/Insurance Underwriter Trainee.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Insurance Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ACCT 211-212-213 Prin. of Acct.	3		
BUAD 100 Intro. to Bus.	3		
BUAD 164 Prin. of Bus. Mgt.		3	
BUAD 117 Prin. of Securities Inv.			3
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Comm.			3
BUAD 101-102-103 Bus. Math & Mach. or MATH 151-152-153	3	3	3
[1]SECR 111 Typewriting	3		
MKTG 100 Prin. of Mktg.		3	
DAPR 106 Intro. to Data Processing			3
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act.		1	
MKTG 109 Prin. of Salesmanship or MKTG 241			3
Total Credits	16	16	18
(Second Year)			
MKTG 144-145 Prin. of Risk & Ins.	3	3	
BUAD 241-242 Bus. Law	3	3	
ACCT 244 Bus. Taxes	3		
MKTG 247 Fund. of Life & Health Ins. or MKTG 242	3		
MKTG 248 Estate Anal. & Plan. or MKTG 243		3	
MKTG 250 Ins. Claim Adj. or Bus. Elect.			3
MKTG 249 Group Ins. & Pension or MKTG 256		4	
MKTG 298 Sem. & Proj.			3
MKTG 258 Adv. Prop. Ins. Adj. or Bus. Elect.			3
PHED Phys. Act. Elect.	1	1	
*Soc. Sci. Elect.	3	3	3
[2]Bus. Elect.			3
Total Credits	16	16	15

Total Minimum credit for Insurance Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

[1]Students proficient in typing may petition for waiver with credit by examination

[2]Business Electives may be chosen from BUAD, DAPR, ACCT, or MKTG courses.

LIBERAL ARTS

ASSOCIATE IN ARTS DEGREE

Purpose: The Associate in Arts degree major in Liberal Arts is designed for persons who plan to transfer to a four year institution to complete a bachelors degree program in any of the Humanities or social science areas.

Special Curriculum Admission Requirements: Satisfactory completion of the following high school units or equivalent: 4 of English, 2 of Mathematics (Algebra and Geometry), 1 of Laboratory Science and 1 of History. Two units of Foreign Lanuage are recommended.

Liberal Arts Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL 111-112-113 Eng. Comp.	3	3	3
GENL 100 Orientation	1		
HIST Amer. Hist. or Hist. of West. Civ.	3	3	3
*MATH Mathematics	3	3	3
[1]Natural Science (with Lab.)	4	4	4
[2]Electives	3	3	3
Total Credits	17	16	16
(Second Year)			
ENGL Amer. Eng., or World Lit.	3	3	3
**Foreign Language	4	4	4
[3]Soc. Sci. Elect.	3	3	3
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
[2]Electives	6	6	6
Total Credits	17	17	17

Total minimum Credits for Liberal Arts Major - A.A. Degree = 97

*Math courses to be selected are listed on page 35.

[1]Science courses may be selected from Biology, Chemistry, Physics, Geology or the Natural Science 121-122-123 course.

[2]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

**See "Foreign Lang. Requirement for A.A. Degree in Liberal Arts" on page 36.

[3]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

MECHANICAL ENGINEERING TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare the student for industrial employment as a mechanical engineering technician. Occupational objectives include: Draftsman or Drafting Supervisor/Estimator/Engineering Equipment Inspector/Engineering Plant Operator/Research and Development Technician/Manufacturers Sales Representative

Special Curriculum Admissions Requirements: High School Algebra and Geometry

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Mechanical Engineering Technology Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
GENL 100 Orientation	1		
*ENGL 101-102; Comm. Skills	3	3	
*ENGL 137 Tech Writing			3
MATH 121-122 Engr. Tech. Math	5	5	
ENGR 100 Intro. to Engr. Tech.	2		
DRFT 111-112-113 Tech. Drft.	2	2	2
INDT 111-112 Matl. & Processes of Indus.		3	3
ENGR 151 Mechanics (Statics)			4
MECH 131-132 Machine Lab.		2	2
*Soc. Sci. Elect.	3	3	3
Total Credits	16	18	17
(Second Year)			
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
PHYS 101-102-103 Intro. Physics	4	4	4
ENGR 152-153 Mech. (Strength & Dynamics)	3	3	
ENGR 154 Mech. Lab.	1		
MECH 237-238 Machine Design		4	4
MECH 246 Metallurgy	4		
MECH 264 Thermodynamics	4		
MECH 298 Sem. & Proj. or Coop. Ed.			2
Tech. Elect. (or MATH 123)		3-4	3-5
Total Credits	17	15-16	14-16

Total Minimum credits for Mechanical Engineering Technology Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

MEDICAL LABORATORY TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare the students for employment, upon graduation and certification, as Medical Laboratory Technicians in hospital laboratories, private laboratories, physicians' office laboratories, health department laboratories, and industrial medical laboratories.

Special Curriculum Admission Requirements: Entry into the curriculum requires: 2 units of mathematics, 2 units of laboratory science in high school; evidence of good physical health and a satisfactory interview with the Program Head.

Medical Laboratory Technology Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
CHEM 101-102-103 Gen. Chem. or CHEM 111-112-113	4	4	4
MATH 181-182-183 Gen. College Math	3	3	3
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Comm.			3
GENL 100 Orientation	1		
BIOL 251-252 Anatomy & Physiology	4	4	
BIOL 176 Microbiology			4
MDLB 100 Intro. to Med. Lab. Sci.	2		
MDLB 116 Intro. to the Clinical Lab.		4	
MDLB 126 Prin. of Hematology			4
Total Credits	17	18	18
(Second Year)			
MDLB 225 Clin. Hematology	7		
MDLB 277 Clin. Microbiology	6		
MDLB 259 Diag. Microbiology	3		
*Soc. Sci. Elect.		9	
MDLB 250 Prin. of Blood Bkg. & Serology		4	
MDLB 264-265 Clin. Chem.		5	8
MDLB 288 Clin. Blood Bkg. & Serology			7
PHED 100 Fund. of Phys. Act. & 2 Elect.	1		2
MDLB 298 Sem. & Proj.			1
Total Credits	17	18	18

Total minimum credits for Medical Laboratory Technology Major - A.A.S. Degree = 107

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

MEDICAL RECORD TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare students to work as medical record technicians in the medical record department of a hospital, outpatient facility or nursing care facility. The medical record technician is trained to perform all of the functions in a medical record department which can include: analyzing medical reports, typing medical reports, compiling census, discharge and vital statistics, coding diseases and operations, assisting medical staff committees, attending legal proceedings and releasing medical information. In addition, the technician is prepared to accept the responsibilities of supervising the daily operation of a medical record department.

Special Curriculum Admission Requirements: High school courses: Science (Biology and/or Chemistry). Algebra 1 (High School record must reflect a "C" Math proficiency) Personal interview, Typing proficiency: 40 W.P.M. Evidence of good physical and mental health.

Special Accreditation Status: The program is approved by the Council on Medical Education of the American Medical Association in cooperation with the American Medical Record Association.

Medical Record Technology Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Comm.			3
NASC 111-112-113 Health Science	4	4	4
MDRS 100 Med. Report Transcrpt.			3
MDRS 111-112 Med. Record Sci.	4	4	
MDRS 190 Coord. Practice		1	2
HLTH 100 Orien. to Allied Hlth. Careers	1		
HLTH 124-125 Med. Terminology	3	2	
GENL 100 Orientation	1		
DAPR 106 Prin. of Data Processing			3
Total Credits	16	17	15
(Second Year)			
MDRS 213-214 Med. Record Sci.	4	4	
MDRS 290 Coord. Prac.	4	5	5
MDRS 298 Sem. & Proj.			3
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
*SOSC 101-102-103 Contemp. Amer. Civ.	3	3	3
BUAD 110 Human Relat. & L.	3		
DAPR 281 Sys. Analysis	3		
BUAD 164 Bus. Mgt.		3	
Elective			3
Total Credits	18	16	15

Total minimum credits for Medical Record Technology Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

MERCHANDISING

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek full-time employment in areas involving the merchandising and distribution of goods and for those presently in these fields who are seeking promotion. The occupational objectives include: Store Manager/Assistant Manager/Sales Supervisor/Department Manager/Sales Representative/Buyer/Assistant Buyer. The curriculum offers specialization in Fashion Merchandising, Retail Merchandising, and Supermarket Merchandising. These specializations are designed for the second year of the curriculum after a common first year.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic arithmetic operations.

Merchandising Curriculum

(First Year: Common to all Specializations)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
*ACCT 111-112-113 Accounting	4	4	4
BUAD 100 Intro. to Bus.	3		
*ECON 160 Amer. Econ.	3		
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Comm. (or ENGL 180)			3
MATH 151-152-153 Bus. Math (or BUAD 101-102-103)	3	3	3
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
BUAD 164 Prin. of Bus. Mgt.		3	
MKTG 100 Prin. of Marketing		3	
MKTG 136 Retail Organization Mgt.			3
*PSYC 110 Prin. of Applied Psyc.			3
Total Credits	18	17	17
(Second Year: Fashion Merchandising)			
*GOVT 180 Amer. Const. Govt.	3		
MKTG 109 Prin. of Salesmanship	3		
MKTG 110 Fund. of Fashion	3		
MKTG 217 Color, Line. & Design in Retailing	3		
BUAD 110 Human Relat. & Ldrshp. Tng.	3		
BUAD 241-242 Bus. Law or Elect.		3	3
MKTG 218 Fashion Mdse. (Buying & Control)		3	
MKTG 227 Adv. & Display		4	
MKTG 216 Mdse. Infor.		3	
ACCT 244 Bus. Taxes or Bus. Elect.		3	
BUAD 276 Personnel Mgt.			3
MKTG 219 Fashion Sales Prom.			3
MKTG 209 Sales Mgt.			3
MKTG 298 Sem. & Proj.			3
Total Credits	15	16	15

Total minimum credits for Fashion Merchandising Major - A.A.S. Degree = 98

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35. .

[1]ACCT 211-212-213 may be substituted for ACCT 111-112-113, with approval of Division. Three additional hours will be required to meet degree requirements if ACCT 211-212-213 are selected.

(Second Year: Retail Merchandising)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
BUAD 254 Appl. Bus. Statistics or Bus. Elect.	3		
DAPR 106 Prin. of Data Proc. or Elect.	3		
MKTG 109 Prin. of Salesmanship	3		
*GOVT 180 Amer. Const. Govt.	3		
BUAD 110 Human Relat. & Ldrshp. Tng.	3		
MKTG 216 Mdse. Infor.		3	
BUAD 241-242 Bus. Law or Elect.		3	3
MKTG 226 Mdse. Buying & Control		3	
MKTG 227 Adv. & Display		4	
ACCT 244 Bus. Taxes or Bus. Elect.		3	
BUAD 276 Personnel Mgt.			3
MKTG 228 Sales Prom.			3
MKTG 209 Sales Mgt.			3
MKTG 298 Sem. & Proj.			3
Total Credits	15	16	15

Total minimum credits for Retail Merchandising Major - A.A.S. Degree = 98

(Second Year: Supermarket Merchandising)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
DAPR 106 Prin. of Data Proc. or Elect.	3		
*GOVT 180 Amer. Const. Govt.	3		
MKTG 109 Prin. of Salesmanship	3		
MKTG 180 Intro. to Food Mktg.	3		
BUAD 110 Human Relat. & Ldrshp. Tng.	3		
ACCT 244 Bus. Taxes or Bus. Elect.		3	
BUAD 241-242 Bus. Law or Elect.		3	3
MKTG 287 Supermarket Oper.		3	
MKTG 227 Adv. & Display		4	
MKTG 226 Merch. Buying & Control		3	
BUAD 276 Personnel Mgt.			3
MKTG 286 Supermarket Merch.			3
MKTG 209 Sales Mgt.			3
MKTG 298 Sem. & Proj.			3
Total Credits	15	16	15

Total minimum credits for Supermarket Merchandising Major - A.A.S. Degree = 98

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

MUSIC

ASSOCIATE IN ARTS DEGREE

Purpose: The Associate in Arts Degree curriculum in Music is designed primarily for students who wish to transfer to a four-year college or university to complete the baccalaureate degree in music or music education.

Special Curriculum Admission Requirements: An audition and interview by the music faculty is necessary prior to final acceptance in this program.

Special Curriculum Completion Requirements: Applied music students: Tuition fees are payable to the College. Studio charges are payable directly to applied music instructors.

Music Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL 111-112-113 Eng. Comp.	3	3	3
HIST 101-102-103 Hist. of West. Civ.	3	3	3
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
MUSC 111-112-113 Music Theory	4	4	4
MUSC Appl. Music (Major)	2	2	2
MUSC Appl. Music (Minor)	1	1	1
MUSC Chorus/Band/Orch/Ensemble	1	1	1
GENL 100 Orientation	1		
[1]Elective			3
Total Credits	16	15	18

(Second Year)

NASC 100 Survey of Science	4		
MUSC 211-212-213 Adv. Music Theory	4	4	4
MUSC 221-222-223 Music History	3	3	3
MUSC Appl. Musc. (Major)	2	2	2
MUSC Appl. Music (Minor)	1	1	1
MUSC Chorus/Band/Orch/Ensemble	1	1	1
ENGL 270 Survey of World Lit.		5	
[1]Electives			6
Total Credits	15	16	17

Total minimum credits for Music Major - A.A. Degree = 97

[1]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

NURSING

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: To prepare students as contributing members of the health team, rendering direct patient care as beginning practitioners of nursing in a variety of health service facilities. Upon graduation, students will be eligible to take the Virginia State Board of Nursing examinations leading to licensure as a registered nurse (R.N.).

Special Curriculum Admission Requirements: (1) High School courses; 1 unit each of Biology, Algebra, and Chemistry, with a minimum grade of "C" and proficiency in communication skills. Deficiencies may be corrected in the Developmental Program before entering the Nursing curriculum. (2) Achievement must reflect a "C" average. (3) Evidence of good physical and mental health. The Nursing Program reserves the right to determine the student's final acceptance. (4) Students majoring in nursing are admitted in September; early application is desirable. Students may take support courses prior to entering the Nursing seven quarter sequence.

Transfer credits in the natural and social science earned at another institution more than ten years ago may not be considered for transfer credit without special permission from the nursing program.

Special Curriculum Completion Requirements: The College (Nursing Program) reserves the right to recommend to the Provost the withdrawal of any student whose adjustment and progress in the area of nursing and/or personal demeanor do not meet the prescribed level as recommended by the Nursing Program faculty. Satisfactory mental and/or physical health must be maintained for continuance in the program. Any student who receives a final grade less than "C" in any of the courses in the Nursing sequence must obtain permission from the Program Head to continue the major in nursing and must then repeat the course and earn a final grade of "C" or higher before taking the next course in the sequence. Students are totally responsible for transportation to and from the College and the various hospitals and other health agencies which are utilized for clinical laboratory experiences. Student uniform and accessories, and Nursing Student Liability Insurance are the financial responsibility of the individual student.

Special Accreditation Status: The program is approved by the Virginia State Board of Nurse Examiners and has been granted accreditation by the National League for Nursing, Department of Associate Degree Programs.

Nursing Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
NACS 111-112-113 Health Science	4	4	4	
*ENGL 101-102 Comm. Skills	3	3		
*SPDR 136 Oral Comm.			3	
PSYC 201-202-203 Gen. Psyc.	3	3	3	
NURS 111-112-113 Fund. of Nursing	5	6	8	
HLTH 100 Orien. to Allied Hlth. Careers	1			
GENL 100 Orientation	1			
NURS 221 Nurs. in Major Hlth. Prob.				8
Total Credits	17	16	18	8
(Second Year)				
*SOSC 101-102-103 Contemp. Amer. Civil.		3	3	3
SOCI 101-102-103 Intro. Soc.		3	3	3
NURS 222-223-224 Nurs. in Major Hlth. Prob.		8	8	8
NURS 298 Sem. & Proj.				2
Total Credits		14	14	16

Total minimum credits for Nursing Major - A.A.S. Degree = 103

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

OCCUPATIONAL SAFETY & HEALTH TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to meet the manpower needs related to the Occupational Safety and Health Act.

Occupational Safety & Health Technology

(First Year)

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
INDT	130 Safety Prog., Org. & Adm.	4		
INDT	127 Safety & Health Stand., Reg., & Codes	3		
MATH	121-122 Engr. Tech. Math.	5	5	
INDT	136 Indus. Safety Planning		3	
INDT	137 Matl. Handling & Storage		3	
HLTH	241-242 Occupational Health		3	3
*ENGL	101-102 Comm. Skills	3	3	
SPDR	136 Oral Comm.			3
HLTH	146 Occupational Injury & Dis. Con.			3
INDT	134 Power Source Hazards Control			3
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
GENL	100 Orientation	1		
	Elective			3
	Total Credits	16	18	16

(Second Year)

INDT	116 Instrumentation for OSHA	4		
INDT	236 Operational Workplaces	3		
INDT	237 Preventive Maintenance	3		
INDT	236 Occupational Safety Engr. Tech.		5	
INDT	246 Manuf. Process Analysis			3
ARCH	250 Constr. Safety & Health			4
	Lab. Science (Gen. Chem. or Phys.)	4	4	4
	*Soc. Sci. Elect.	3	3	3
PHED	Phys. Act. Elect.	1		
FIRE	116 Fund. of Fire Prevention		3	
	Total Credits	18	15	14

Total Minimum Credits for Occupational Safety & Health Technology Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

PHYSICAL THERAPIST ASSISTANT

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: This curriculum is designed to prepare students as skilled technical health workers who will possess the knowledge and abilities that are necessary to assist the professional physical therapist in providing specific patient services for the prevention or alleviation of physical impairments. Upon successful completion of the Program, students are eligible to take the Virginia State Licensing Examination leading to licensure as a Physical Therapist Assistant.

Special Curriculum Admission Requirements: 1 unit high school Biology, 1 unit high school Chemistry, overall record of "C" average, evidence of good physical and mental health, and personal interviews.

Physical Therapist Assistant Curriculum

(First Year)

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
*ENGL	101-102 Comm. Skills	3	3	
*SPDR	136 Oral Comm.			3
†PSYC	110 Prin. of Appl. Psyc.	3		
†PSYC	116 Psyc. of Per. Adj.		3	
†PSYC	Psyc. Elect.			3
NASC	111-112-113 Health Science	4	4	4
HLTH	100 Orien. to Allied Hlth. Careers	1		
GENL	100 Orientation	1		
PSTH	101-102-103 Fund. of Phys. Therapy	5	5	8
HLTH	150 Concepts of Disease		3	
	Total Credits	17	18	18

(Second Year)

*SOSC	101-102-103 Contemp. Amer. Civ.	3	3	3
PSTH	201-202-203 Adv. Phys. Therapy Assist. Pro.	8	8	8
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
PSTH	298 Sem. & Proj.	3	3	
	Total Credits	15	15	15

Total minimum credits for Physical Therapist Assistant Major - A.A.S. Degree = 98

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

†PSYC 201-202-203 may be substituted for PSYC 110 - 116, and PSYC Elect.

POLICE SCIENCE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to provide a broad foundation which will prepare the student to enter any of the varied fields of law enforcement or prepare for professional advancement. The occupational objectives include: Local, State and Federal Enforcement Officer/Police Officer/Private or Government Investigator.

Special Curriculum Admission Requirements: The student must possess excellent moral character and provide a written record of conduct (waived for employees of governmental criminal justice agencies). A personal interview with a member of the Police Science faculty is required. Adjustments in the curriculum may be made with Faculty approval to enable a student to transfer to a four year criminal justice program. This program is included under the Safe Streets Act of 1968 for L.E.E.P. grants and loans. See financial aids counselor for details.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Police Science Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
LWNF 100 Intro. to Law Enforce.	3		
LWNF 110 Patrol Admin.	3		
LWNF 117 Special Enforce. Prob.		3	
LWNF 187 Traffic Admin. & Control		3	
LWNF 126 Prev. & Control of Juvenile Del.			3
LWNF 158 Intro. to Law Enforce. Photo.			3
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Comm.			3
SOCI 101-102 Intro. Soc.	3	3	
PHED 100 Fund. of Phys. Act. & 1 Elect.	1		1
*SOSC 101-102 Contemp. Amer. Civ.	3		3
GENL 100 Orientation	1		
NASC 100 Survey of Science Elect.		4	3
Total Credits	17	16	16
(Second Year)			
LWNF 254-255 Crim. Invest. Tech.	4	4	
LWNF 231-232-233 Crim. Law, Evidence & Proc.	3	3	3
LWNF 114-115-116 Police Organ. & Adm.	3	3	3
LWNF 276 Indus. & Comm. Security	3		
LWNF 176 Criminology		3	
LWNF 298 Sem. & Proj.			3
LWNF 228 Law Enforce. & the Comm.			3
*SOSC 103 Contemp. Amer. Civ.	3		
PHED Phys. Act. Elect.	1		
Electives		3	3
Total Credits	17	16	15

Total Minimum Credits for a Police Science Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

POLICE SCIENCE

CERTIFICATE

Purpose: The certificate curriculum in Police Science is designed for those students who wish to take only those courses which relate directly to the law enforcement field. Courses taken in the certificate program can be applied to the A.A.S. Degree.

Special Curriculum Admission Requirements: The same requirements apply as stated for the A.A.S. Curriculum.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Police Science Curriculum

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
LWNF 100 Intro. to Law Enforce.	3		
LWNF 110 Patrol Admin.		3	
LWNF 114-115 Police Organ. & Admin.	3	3	
LWNF 231-232-233 Crim. Law Evidence & Proc.	3	3	3
LWNF 276 Indus. & Comm. Security	3		
LWNF 117 Spec. Enforcement Prob.			3
LWNF 187 Traffic Admin. Control		3	
LWNF 246 Prin. of Crim. Invest.		3	
LWNF 126 Prev. & Control of Juvenile Del.			3
GENL 100 Orientation	1		
ENGL 121 Comm. Skills			3
SOSC 101-102-103 Contemp. Amer. Civ.	3	3	3
Total Credits	16	18	15

Total Minimum Credits for Police Science Major - Certificate = 49

REAL ESTATE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek full-time employment in the real estate field or for those presently in the field who are seeking promotion. The occupational objectives include: Real Estate Salesman/Real Estate Broker/Apartment House Manager/Real Estate Office Manager/Real Estate Loan Officer/Real Estate Sales Manager/County Urban Planner.

Special Curriculum Admission Requirements: The students should possess a proficiency in high school English and a strong background in basic Arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Real Estate Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
[1]ACCT 111-112-113 Accounting	4	4	4
BUAD 100 Intro. to Bus.	3		
MATH 151-152-153 Bus. Math (or BUAD 101-102-103)	3	3	3
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Comm.			3
*ECON 160 Amer. Econ.	3		
GENL 100 Orientation	1		
BUAD 164-165 Prin. of Bus. Mgt.		3	3
MKTG 164-165 Prin. of Real Estate		3	3
PHED 100 Fund. of Phys. Act.		1	
Total Credits	17	17	16

(Second Year)

BUAD 241-242 Bus. Law	3	3	
[2]SECR 111 Typewriting	3		
MKTG 268 Property Mgt.	3		
MKTG 267 Real Estate Appraisal	3		
*PSYC 110 Prin. of Applied Psyc.	3		
PHED Phys. Act. Elect.	1		1
*GOVT 180 Amer. Const. Govt.		3	
MKTG 266 Real Estate Sales		3	
MKTG 269 Real Estate Finance		3	
Elective		3	
MKTG 150 Prin. of Insurance or Elect.			3
MKTG 276 Land Planning & Use or Elect.			3
MKTG 277 Legal Aspects of Real Estate			3
MKTG 298 Sem. & Proj.			3
ACCT 244 Bus. Taxes			3
Total Credits	16	15	16

Total Minimum Credits for Real Estate Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

[1]ACCT 211-212-213 may be substituted for ACCT 111-112-113 with approval of division. Three division hours will be required to meet degree requirements if ACCT 211-212-213 are selected.

[2]Waiver of this course may be granted for the student who has satisfactorily completed one year of typing in high school or has equivalent training. Student may also petition for credit by examination.

REAL ESTATE
CERTIFICATE

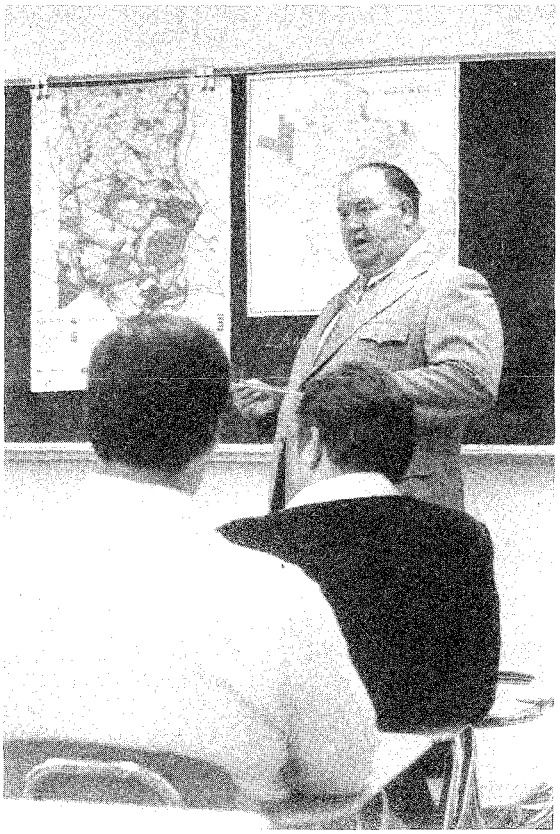
Purpose: The curriculum is designed for present or future practioners in the profession who wish to improve or acquire understanding and knowledge of essential real estate subjects.

Special Curriculum Admission Requirements: Proficiency in high school English and background in basic arithmetic operations.

Real Estate Curriculum

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
BUAD 100 Intro. to Bus.	3		
MKTG 109 Salesmanship or Acct. Elect.	3		
MKTG 164-165 Prin. of Real Estate	3	3	
Soc. Sci. or Humanities Elect.	3		
MKTG 166 Real Estate Math		3	
BUAD 164 Prin. of Bus. Mgt.		3	
MKTG 269 Real Estate Finance		3	
PSYC Psyc. Elect.			3
MKTG 266 Real Estate Sales			3
MKTG 277 Legal Aspects of Real Estate			3
MKTG Real Estate Elect.			3
Total Credits	12	12	12

Total Minimum Credits for Real Estate Major - Certificate = 36



RECREATION AND PARKS

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare for entry into the field of Recreation and Parks in both public and private agencies. It also has the objective of providing those already employed in these fields an opportunity to improve and upgrade their skills. The occupational objectives include: Assistant Recreation Supervisor/Recreation Leader/Park Manager/Assistant Park Manager/Park Ranger.

Special Admission Requirements: Proficiency in high school English and background in basic arithmetic operation.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Recreation and Parks Curriculum

(First Year)

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
*ENGL 101-102 Comm. Skills	3	3	
GENL 100 Orientation	1		
*Soci. Sci. Elect.	3	3	3
PHED 100 Fund. of Phys. Act. & 1 Elect.	1	1	
RCPK 100 Intro. to Rec. & Park Field	3		
RCPK 110 Rec. Applied Arts Mgt.	2		
[1]Approved Rec. Elect.	3		
NASC 100 Survey of Science		4	
SOCI 101 Intro. Soc.		3	
RCPK 101 Rec. & Park Mgt.		3	
HORT 100 Intro. to Horticulture			4
MATH 151 Bus. Math			3
RCPK 126 Nat. Resources & Urban Envir.			2
RCPK 136 Prog. Planning, Org. & Group Ldrshp.			2
RCPK 137 Org. & Mgt. of Rec. Sport Act.			3
Total Credits	16	17	17

(Second Year)

ACCT 111 Accounting	4		
BUAD 174 Small Bus. Mgt.	3		
DAPR 106 Prin. of Data Processing	3		
HORT 250 Landscape Planning	3		
RCPK 102-103 Rec. & Parks Mgt.		3	3
RCPK 216 Interpretation in Urban Envir.			4
*SPDR 136 Oral Comm.		3	
BUAD 241 Bus. Law			3
HIRM 156 Club Mgt.			3
PHED Phys. Act. Elect.		1	
[1]Approved Recreation Elect.	3	5	3
Total Credits	15	16	16

Total minimum Credits for Recreation and Parks Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

[1]Students wanting to specialize in designated areas should select electives as follows: Recreation Speciality: RCPK 108, 146, 116, 138, 207, 290, MUSC 296; Parks Speciality: RCPK 138, 290, FORE 107, 130, 131, 132; Forestry Wildlife: FORE 130, 131, 132, 117, RCPK 290.

RECREATION VEHICLE - MOTORCYCLE MAINTENANCE

CERTIFICATE

Purpose: The curriculum is designed to train the student to be safe, knowledgeable, motorcycle mechanics with the basic working experiences so that the individual is prepared for full-time employment as a mechanic, set-up or tune-up specialist. Complete theory and lab experiences for all motorcycle systems are included.

Special Curriculum Admissions Requirements: Automotive Shop or equipvalent.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Motorcycle Maintenance Curriculum

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
[1]RVEH 120 Intro. to Motorcycle Mech.	3		
RVEH 176 Two-Stroke Engines	3		
RVEH 177 Four-Stroke Engines	3		
MATH 118 Intro. to Tech. Math	5		
RVEH 126 Fuel Systems		3	
RVEH 156 Drive Trains		3	
RVEH 267 Suspensions		3	
ENGL 101-102 Comm. Skills		3	3
PSYC 128 Human Relat.		3	
RVEH 116 Machine Lab.			3
RVEH 127 Elec. Systems			3
RVEH 197 Sem. & Proj. or Coop. Ed.			2
BUAD 174 Small Bus. Mgt.			3
Total Credits	14	15	14

Total Minimum Credits for Motorcycle Mechanics Major Certificate = 43

[1]Pre or Co-Requisite to all RVEH courses.

RESPIRATORY THERAPY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare individuals for the American Registry of Inhalation Therapists examination and to qualify them as contributing members of the health team concerned with the treatment, management, control and care of patients with respiratory diseases.

Special Curriculum Admission Requirements: 1 unit of high school Algebra and Laboratory Science.

Respiratory Therapy Curriculum

(First Year)

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
NASC 141-142-143 Fund. Sci. for Resp. Therapy	4	4	4
NASC 111-112-113 Health Science	4	4	4
RPTH 136 Fund. Arts	3		
RPTH 144-145 Fund. Theory & Proc.		4	4
RPTH 190; 290 Coord. Pract.			4
*ENGL 101-102 Comm. Skills	3	3	
*ECON 160 Amer. Econ.		3	
GENL 100 Orientation	1		
HLTH 100 Orien. to Allied Hlth. Careers	1		
PHED 100 Fund. of Phys. Act. & 1 Elect.	1		1
Total Credits	17	18	17
(Second Year)			
RPTH 241-242-243 Fund. Theories & Proc.	4	4	4
RPTH 290 Coord. Pract.	4	4	4
RPTH 231-232-233 Cardio-Pulmonary Sci.	3	4	4
RPTH 236 Fund. Arts		3	
RPTH 298 Sem. & Proj.			2
*GOVT 180 Amer. Const. Govt.	3		
PHED Phys. Act. Elect.	1		
EDUC Education Elect.	3		
*SPDR 136 Oral Comm.		3	
*PSYC110 Prin. of Appl. Psyc.			3
Total Credits	18	18	18

Total Minimum Credits for Respiratory Therapy Major - A.A.S. Degree = 110

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

SCIENCE

ASSOCIATE IN SCIENCE DEGREE

purpose: The curriculum is designed for persons who are interested in a pre-professional or scientific program and who plan to transfer to a four-year college or university to complete a baccalaureate degree program with a major in one of the following fields: Agriculture/Biology/Chemistry/Dentistry/Forestry/Geology/Home Economics/Mathematics/Pre-Medicine/Nursing/Physics/Physical Therapy/Pharmacy/Science Education.

Special Curriculum Admission Requirements: Satisfactory completion of the following high school units or equivalent as a minimum: 4 units of English/3 units of college preparatory Mathematics/1 unit of Laboratory Science/1 unit of Social Sciences.

Science Curriculum

(First Year)

	Credits		
	1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL 111-112-113 Eng. Comp.	3	3	3
GENL 100 Orientation	1		
HIST 101-102-103 Hist. of West. Civ. or HIST 111-112-113	3	3	3
MATH 161-162-163 College Math or MATH 141-142-143	3-5	3-5	3-5
[1] Science (with Lab.)	4	4	4
PHED 100 Fund. of Phys. Act.		1	
[2]Elective			3
Total Credits	14-16	14-16	16-18
(Second Year)			
ENGL Amer. Eng. or World Lit.	3	3	3
[3]Soc. Sci. Elect.	3	3	3
MATH 241-242-243 Adv. Math Analysis or Elect.	3-4	3-4	3-4
[1]Sci. (with Lab.)	4	4	4
PHED Phys. Act. Elec.	1		1
[2]Electives	3	3-4	3
Total Credits	17-18	16-18	17-18

Total Minimum Credits for Science Major - A.S. Degree = 97

[1]Science courses may be selected from the following: Biology, Chemistry, Physics or Geology.

[2]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

[3]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

SCIENCE TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to accomplish two purposes: to prepare students to enter employment in a variety of technical careers and to provide those now employed in technical occupations the opportunity to upgrade their skills. Occupational objectives include: Air-Water Pollution Control Technicians/Environmental-Natural Science Technicians/Chemical-Biological Technicians/Biomedical Technicians.

Special Curriculum Admission Requirements: Faculty interview and placement questionnaire.

Science Technology Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL 101-102; Comm. Skills	3	3	
ENGL 137 Tech. Writing			3
MATH 118-119 Intro to Tech. Math	5	5	5
SCTE 101-102-103 Sci. Tech. Techniques	3	3	3
SCTE 110 Careers in Sci. Tech.	1		
SCTE 124-125 Appl. Sci. Techniques		3	3
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
*Soc. Sci. Elect.	3	3	3
GENL 100 Orientation	1		
Total Credits	17	18	18

(Second Year)

SCTE 204-205 Sci. Tech. Techniques	3	3	
SCTE 221-222-223 Sci. Tech. Appl.	3	3	3
SCTE 298 Sem. & Proj.			3
*Soc. Sci. Elect.	3	3	3
[1]Science Elect.	4	4	4
Electives	2	3	3
DAPR 106 Prin. of Data Proc.	3		
Total Credits	18	16	16

Total Minimum Credits for Science Technology Major - A.A.S. Degree = 97

[1]Laboratory Science may be chosen from Chemistry, Physics, or Biology

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

SCIENCE TECHNICIAN AIDE

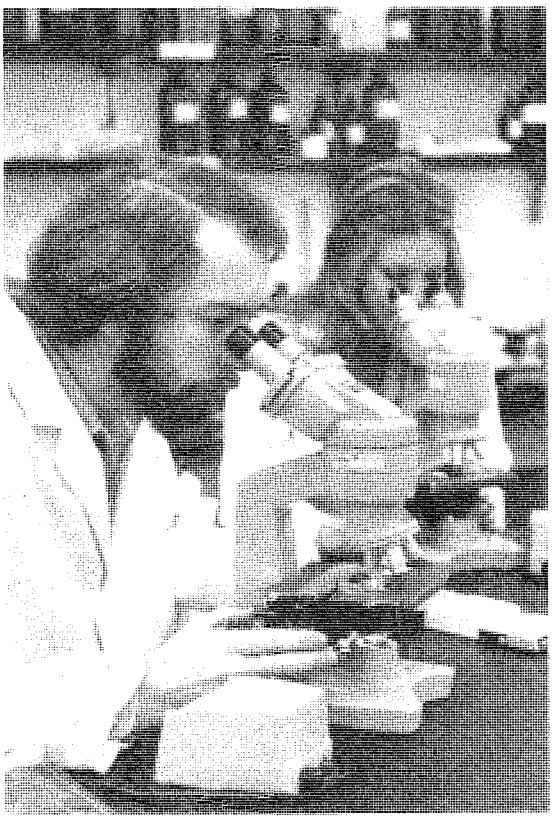
CERTIFICATE

Purpose: The curriculum is designed to provide an opportunity for students to develop a salable skill either as an entry into permanent employment or as an entry into temporary employment while pursuing further education. The occupational objective for the technician aide is to be able to handle the somewhat more routine aspects of environmental technical occupations, animal handling and biomedical clinical technical assistants and chemical technician assistants.

Science Technician Aid Curriculum

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL 101-102; 137 Comm. Skills; Tech. Writing	3	3	3
MATH 11-12-13 Elem. of Math	3	3	3
GENL 100 Orientation	1		
SCTE 110 Careers in Sci. Tech.	1		
SCTE 101-102-103 Sci. Tech. Techniques	3	3	3
Soc. Sci. Elect.	3	3	
SCTE 124-125 Appl. Sci. Techniques		3	3
DAPR 106 Prin. of Data Proc.			3
Total Credits	14	15	15

Total Minimum Credits for the Science Technician Aide Certificate = 44



SECRETARIAL SCIENCE/ ADMINISTRATIVE ASSISTANT

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare persons for initial full-time employment in the secretarial, word processing, and administrative areas of business or to enhance and further develop job related competencies for those presently employed. The curriculum offers a specialization for preparation as an Administrative Assistant.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic Arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Administrative Assistant Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
SECR 111-112-113 Typewriting	3	3	3
*ENGL 101-102 Comm. Skills	3	3	
*ENGL 180 Bus. Eng.			3
[1]MATH 151-152-153 Bus. Math or BUAD 101-102-103	3	3	3
GENL 100 Orientation	1		
BUAD 100 Intro. to Bus.	3		
BUAD 164 Prin. of Bus. Mgt.		3	
BUAD 241 Bus. Law			3
SECR 136 Filing & Records Mgt.	3		
ACCT 111 Accounting		4	
PHED 100 Fund. of Phys. Act. & 1 Elect.		1	1
*ECON 160 Amer. Econ.			3
Total Credits	16	17	16
(Second Year)			
SECR 241-242-243 Sec. Procedures	3	3	3
SECR 236 Spec. Typwr. Applications	3		
SECR 254-255 Mach. Transcription	3	3	
SECR 217 Typwr. Skill Bldg.			3
*PSYC 110 Prin. of Appl. Psyc.	3		
*GOVT 180 Amer. Const. Govt.		3	
BUAD 242-243 Bus. Law or ACCT 112-113		3-4	3-4
SECR 156 Personal Dev.			3
BUAD 276 Personnel Mgt.			3
SECR 298 Sem. & Proj.			2
PHED Phys. Act. Elect.	1		
[2]Electives	3	3	
Total Credits	16	15-16	17-18

Total Minimum Credits for Administrative Assistant Major - A.A.S. Degree = 97

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

[1]DAPR 106 or elective may be substituted for MATH 153/BUAD 103.

[2]Suggested Electives include SECR 121-122 or Related Business Electives.

SECRETARIAL SCIENCE/EXECUTIVE SECRETARY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare students for initial employment or advancement in present employment in the executive secretary specialization.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Executive Secretary Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
SECR 111-112-113 Typewriting	3	3	3
SECR 121-122-123 Shorthand	4	4	4
*ENGL 101-102 Comm. Skills;	3	3	
*ENGL 180 Bus. Eng.			3
BUAD 100 Intro. to Bus.	3		
[1]ACCT 111 Accounting		4	
[2]MATH 151-152-153 Bus. Math (or BUAD 101-102-103) or Elect.	3	3	3
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 1 Elect.		1	1
SECR 136 Filing & Records Mgt.			3
Total Credits	17	18	17
(Second Year)			
SECR 221-222-223 Shorthand Transcription	3	3	3
SECR 241-242-243 Sec. Procedures	3	3	3
*ECON 160 Amer. Econ.	3		
*PSYC 110 Prin. of Appl. Psyc.		3	
*GOVT 180 Amer. Const. Govt.			3
SECR 236 Spec. Typwr. Applications	3		
SECR 254 Mach. Transcription		3	
SECR 217 Typwr. Skill Bldg.			3
PHED Phys. Act. Elect.	1		
BUAD 241 Bus. Law	3		
BUAD 164 Prin. of Bus. Mgt.		3	
SECR 156 Personal Dev.			3
SECR 298 Sem. & Proj.			2
Total Credits	16	15	17

Total Minimum Credits for Executive Secretary Major - A.A.S. Degree = 100

[1]SECR 138 may be substituted for ACCT 111.

[2]DAPR 106 or Elect. may be substituted for MATH 153/BUAD 103.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

SECRETARIAL SCIENCE/LEGAL SECRETARY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare students for initial employment or for advancement in present employment in the Legal Secretary Specialization.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32 .

Legal Secretary Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
SECR 111-112-113 Typewriting	3	3	3
SECR 121-122-123 Shorthand	4	4	4
*ENGL 101-102 Comm. Skills	3	3	
*ENGL 180 Bus. Eng.			3
[1]MATH 151-152-153 Bus. Math (or BUAD 101-102-103) or Elect.	3	3	3
BUAD 100 Intro. to Bus.	3		
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 1 Elect.		1	1
[2]ACCT 111 Accounting		4	
SECR 136 Filing & Records Mgt.			3
Total Credits	17	18	17

(Second Year)

SECR 231-232-233 Legal Transcription	3	3	3
SECR 261-262-263 Legal Procedures	3	3	3
SECR 236 Spec. Typewriter Applications	3		
SECR 254 Mach. Transcription		3	
SECR 217 Typwr. Skill Bldg.			3
*PSYC 110 Prin. of Appl. Psyc.	3		
*ECON 160 Amer. Econ.		3	
*GOVT 180 Amer. Const. Govt.			3
BUAD 241-242 Bus. Law	3	3	
PHED Phys. Act. Elect.		1	
SECR 156 Personal Dev.			3
SECR 298 Sem. & Proj.			2
Total Credits	15	16	17

Total Minimum Credits for Legal Secretary Major - A.A.S. Degree = 100

[1]DAPR 106 or Elective may be substituted for MATH 153/BUAD 103.

[2]SECR 138 may be substituted for ACCT 111.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

SECRETARIAL SCIENCE/MEDICAL SECRETARY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare students for initial employment or for advancement in present employment in the Medical Secretary Specialization.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic Arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32 .

Medical Secretary Curriculum
(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
SECR 111-112-113 Typewriting	3	3	3
SECR 121-122-123 Shorthand	4	4	4
*ENGL 101-102 Comm. Skills	3	3	
*ENGL 180 Bus. Eng.			3
MATH 151-152 Bus. Math (or BUAD 101-102)	3	3	
NASC 130 Body Structure & Function	3		
HLTH 124-125 Medical Terminology		3	2
GENL 100 Orientation	1		
PHED 100 Fund. of Phys. Act. & 1 Elect		1	1
SECR 136 Filing & Record Mgt.			3
Total Credits	17	17	16

(Second Year)

SECR 221-222 Shorthand Transcription	3	3	
SECR 241; 274-275 Sec. Procedures	3	3	3
SECR 227 Medical Transcription			3
SECR 236 Spec. Typewriter Applications	3		
SECR 254-255 Mach. Transcription		3	3
*PSYC 110 Prin. of Appl. Psyc.	3		
*GOVT 180 Amer. Const. Govt.			3
*ECON 160 Amer. Econ.		3	
BUAD 241 Bus. Law	3		
SECR 156 Personal Dev.			3
SECR 298 Sem. & Proj.			2
PHED Phys. Act. Elect.	1		
[1]ACCT 111 Accounting		4	
Total Credits	16	16	17

Total Minimum Credits for Medical Secretary Major - A.A.S. Degree = 99

[1]SECR 138 may be substituted for ACCT 111.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

SECURITY ADMINISTRATION

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum in Security Administration is designed to prepare students to enter any of the varied fields of security administration and to improve the competencies of in-service personnel. The occupational objectives include: Security Officer (private & governmental)/Security Supervisor or Administrator/Loss Prevention Officer/Classification Manager/Personnel Clearance and Airport Security.

Special Curriculum Admission Requirements: Entry into the Security Administration curriculum requires the following: excellent moral character, a personal interview with a representative of the Police Science Program, and a written record of conduct (waived for employees of governmental investigative or law enforcement agencies). Students are advised that excellent moral character is required of Security personnel. Employees should expect an extensive background check prior to their being hired.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 32.

Security Administration Curriculum

(First Year)

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
GENL 100 Orientation	1		
*ENGL 101-102 Comm. Skills	3	3	
*SPDR 136 Oral Comm.			3
PSYC 110 Prin. of Appl Psyc.	3		
PSYC 116 Psyc. of Pers. Adjustment		3	
LWNF 140 Intro. to Security	3		
ACCT 211-212-213 Prin. of Acct.	3	3	3
*SOSC 101-102-103 Cont. Amer. Civ.	3	3	3
PHED 100 Fund. of Phys. Act. & 2 Elect.	1	1	1
[1]Elective (BUAD, INDT, FIRE)		3	3
DAPR 106 Prin. of Data Proc.			3
Total Credits	17	16	16
(Second Year)			
LWNF 176 Criminology	3		
PBSV 256 Interviewing Skills	3		
LWNF 231-232-233 Crim. Law, Evidence & Proc.	3	3	3
LWNF 276 Indust. & Commercial Security	3		
FIRE 237 Arson Detection & Invest.	3		
[1]Elective (BUAD, INDT, FIRE)		3	3
LWNF 277 Proprietary & Gov. Security		3	3
LWNF 254-255 Criminal Invest. Techniques		4	4
LWNF 297 Coop. Ed. or Coor. Intern.		2	2
LWNF 141 Spec. Prob. in Security			3
Total Credits	18	15	15

Total Minimum Credits for Security Administration Major - A. A. S. Degree = 97

[1]Student will select at least one elective from each group: BUAD 110, 276; INDT 127, 170, 176; FIRE 112, 120.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

TECHNICAL ILLUSTRATION

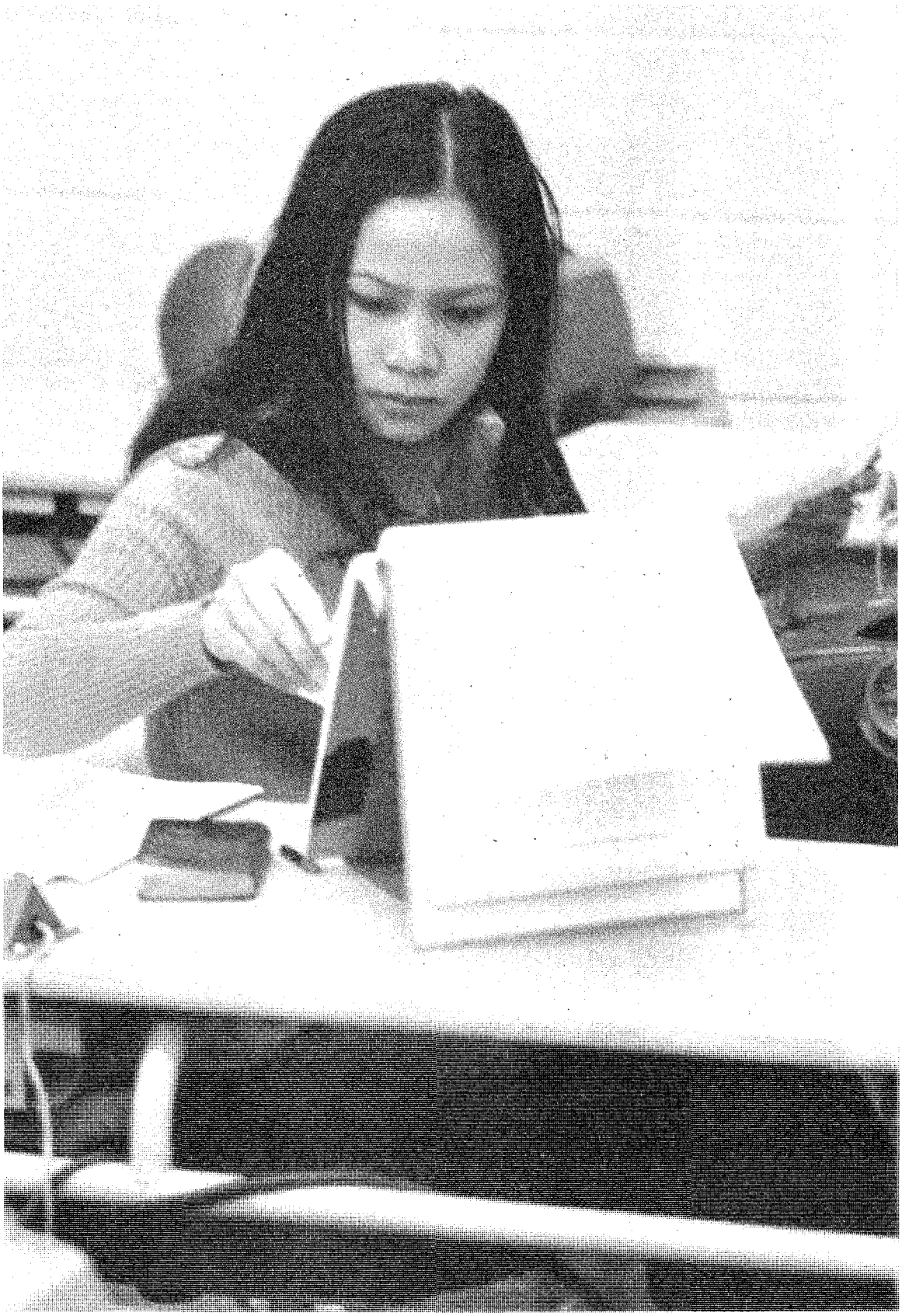
CERTIFICATE

Purpose: The curriculum is designed for persons who seek full-time employment in Technical Illustration or for those presently in the drafting field who are seeking specializations or promotion. The occupational objectives include: Technical Illustrator/Patent Draftsman/IPB (Illustrated Parts Breakdown) Draftsman

Technical Illustration Curriculum

	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL/SPDR Elective	3	3	
MATH 118-119 Intro. to Tech. Math	5	5	
DRFT 111-112-113 Tech. Draft	4	2	
DRFT 251-252 Tech. Illus.		3	3
DRFT Draft. Electives		2-3	4-6
ENGR 10 Intro. to Tech. Engr.	2		
Tech. Elect.			3
DRFT 198 Sem. & Proj.			2
Soc. Sci. Elect.	3		3
Total Credits	17	15-16	15-17

Total Minimum Credits for Technical Illustration Major - Certificate = 47



DESCRIPTION OF COURSES

Course Numbers

Courses numbered 00-99 are freshmen level courses for the developmental program and for the diploma and certificate programs. The credits earned in these courses are not applicable toward an Associate Degree.

Courses numbered 100-299 are applicable toward an Associate Degree. They may also be used in certificate and diploma courses.

Course Credits

The credit for each course is indicated in parentheses after the title in the course description. One credit is equivalent to one collegiate quarter-hour credit or two-thirds of a collegiate semester hour credit.

Course Hours

The number of lecture hours in class each week (including lecture, seminar and discussion hours) and/or the number of laboratory hours in each week (including laboratory shop, supervised practice, and cooperative work experiences) are indicated for each course in the course description. The number of lecture and laboratory hours in class each week are also called "contact" hours because it is time spent under the direct supervision of a faculty member. In addition to the lecture and laboratory hours in class each week each student must spend some time on out-of-class assignments under his own direction. Usually each credit per course requires an average of three hours of in-class and out-of-class work each week.

Prerequisites

If any prerequisites are required before enrolling in a course, they will be identified in the course description. Courses in special sequences (usually identified by the numerals I-II-III) require that prior courses or their equivalent be completed before enrolling in the advanced courses; usually the corequisites must be taken at the same time. The prerequisites or their equivalent must be completed satisfactorily before enrolling in a course unless special permission is obtained from the Provost, and the instructor of the course.

General Usage Courses

The following "General Usage Courses" apply to multiple curricula and may carry a variety of prefix designations. The descriptions of the courses are identical for each different prefix and are as follows:

90-190-290 Coordinated Practice **(1-5 cr.)**
Supervised practice in selected health agencies coordinated by the College. Credit/Practice Ratio maximum 1:5 hours. May be repeated for credit. Variable hours.

90-190-290 Coordinated Internship **(1-5 cr.)**
Supervised on-the-job training in selected business, industrial or service firms coordinated by the College. Credit/Work Ratio not to exceed 1:5 hours. May be repeated for credit. Variable hours.

97-197-297 Cooperative Education **(1-5 cr.)**
Supervised on-the-job training for pay in approved business, industrial and service firms coordinated by the College's Cooperative Education Office. Applicable to all curricula at the discretion of the College. Credit/Work Ratio not to exceed 1:5 hours. May be repeated for credit. Variable hours.

98-198-298 Seminar and Project **(1-5 cr.)**
Completion of a project or research report related to the student's occupational objective and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hours.

99-199-299 Supervised Study **(1-5 cr.)**
Assignment of problems for independent study incorporating previous instruction and supervised by the instructor. May be repeated for credit. Variable hours.

ACCOUNTING

ACCT 111-112-113
Accounting I-II-III **(4 cr.) (4 cr.) (4 cr.)**
Fundamentals of accounting. The accounting cycle, journals, ledgers, working papers, and the preparation of financial statements under the various forms of business ownership. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

ACCT 126 Hotel/Restaurant Accounting **(3 cr.)**
The application of accounting principles and practices to the hospitality industry. Analysis of financial statements as the basis for managerial decisions. Lecture 3 hours per week.

ACCT 197 Cooperative Education **(1-5 cr.)**
(See Page 75)

ACCT 211-212-213 Principles of Accounting I-II-III (3 cr.) (3 cr.) (3 cr.)
Accounting principles and their application to various forms of business inventory valuation, internal control systems, manufacturing processes, budgeting, and analysis of financial statements. Lecture 3 hours per week.

ACCT 221-222-223 Intermediate Accounting I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite ACCT 111-112-113 or ACCT 211-212-213. Extensive analysis of the principle elements of accounting systems and statements. Lecture 4 hours per week.

ACCT 229 Auditing (3 cr.)
Prerequisite ACCT 111-112-113 or ACCT 211-212-213. Purposes of audit, relationships of auditor and client, kinds of audits, working papers, internal controls and examination of accounting systems, audit reports. Lecture 3 hours per week.

ACCT234-235 Cost Accounting I-II (3 cr.) (3 cr.)
Prerequisite ACCT 111-112-113 or ACCT 211-212-213. Studies in accounting systems, methods and statements involved in process and job cost accounting; use of standards and cost controls. Lecture 3 hours per week.

ACCT 244 Business Taxes I (3 cr.)
Principles of federal taxation relating to individual income taxes with emphasis on minimization of personal tax burden and preparation of personal tax returns; single preparation form and tax problems. Lecture 3 hours per week.

ACCT 245 Business Taxes II (3 cr.)
Prerequisite ACCT 244. Federal taxation principles and theories concerning partnership and corporation income tax concepts and problems. Emphasis on evaluation of business transactions from a tax point of view, partnership and corporate tax minimization and tax return preparation. Lecture 3 hours per week.

ACCT 297 Cooperative Education (1-5 cr.)
(See Page 75)

ACCT 298 Seminar and Project (1-5 cr.)
(See Page 75)

ACCT 299 Supervised Study (1-5 cr.)
(See Page 75)

ANTHROPOLOGY

(See Sociology Course Section)

ARCHITECTURE

ARCH 100 Introduction to Architectural Technology (2 cr.)
An intensive courseoutlining the history and impact of architecture. Emphasis on the dynamics and social aspects of architecture and society. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

ARCH 111 Architectural Drafting I (3 cr.)
Designed to provide the fundamental knowledge of the principles of drafting. Skills and techniques of drafting including use of drafting equipment, lettering, freehand orthographic and pictorial sketching, geometric construction, and orthographic instrument drawing of principle views. The principles of isometric, oblique and perspective drawings. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARCH 112 Architectural Drafting II (3 cr.)
Prerequisite ARCH 111 or equivalent. Development of techniques in architectural lettering, symbols, and interpretation; dimensioning, freehand and instrument drafting. Drawing of construction details, using appropriate material symbols and connections. Sections, scale details and full-size details prepared from preliminary sketches. Applications of descriptive geometry in visualization and analytic solutions of drafting problems involving auxiliary views, intersections and developments. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARCH 113 Architectural Drafting III (3 cr.)
Prerequisite ARCH 112. An approach in depth to the study of architectural drafting. Development of techniques in architectural lettering, dimensioning, freehand sketching and instrument drawing. Drawings of construction details, using appropriate material symbols and conventions. Working drawings, including plans, elevations, sections, scale details and full-size details will be prepared from preliminary sketches. Lecture 1 hour. Laboratory 6 hours, Total 7 hours per week.

ARCH 141 Materials and Methods of Construction I (3 cr.)
Prerequisite ARCH 100 or ENGR 100. Designed to introduce the materials used in erection of structures, the physical properties and structural characteristics of steel, concrete, timber, glass, related materials and the methods used in testing materials. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

ARCH 142 Materials and Methods of Construction II (3 cr.)
Prerequisite ARCH 141. Designed to introduce the practical use of materials and methods of structures. The architectural and structional relationship of concrete, steel, and timber structures are analyzed with an introduction to cost analysis and the economic aspect involved in construction. Lecture 3 hours per week.

ARCH 197 Cooperative Education (1-5 cr.)
(See Page 75)

ARCH 198 Seminar and Project (1-5 cr.)
(See Page 75)

ARCH 204-205 History of Architecture I-II (3 cr.) (3 cr.)
The history of architecture from ancient times to the present but with emphasis on the designs and forms of twentieth century developments. Lecture 3 hours per week.

ARCH 210 Site Planning (3 cr.)
The fundamentals of surveying required for site evaluation and planning. Principles of horizontal measurements, leveling, profiles, direction, coordinate systems, topographic maps, contours, horizontal and vertical curves, boundaries. Surveying methods and instruments demonstrated. Lecture 3 hours per week.

ARCH 211 Architectural Drafting IV (3 cr.)
Prerequisite ARCH 113. Drawing of structural plans and details as prepared for building construction including steel, concrete, and timber structural components. Appropriate details and drawings necessary for construction and fabrication of structural members. Reference materials provide skills and knowledge in locating data and in using handbooks. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARCH 212 Architectural Drafting V (3 cr.)
Prerequisite ARCH 211. Drawing of plans and details as prepared for mechanical equipment such as air conditioning, plumbing and electrical systems using appropriate symbols and conventions. Coordination of mechanical and electrical features with structural and architectural components. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARCH 213 Architectural Drafting VI (3 cr.)
Prerequisite ARCH 212. Preparation of complete set of working drawings for the architectural structure. Preparation of mill work drawings, cabinets and built-in-equipment detail. Final assembly of the complete document for construction purposes. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARCH 236 Building Electric Equipment (3 cr.)
Study of equipment, materials, and symbols. Building code requirements pertaining to residential and commercial construction; reading and interpretation of working drawings by electrical engineers; coordination of electrical features with architectural and structural design. Lecture 3 hours per week.

ARCH 237 Building Mechanical Equipment (3 cr.)
General study of heating, air conditioning, plumbing and electrical equipment, materials and symbols. Building code requirements pertaining to residential and commercial structures; reading and interpretation of working drawings by mechanical engineers; coordination of mechanical and electrical features with structural and architectural designs. Lecture 3 hours per week.

ARCH 240 Field Inspections (3 cr.)
Provide working knowledge of methods and procedures of building construction inspection and technical reporting on the project site. Lecture 3 hours per week.

ARCH 256 Architectural Office Practices (2 cr.)
A study of the professional relationship of the architectural firm in relation to clients, contractors, suppliers, consultants and other architects. Ethics of the profession as applicable to the draftsman's role in the architectural firm will be stressed. Lecture 2 hours per week.

ARCH 276 Construction Estimating (3 cr.)
Interpretation of working drawings for a project; preparation of material and labor quantity surveys from plans and specifications; approximate and detailed estimates of cost. The student will study materials take-off, subcontractors' estimates of cost, and bid and contract procedures. Detailed inspection of the construction by comparing the finished work to the specifications. Lectures 3 hours per week.

ARCH 277 Building Codes and Contract Documents (3 cr.)
A study of building codes and their effect in relation to specifications and drawings. The purpose and writing of specifications will be studied along with their legal and practical application to working drawings. Contract documents will be analyzed and studied for the purpose of client-architect-contractor responsibilities, duties and mutual protection. Lectures 3 hours per week.

ARCH 279 Critical Path Method Program (3 cr.)
Working knowledge of C.P.M. programming and its implication for the building industry as a vehicle for control of project construction. Lecture 3 hours per week.

ARCH 297 Cooperative Education (1-5 cr.)
(See Page 75)

ARCH 298 Seminar and Project (1-5 cr.)
(See Page 75)

ARTS

ARTS 91 Workshop in Watercolor (2 cr.)
A workshop for individual special projects in watercolor. Laboratory 6 hours per week.

ARTS 111-112-113 History and Appreciation of Art I-II-III (3 cr.) (3 cr.((3 cr.)
The history and interpretation of architecture, sculpture and painting. The course begins with prehistoric art and follows the mainstream of western civilization to the present. Lectures 3 hours per week.

ARTS 124-125-126 Drawing I-II-III(4 cr.) (4 cr.) (4 cr.)
Introduction to drawing skills, concepts, and media including pencil, ink, charcoal, pastel, and watercolor. Related gallery assignments and field trips. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARTS 154-155-156 Design I-II-III (3 cr.) (3 cr.) (3 cr.)
Introduction to the concepts of two and three dimensional design and the theory and use of color. Field trips related to design concepts. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

ARTS 170 (3 cr.)
Designed to provide basic studio skills necessary for the commercial art student. Emphasis is placed on the proper use of drafting equipment and other materials such as knives, pencils, pens, brushes, glues and papers. Lecture 1 hour, studio 4 hours per week.

ARTS 171-172-173 Typography I-II-III (3 cr.) (3 cr.) (3 cr.)
The visual design of type in relation to photography, printmaking, and other printing processes, including identification and specification of type, copy casting, and proofing in the print shop. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

ARTS 180 Introduction to Photography (2 cr.)
An introduction to the basic principles of photography with laboratory work related to the student's major field of interest. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

ARTS 184-185 Historyof Photographyl-II (3 cr.) (3 cr.)
Survey of the artistic achievements and innovations in photography and analysis of outstanding photographers and their works. Lecture 3 hours per week.

ARTS 194-195 Film Making I-II (3 cr.) (3 cr.)
Study of the techniques of shooting and editing film, preparing documentaries, producing animated movies. Opportunity for students to create their own films. Lecture 1 hour, Laboratory 4 hours per week, Total 5 hours per week.

ARTS 196 Art Workshop (2 cr.)
A workshop for individual special projects in art and crafts. Laboratory 6 hours per week.

ARTS 197 Cooperative Education (1-5 cr.)
(See Page 75)

ARTS 200 Introduction to Primitive Art (3 cr.)
Survey of the visual arts of primitive cultures, including those of pre-history; of North and South American Indians, of Tribal Africa and Australia, of the Eskimos, etc. Lecture 3 hours per week.

ARTS 201-202-203 (4 cr.) (4 cr.) (4 cr.)
Sculpture I-II-III
Prerequisite ARTS 156 or divisional permission. Introduction to sculptural concepts and methods of production both traditional and contemporary, including work in plastics and metals. Field trips and other related assignments. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARTS 206 The Growth of American Art (3 cr.)
A survey of the development of the fine arts in the United States from their colonial beginning to the present. Special emphasis will be given to the relationship between American crafts and fine arts, and the influence of historical events and economic ideals on the quality of the art produced. Lecture 3 hours per week.

ARTS 211-212-213 Painting I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite ARTS 126 and ARTS 155 or divisional permission. Introduction to painting styles, materials, and techniques, both traditional and contemporary. Gallery Trips and other related assignments. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARTS 277-228-229 Drawing IV-V-VI
(3 cr.) (3 cr.) (3 cr.)
Prerequisite ARTS 126 or divisional permission. Advanced study of concepts with emphasis on the drawing as a work of art, and on creative independence. Related gallery assignments. Laboratory 6 hours per week.

ARTS 251-252-253 Advanced Design I-II-III
(3 cr.) (3 cr.) (3 cr.)
Prerequisite ARTS 156 or divisional permission. Concerned with the ordering and interpretive application of design elements (line, shape, form, texture, color, space, etc.) in two and three dimensions. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

ARTS 254-255 Experimental Fabric Design I-II
(3 cr.) (3 cr.)
Introduction to simple fabric design techniques such as frame weaving, dye techniques, and printing design and application. Emphasis on creative design approach. Lecture 1 hour, Laboratory 4 hours. Total 5 hours per week.

ARTS 261-262-263 Advertising Design I-II-III
(3 cr.) (3 cr.) (3 cr.)
Prerequisites ARTS 154, ARTS 170 and ARTS 171. A study of the principles of optical communications as applied to advertising design in newspaper, magazines, direct mail advertising, house organs, etc. Analysis is made of the influence on layout by contemporary art. Lectures 2 hours, Laboratory 3 hours, Total 5 hours per week.

ARTS 264-265 Silkscreen Design and Production I-II
(3 cr.) (3 cr.)
A study of silkscreen techniques with emphasis on design and communication. Design of products such as posters. Introduction to photo silkscreen techniques. Lecture 1 hour, Laboratory 4 hours. Total 5 hours per week.

ARTS 266-267-268 Illustration I-II-III
(3 cr.) (3 cr.) (3 cr.)
Prerequisite ARTS 126 or divisional permission. Introductory course of methods and materials used in the following fields of illustration: spot, product, story (book and magazine), fashion, furniture, news reporting and cartooning. Lecture 1 hour. Laboratory 5 hours. Total 6 hours per week.

ARTS 271-272-273 Graphic Techniques I-II-III
(3 cr.) (3 cr.) (3 cr.)
Prerequisites ARTSb 124, ARTS 154, and ARTS 170. The use of drawing instruments and materials; introduction to engraving processes; and the mechanics of reproduction for printing. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

ARTS 278 Printmaking: Silk Screen (4 cr.)
Prerequisites ARTS 126 and ARTS 155 or divisional permission. Introduction to silk screen stencil techniques, styles, and materials. Field trips related to screen printing. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARTS 279 Printmaking: Relief Printing (4 cr.)
Prerequisites ARTS 126 & 155 or Divisional permission. Introduction to relief printing processes and techniques including woodblock, linocut, and colliograph. Field trips related to relief printing. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARTS 280 Printmaking: Intaglio Printing (4 cr.)
Prerequisites ARTS 126 & 155 or Divisional permission. Introduction to intaglio printmaking processes including etching, engraving, dry point, and related techniques. Related Field trips. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARTS 281-282-283 Photography Workshop I-II-III
(1 cr.) (1 cr.) (1 cr.)
Prerequisite ARTS 180. Advanced practical study in the photography laboratory. Work with black and white photography and color slides. Laboratory 3 hours per week.

ARTS 284-285 Photojournalism I-II (3 cr.) (3 cr.)
Techniques of communicating through the photo essay and analysis of newspaper and magazine standards of selection. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

ARTS 291-292-293 Advanced Photography I-II-III **(3 cr.) (3 cr.) (3 cr.)**
Advanced creative techniques in all areas of photography, stressing skill in lighting, portraiture, and commercial applications of photography. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

ARTS 297 Cooperative Education **(1-5 cr.)**
(See Page 75)

ARTS 298 Seminar and Project **(1-5 cr.)**
(See Page 75)

ARTS 299 Supervised Study **(1-5 cr.)**
(See Page 75)

AUTOMOTIVE

AUTO 17 Auto Mechanics **(4 cr.)**
The automobile, its systems, operating principles, problems and repair techniques. Introduction to shop layout and safety, tools and equipment, application and diagnosis, disassembly, inspection, repair, reassembly and adjustment of automobile components. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

AUTO 100 Automotive Shop Practices **(3 cr.)**
Shop practices for the automotive laboratory and shop safety, identification and use of hand tools, general power equipment and maintenance of an automotive shop. Basic operating procedures of installed shop equipment. Occupational Safety and Health act standards. A prerequisite for all automotive courses, except those in the Auto Machinist curriculum. Lecture 3 hours per week.

AUTO 101-102-103 Automotive Systems Technology I-II-III **(4 cr.) (4 cr.) (4 cr.)**
Fundamental systems of the automobile; the engine, fuel, exhaust, electric, lubrication, cooling, transmission, steering, brake, and suspension systems; theory and function of each system is explained and operation demonstrated. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AUTO 107 Automotive Disassembly and Inspection Techniques **(3 cr.)**
A study of disassembly procedures, cleaning methods and inspection techniques, including the proper use of measuring devices. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

AUTO 109 Automotive Shop Fabrication Techniques **(3 cr.)**
A study and experience in the methods of fabricating equipment and fixtures for the Automotive Repair and Machine Shop. The course includes project planning, layout work, gas welding, arc welding, fasteners, and tool and fixture making. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

AUTO 111-112-113 Automotive Engines I-II-III **(4 cr.) (4 cr.) (4 cr.)**
Analysis of power, cylinder condition, valves, and bearings in the automotive engine to establish the present condition, repairs or adjustments. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AUTO 114 Cylinder Block Service **(4 cr.)**
Basic cylinder block reconditioning to include boring, resleeving, line-boring and deck resurfacing. Repair techniques for damaged block and cylinder head castings to include cold welding, brazing, welding and epoxy. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AUTO 134 Automotive Inside Salesman **(3 cr.)**
A study of the duties and qualifications, including catalog and telephone use, invoicing, parts classification, salesmanship and customer relations. 3 lecture hours per week.

AUTO 135 Automotive Outside Salesman **(3 cr.)**
Prerequisite Auto 134. A study of the duties and qualifications, including collections and collection practices, fleet and other accounts, techniques of product demonstration, salesmanship and customer relations. 3 lecture hours per week.

AUTO 136 Automotive Lubrication and Cooling Systems **(3 cr.)**
Testing and analysis of lubrication systems to include lubricants, pumps, lines, filter, and vents. Analysis of cooling systems, collants, pumps, fans, lines and connections. Estimating repairs, adjustments needed and their costs. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

AUTO 151-152 Auto Power Trains I-II **(4 cr.) (4 cr.)**
The operation, design, construction and repair of power train components, standard and automatic transmissions; clutches, propeller shaft, universal joints, rear axle assemblies, fluid couplings, torque converters; 2, 3, and 4 speed standard, overdrive and automatic transmissions. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

AUTO 181-182-183 Automotive Diagnostic Technology I-II-III **(3 cr.) (3 cr.) (3 cr.)**
Introduction to the principles of automotive maintenance using modern diagnostic methods. Theory and laboratory experiments designed to explain and illustrate the scientific basis of modern electronic and mechanical diagnostic procedures. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

AUTO 197 Cooperative Education **(1-5 cr.)**
(See Page 75)

AUTO 198 Seminar and Project **(1-5 cr.)**
(See Page 75)

AUTO 201-202-203 Automotive Systems Technology IV-V-VI **(4 cr.) (4 cr.) (4 cr.)**
Theory and detailed study of automobile suspension, braking, steering, and power train system provide the student with actual practice in trouble-shooting and repair. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AUTO 238 Automotive Air Conditioning **(3 cr.)**
Principles of refrigeration, air conditioning controls, and the adjustment and general servicing of automotive air conditioning systems. Lecture 3 hours per week.

AUTO 241-242-243 Automotive Electricity I-II-III **(4 cr.) (4 cr.) (4 cr.)**
Electricity and magnetism, symbols and circuitry as applies to the automotive electrical system. Includes the storage battery, generators, alternators, regulators,

starters, lighting systems, instruments and gauges. Trouble-shooting through use of modern test equipment. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AUTO 267 Automotive Suspension & Braking Systems (4 cr.)

Analysis of front end suspensions and adjustment. Rear springs, braking system, and tire inflation check. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AUTO 268 Automotive Alignment (2 cr.)

Use of alignment equipment in diagnosing, adjusting, and repairing suspension problems: Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

AUTO 281-282 Automotive Diagnostic Technology IV-V (3 cr.) (3 cr.)

Application of modern electronic and mechanical diagnostic procedures in the evaluation of the operational condition of automobiles. Safety and economy of operation are stressed. The student acquires actual diagnostic experience in the laboratory. Course content is: AUTO 281-Power Train diagnosis; AUTO 282 Brake and Suspension diagnosis. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

AUTO 284-285 Automotive Service Procedures & Tune-Up I-II (3 cr.) (3 cr.)

Diagnostic and service procedures for automatic electrical and mechanical systems; use of tools and test equipment, evaluation of test results, estimation of repair cost, and performance of required service. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

AUTO 287-288 Shop Management and Customer Relations I-II (3 cr.) (3 cr.)

A study of shop layout, personnel and management, cost analysis, record keeping and quality control. The shop manager, service salesman, and service writer's role in customer relations. Lecture 3 hours per week.

AUTO 297 Cooperative Education (1-5 cr.)

(See Page 75)

AUTO 298 Seminar and Project (1-5 cr.)

(See Page 75)

AVIATION

AERO 110 History of Air Transportation (3 cr.)

An informative, historical survey of the effort of manned flight, the development of aircraft, milestones in aviation, noted pioneers, and the socio-economic impact of flight upon modern civilization. Lecture 3 hours per week.

AERO 126 Aviation in the United States (3 cr.)

The development and present status of air transportation. Federal legislation, characteristics and classifications of air carriers; the organization and functions of the Federal Aviation Administration and Civil Aeronautics Board. The state of aviation in the U. S. and other advanced countries. Potentials and problems. Survey of equipment and techniques in present day technology. Lecture 3 hours per week.

AERO 127 Fundamentals of Flight (3 cr.)

Introduction to the basic principles of flight including applications of aerophysics, theory of flight, aircraft standards and specifications, basic airplane construction, weight and balance fundamentals. Lecture 3 hours per week.

AERO 136 The National Airspace System (3 cr.)

A survey of the common system of facilities, equipment, regulations, procedures, and personnel providing services and standard procedures for the safe and efficient movement of aircraft. Lecture 3 hours per week.

AERO 137 Aviation Safety (3 cr.)

A study of the fundamentals essential to safe flight; instruments used and the evaluation and interpretation of their indications. Weight and balance problems. Federal Aviation Regulations pertaining to safe flight. Use of the Airmen's Information Manual. Lecture 3 hours per week.

AERO 140 Flight Attendants Orientation (3 cr.)

A history and background of the Air Hostess Career. The advantages and disadvantages of the career, to include stewardess/steward training schools, the subjects taught and standards levied by the various airlines. Lecture 3 hours per week, includes field trips.

AERO 146 Flight Attendants Duties (3 cr.)

A step by step outline of the duties expected of a flight attendant from the 1st day of hire to separation from the airline. These include while in school, pre-flight, flight, and post flight. Lecture 3 hours per week, includes field trips.

AERO 147 Flight Attendants Grooming and Apparel (3 cr.)

A complete over-view of the vital statistics looked for by the airlines and includes health, weight, height, posture, personality, sense of humor, and other qualities. Lecture 3 hours per week, includes field trips.

AERO 176 Primary Flight (1 cr.)

A specific introduction to flight through actual flying experience in modern, safe, fully equipped aircraft. Sixteen hours of instruction are provided of which 10 hours are spent in dual flight and 6 hours in oral instruction and briefing. The program is sufficient to qualify a student pilot for solo flight. Optional for all Aviation Technology Programs. Estimated cost: $250.00. Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.NOTE: Solo flight is *not* included in this course.

AERO 197 Cooperative Education (1-5 cr.)

(See Page 75)

AERO 246 Meteorology (4 cr.)

The interpretation of meteorological phenomena affecting aircraft flight. A study of the basic concepts of aviation meteorology: temperature, pressure, moisture, stability, clouds, air masses, fronts, thunderstorms, icing, fog. Analysis and use of weather data for flight planning and safe flying; interpretation of U. S. Weather Bureau maps, reports, and forecasts. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

AERO 247 Aviation Laws and Regulations (3 cr.)

A study of local, Federal and International laws forming the present structure of aviation law. A study of safety and economic regulations; the Federal Aviation Act and the Department of Transportation Act. Lecture 3 hours per week.

AERO 248 Aircraft Support Operations (4 cr.)
Logistics and services necessary to insure and support safe, efficient flight operations. Aviation supply and maintenance; loading and unloading; pre-flight checks and services. Logistical support enroute. Scheduled maintenance and operations. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AERO 256 AIR Navigation (3 cr.)
The basic elements of air navigation; the fundamentals and practical application of pilotage and dead reckoning, including the use of plotter, computer, aerial charts and Federal Aviation Administration publications pertinent to flying. Lecture 3 hours per week.

AERO 257 Radar, Radio Aids,and Communications (4 cr.)
Radar theory and use. Basic radio fundamentals as used by the pilot. Description and practical use of various radio aids to safe aerial navigation, including Very High Frequency Omni Direction Range (VOR), Instrument Landing System (ILS), Direction Finding (DF), and others, Charts and approach plates as adopted to radio navigation and the application of the Airmen's Information Manual. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AERO 258 Airline Marketing (3 cr.)
The function of marketing in airline operations; market research; demand analysis; advertising and promotion; sales, traffic, and the theory of price determination. Lecture 3 hours per week.

AERO 266 Airport Operations and Management (3 cr.)
A presentation of the major functions of airport management; organization, zoning, adequacy, financing, revenues, expenses, evaluation and safety. A study of the airport and its social-econommic effect on the commmmunity. Lecture 3 hours per week.

AERO 267 Airline Operations and Management (3 cr.)
The functions of management in airline operation; air carrier familiarization; effect of Federal regulations; organization, uniform system of accounts and reports, rules of practice in economic proceedings; industrial, financial and economic implications relative to decision making. Lecture 3 hours per week.

AERO 290 Coordinated Internship (1-5 cr.)
(See Page 75)

AERO 297 Cooperative Education (1-5 cr.)
(See Page 75)

AERO 298 Seminar and Project (1-5 cr.)
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AERO 299 Supervised Study (1-5 cr.)
(See Page 75)

BIOLOGY

BIOL 01 Biology (1-5 cr.)
A developmental course in general biology designed to develop a basic understanding of plant and animal life. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hours.

BIOL 101-102-103 General Biology I-II-III (4 cr.) (4 cr.) (4 cr.)
Fundamental characteristics of living matter from the molecular level to the ecological community with emphasis on general biological principles. Diversity of living organisms; their structure, physiology and evolution. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

BIOL 104-105 General Biology I-II (6 cr.) (6 cr.)
Fundamental characteristics of living matter from the molecular level and the ecological community with emphasis on general biological principles. Diversity of living organisms; their structure, physiology and evolution. Lecture 4 hours, Laboratory 6 hours. Total 10 hours per week.

BIOL 198 Seminar and Project (1-5 cr.)
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BIOL 199 Supervised Study (1-5 cr.)
(See Page 75)

BIOL 206 Biological Problems in Contemporary Society (3 cr.)
Prerequisites: BIOL 103 or permission of instructor. A course designed for understanding some of the major problems of today's living. Contemporary readings will include topics on population problems, pollution, drug abuse, famine, ecology, conservation, disease, genetics, and evolution. Lecture 3 hours per week.

BIOL 214 Introduction to Non-Vascular Plants (4 cr.)
Prerequisites BIOL 103 or equivalent. Designed to cover the lower plants including the algae, fungi, and bryophytes. Studies of major taxonomic groups—their morphology, life cycles, ecology, physiology, economic importance. Sight recognition and collections may be required. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

BIOL 215 Introduction to Vascular Plants (4 cr.)
Prerequisites BIOL 103 or equivalent. Designed to cover the higher plants beginning with those that have vascular tissue, and including flowering and non-flowering plants. Studies of major taxonomic groups—their morphology, life cycles, ecology, physiology, economic importance, Sight recognition and collections may be included. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

BIOL 221-222-223 Introductory Invertebrate and Vertebrate Zoology (4 cr.) (4 cr.) (4 cr.)
Fundamentals of invertebrate and vertebrate anatomy, physiology, embryology, classification and evolution. Lecture 3 hours, Laboratory 3 hours, Total of 6 hours per week.

BIOL 224-225 Introductory Vertebrate Zoology I-II (3 cr.) (3 cr.)
Prerequisite BIOL 103 or equivalent or approval of division. Fundamentals of vertebrate anatomy, physiology, embryology, classification and evolution. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

BIOL 254-255 General Genetics I-II (3 cr.) (3 cr.)
Prerequisite BIOL 103 or equivalent or approval of division. An introductory course in the science of genetics ranging from classical Mendelian inheritance to the most recent advances in the biochemical nature and function of the gene. Also included will be student

experience in experimental design and statistical analysis of data. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

BIOL 268 Microbiology (6 cr.)
Prerequisite BIOL 103 and one year of college chemistry or divisional approval. Introduction to microbiology, morphology and activities of micro-organisms; control of micro-organisms; infection, immunity and other antibody reactions; study of infections and infectious diseases. Lecture 3 hours, Laboratory 6 hours, Total 9 hours per week.

BIOL 298 Seminar and Project (1-5 cr.)
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BIOL 299 Supervised Study (1-5 cr.)
(See Page 75)

BROADCAST ENGINEERING

BCST 116 Broadcast Equipment Operation (5 cr.)
Prerequisite ELEC 125 Operation of cameras, studio lighting, audio control, vidio production switcher and transmitter, video control, operation of videotape recorders, routing switcher and telecine, full system operation. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

BCST 126 Broadcast Instruments and Measurements (4 cr.)
Prerequisite ELEC 116 and ELEC 126 Operation of meters, scopes, signal generators, digital counters and picture monitors. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

BCST 146 Federal Broadcast Regulations (1 cr.)
Students will read systematically through the applicable portions of the FCC Rules and Regulations and will be tested on each reading assignment, taking a final examination similar to the actual FCC Examination. Lecture 1 hour per week.

BCST 197 Cooperative Education (1-5 cr.)
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BCST 198 Seminar and Project (1-5 cr.)
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BCST 211 Theory of Broadcast Equipment (4 cr.)
Prereq. ELEC 227 & ELEC 241 Theory of cameras, projection equipment, vidiotape recorders and NTSC encoders and decoders. Lecture 4 hours per week.

BCST 212 Theory of Broadcast Equipment II (4 cr.)
Prereq. BCST 211—Continuation of BCST 211. Theory of production switchers, audio equipment, master control equipment and transmitters. Lecture 4 hours per week.

BCST 244 Broadcast Equipment Maintenance (3 cr.)
Corequisite BCST 211. Basic maintenance procedures, maintenance of cameras, projection equipment, videotape recorders and NTSC encoders and decoders. Laboratory 9 hours per week.

BCST 225 Broadcast Equipment Maintenance II (3 cr.)
Prereq. BCST 244, coreq. BCST 212. Continuation of BCST 224. Maintenance of production switchers, audio equipment, master control equipment and transmitters. Laboratory 9 hours per week.

BCST 297 Cooperative Education (1-5 cr.)
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BCST 298 Seminar and Project (1-5 cr.)
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BUILDING

BLDG 100 Introduction to Construction Inspection and Safety (3 cr.)
Introduction to the construction inspection profession, qualifications of the inspector, methods and procedures for field report writing, records and public relations, safety on construction sites, and the legal aspects governing the construction inspector. Lecture 3 hours per week.

BLDG 107 Plan Review and Building Codes (3 cr.)
Corequisite BLDG 100. A study and interpretation of the basic building codes as they relate to construction of residential, commercial and public facilities. Interpretation or working drawings and construction specifications for compliance to the basic building codes. Lecture 3 hours per week.

BLDG 111 Principles of Residential Building Construction Inspection (3 cr.)
Corequisite BLDG 100. Introduction to the general principles of residential building inspection to include materials, foundations, framing, finishing and building codes. Lecture 3 hours per week.

BLDG 112 Principles of Concrete and Concrete Inspection (3 cr.)
Prerequisite BLDG 100 or equivalent field experience. Fundamentals of concrete and new developments that directly apply to modern construction technology. Develop an understanding of the ingredients of concrete, properties of concrete, mix proportions and testing procedures which result in quality-controlled product, concrete form use and removal. Lecture 3 hours per week.

BLDG 113 Principles of Steel Frame Construction and Inspection (3 cr.)
Prerequisites BLDG 100 or equivalent field experience. Fundamentals of modern steel framing methods and non-destructive testing methods. Introduction of the principles, techniques and materials used in the fire-proofing of steel structural elements utilized in construction projects to comply with national fire protection standards and local codes. Lecture 3 hours per week.

BLDG 121 Principles of Electrical Inspection (3 cr.)
Prerequisite BLDG 100 or equivalent field experience. Fundamentals of electrical wiring systems used in residential, commercial and industrial buildings. Introduction to the principle of computing loads on circuits, services and equipment. The understanding of the national and local electrical codes for safe installation of wiring systems to include outlets, feeders and direct services. Lecture 3 hours per week.

BLDG 122 Principles of Mechanical Inspection (3 cr.)
Prerequisite BLDG 100 or equivalent field experience. Fundamentals and theory of heating, cooling and refrigeration, terminology and symbols as used in layouts for the various sytems. Introduce the code requirements for installation and safety and inspection problems. Lecture 3 hours per week.

BLDG 123 Principles of Plumbing Inspection (3 cr.)
Prerequisite BLDG 100 or equivalent field experience. Fundamentals of sanitary plumbing systems, terminology and symbols as used in layout of the various systems. Introduce the code and inspections problems for commercial, industrial and residential public and private sanitary systems.

BLDG 124 Principles of Public Facilities Inspection (3 cr.)
Prerequisite BLDG 100 or equivalent field experience. Fundamentals of highway, curb and gutter, and storm water drainage systems. Develop an understanding of the materials, and construction methods used in roadway construction. Introduction to the construction methods, inspection and testing techniques of drainage systems to include collection basins, interceptors, flow gradient and piping materials. Lecture 3 hours per week.

BLDG 197 Cooperative Education (1-5 cr.)
(See Page 75)

BLDG 234 Materials Take-Off (3 cr.)
Prerequisite ARCH 113 or equivalent. Interpreting and computing data from working drawings and specifications for estimating and fabricating purposes. Includes systems used in computing excavation, concrete, masonry block, brick, wood frame, steel, and various building materials. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

BLDG 235 Cost Estimating (3 cr.)
Prerequisite BLDG 234 or equivalent. Principle and methods of pricing materials, transportation and handling cost, mark-up discount procedures, equipment cost, and wage rates. Preparing estimate forms for various types of estimates as itemized, approximate, lump-sum, unit-cost, and comparative. Lecture 3 hours per week.

BUSINESS MANAGEMENT AND ADMINISTRATION

BUAD 100 Introduction to Business (3 cr.)
The role and function of business enterprise within out economic framework. Includes organization, finance, marketing, personnel administration, production and economics. Designed primarily to help students select their field of business specialization. Lecture 3 hours per week.

BUAD 101-102-103 Business Machines and Mathematics I-II-III (3 cr.) (3 cr.) (3 cr.)
A sequence of three courses covering office machines and business mathematics. Office machines include a variety of adding machines and calculators designed for use in determining solutions to problems arising from normal business activities. The theories of mathematics are applied to business activities emphasizing the use of concepts and procedures concerning payroll computations, ratios, discounts, interest, sales and property tax, pricing mark-up and mark-down, etc. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

BUAD 109 Applied Business Machines (1 cr.)
A self-instructional laboratory course designed to develop a stated proficiency in the operation of standard business machines. Credit will not be granted to anyone having completed MATH 151-152-153 or BUAD 101-102-103. Laboratory 2 hours per week.

BUAD 110 Human Relations & Leadership Training (3 cr.)
The task of management involved in getting things done through people; understanding of human motivation and behavior patterns, performance, and analysis of manpower growth in an organization. Lecture 3 hours per week.

BUAD 116 Personal Finance (3 cr.)
A course designed to build a framework of money management concepts. Content includes establishing values and goals, earning income, managing income, developing consumer buying ability, using credit, understanding savings, insurance, and responsibilities as a consumer. Lecture 3 hours per week.

BUAD 117 Principles of Securities Investment (3 cr.)
Designed to aid the student in developing a broad perspective in the area of stocks and bonds. Mechanics of stock exchanges, types of securities, types of orders, and specific investment objectives. Lecture 3 hours per week.

BUAD 164 Principles of Business Management I (3 cr.)
Prerequisite BUAD 100. Management and management functions; planning, organizing, staffing, directing, and controlling. Management examined as both a science and art with emphasis on both the body of knowledge and the personal abilities to be successful as a manager. Lecture 3 hours per week.

BUAD 165 Principles of Business Management II (3 cr.)
Prerequisite BUAD 164. The application of management principles to realistic management situations. The case method of study in analyzing management problems with emphasis on application to various types of business enterprises. Lecture 3 hours per week.

BUAD 174 Small Business Management I (3 cr.)
A study of management problems that relate to the small-scale entrepreneur. Includes problems in initiating the business, financial and administrative control, marketing programs and policies, management of business operations, legal and governmental relationship. Also includes case studies involving actual business situations. Lectures 3 hours per week.

BUAD 197 Cooperative Education (1-5 cr.)
(See Page 75)

BUAD 241 Business Law I (3 cr.)
An introduction to the field of law, how it developed and how it operates as a method of control; study of the purpose of law in our present-day complex society, the law of contracts, and the law of the agency. Lecture 3 hours per week.

BUAD 242 Business Law II (3 cr.)
Prerequisite BUAD 241. A continuation of Business Law I (BUAD 241). The main topic to be studied is the Uniform Commercial Code as adopted in the various states. Lecture 3 hours per week.

BUAD 243 Business Law III **(3 cr.)**
Prerequisite BUAD 241-242. Continuation of Business Law I & II (BUAD 241-242). Employment, bailment, partnerships, corporations, property. Lecture 3 hours per week.

BUAD 246 Business Finance **(3 cr.)**
Problems involved in the acquisition and use of funds necessary to the conduct of business. Sources and instruments of capital and finance, financial organization, and financing of operations and adjustments. Lecture 3 hours per week.

BUAD 251 Business Statistics I **(3 cr.)**
Prerequisite MATH 181-182-183 or MATH 161-162-163. Aspects of statistical methodology such as the collection, organization, presentation and analysis of data; specific concentration with measures of central tendency, dispersion, probability concepts, the normal distribution, sampling distribution, and basic hypothesis testing such as T-test, Z-test, and Chi-Square. Lecture 3 hours per week.

BUAD 252 Business Statistics II **(3 cr.)**
Prerequisite BUAD 251. Estimation of barametric values, advanced methods and techniques of hypothesis testing and experiment design. Statistical quality control, analysis of variance, linear regression and correlation analysis both simple and multiple measurement of business and economics activity through index numbers, seasonal and secular variation; computer application where practical. Lecture 3 hours per week.

BUAD 253 Business Statistics III **(3 cr.)**
Prerequisite BUAD 252. The applications of statistical techniques and methodology in business. Includes expedited payoff, game theory, linear programming, transportation models, queuing theory, and demand estimations. Lecture 3 hours per week.

BUAD 254 Applied Business Statistics I **(3 cr.)**
An introductory course in statistics. Collection, presentation, and analysis of data through ratios, percentages, and averages. Emphasis on the practical application of statistical measures to business situations. Lecture 3 hours per week.

BUAD 255 Applied Business Statistics II **(3 cr.)**
Prerequisite BUAD 254. A continuation of the application of principles taught in BUAD 254 with emphasis on the graphic presentation of data concerning business activity and some advanced statistical concepts such as probability and sampling. Lecture 3 hours per week.

BUAD 269 Purchasing and Materials Management **(3 cr.)**
Principles of purchasing and management of inventories including determination of requirements, pricing, source selection, and inventory policy and control. Lecture 3 hours per week.

BUAD 276 Personnel Management **(3 cr.)**
The problems and issues in the administration of personnel actions. Includes organization and tasks of personnel development, significant personnel considerations and an appraisal of labor in business today. Lecture 3 hours per week.

BUAD 297 Cooperative Education **(1-5 cr.)**
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BUAD 298 Seminar and Project **(1-5 cr.)**
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BUAD 299 Supervised Study **(1-5 cr.)**
(See Page 75)

CHEMISTRY

CHEM 06 Chemistry **(1-5 cr.)**
A developmental course in general chemistry designed to develop a basic understanding of inorganic and organic chemistry. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hours.

CHEM 099 Supervised Study **(1-5 cr.)**
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CHEM 101-102-103 General Chemistry I-II-III **(4 cr.) (4 cr.) (4 cr.)**
This is a beginning course for the non-science major, intended for students who will take no further chemistry courses. The experimental and theoretical aspects of the various branches of chemistry are discussed and emphasis is placed on the concepts and ideas of the science. Particular attention is given to introductory organic and biochemistry and the role of chemistry in human affairs is treated. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

CHEM 110 Horticultural Chemistry **(4 cr.)**
Introduction to chemical principles, inorganic and organic structural chemistry and theory and practice of pH. The role of the chemical elements including trace elements in plant growth. Chemicals used such as fungicides, insecticides, fertilizers, and growth regulators. Chemical nomenclature, pH and other general and specific measurements will be practiced. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

CHEM 111-112-113 College Chemistry I-II-III **(4 cr.) (4 cr.) (4 cr.)**
Prerequisite high school chemistry or division approval and pre-test. This is a beginning course primarily for science and engineering majors. The course covers the fundamental laws & theories of chemistry. The student is expected to have a strong background in mathematics. Lecture, 3 hours, Laboratory 3 hours, Total 6 hours per week.

CHEM 198 Seminar and Project **(1-5 cr.)**
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CHEM 199 Supervised Study **(1-5 cr.)**
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CHEM 246-247-248 Organic Chemistry I-II-III **(5 cr.) (5 cr.) (5 cr.)**
Prerequisite high school and freshman college chemistry or equivalent. The fundamentals of organic chemistry; chemical properties, bonding, synthesis, typical reactions, mechanisms and geometry of molecules. The laboratory includes basic techniques, organic synthesis, qualitative analysis and instrumentation. Lecture 3 hours, Laboratory 6 hours, Total 9 hours per week.

CHEM 260 Instrumental Chemical Analysis (2 cr.)
Prerequisite approval of division. Introduction to the use of special apparatus in chemical analysis. Includes study and use of pH meter, visible and infrared spectrophotometers, gas chromatograph, refractometer, polarimeter, special balances. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

CHEM 299 Supervised Study (1-5 cr.)
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CIVIL ENGINEERING

CIVL 140 Construction Planning (3 cr.)
Introduction to the equipment used in civil engineering construction and the principles of construction planning. Lecture 3 hours per week.

CIVL 180 Principles of Surveying (4 cr.)
Prerequisite Basic Trigonometry. Introduction to the elements of surveying. Use and care of modern survey equipment and the application of surveying in engineering construction. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

CIVL 181-182 Surveying I-II (4 cr.) (4 cr.)
Prerequisites Algebra, Plane Geometry, Basic Trigonometry or Math III. Introduction to surveying, chaining and pacing, direct and profile leveling, measurements of angle, transittape traversing, calculation of areas, adjustment of instruments. Basic complex circular curves, stadia surveying, topographic surveying analysis and preparation of topographic maps. Field work parallels classroom instruction. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

CIVL 197 Cooperative Education (1-5 cr.)
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CIVL 198 Seminar and Project (1-5 cr.)
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CIVL 201 Suburban Development I (2 cr.)
Corequisite CIVL 182. Preparation of preliminary plans and records plate for residential areas. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

CIVL 202 Suburban Development II (2 cr.)
Corequisite CIVL 281. Calculating flow quantities, design of sanitary sewer laterals, street grades and storm sewers as are pertinent to Virginia "3-B" Land Surveyor Registration laws. Preparation of plans and profiles. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

CIVL 203 Suburban Development III (3 cr.)
Prerequisite CIVL 202. Preparation of residential development plans and commercial site plans. Flood plain studies. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

CIVL 217 Structural Steel Design (4 cr.)
Prerequisite ENGR 152 or equivalent. Design, investigation, and detailing of basic structural steel members. Lectures 4 hours.

CIVL 218 Reinforced Concrete Design (4 cr.)
Prerequisite ENGR 152 or equivalent. Design, investigation and detailing of basic reinforced concrete structural members. Lectures 4 hours.

CIVL 227-228 Structural Drafting I-II (2 cr.) (2 cr.)
Fundamentals of structural drafting including the design and fabrication of frame connections, column detailing, welding connections, shop details, and general drafting room procedure. Laboratory includes drawings of timber, steel, and reinforced concrete structures. Lecture 1 hour. Laboratory 3 hours, Total 4 hours per week.

CIVL 246 Soil Mechanics (3 cr.)
Soil in its relationship to engineering construction. Includes soil weight-volume relationships, stress, shear and strain, bearing capacity, sampling procedures, consolidation, settlement, slope stability, with introduction to retaining walls, piles, underground conduits, and earthdams. Lecture 3 hours per week.

CIVL 247 Soil Mechanics Laboratory (1 cr.)
Corequisite CIVL 246 or equivalent. Practical soil sampling, classification by Unified Soil Classification System and by ASTM and AASHO specifications for classifying soils. Laboratory testing of soils to predict engineering performance. Laboratory 3 hours per week.CIVL 254 Civil Materials I (Concrete) (3 cr.)
Prerequisite or Corequisite CIVL 246 or equivalent. Properties of portland cement concrete, methods of mix design, use and placement of concrete. Lecture 3 hours per week.

CIVL 254 Civil Materials I (Concrete) (3 cr.)
Prerequisite or Co-requisite CIVL 246 or equivalent. Properties of portland cement concrete, methods of mix design, use and placement of concrete. Lecture 3 hours per week.

CIVL 255 Civil Materials II (Asphalt) (3 cr.)
Prerequisite or Corequisite CIVL 246 or equivalent. Properties of bituminous materials, particularly asphalt cement used in construction, methods of mix design, use and placement of asphalt. Lecture 3 hours per week.

CIVL 257 Concrete Laboratory (1 cr.)
Corequisite CIVL 254. Mixing, curing, testing and quality control of concrete. Laboratory 3 hours per week.

CIVL 258 Bituminous Laboratory (1 cr.)
Corequisite CIVL 255. Testing and quality control of bituminous materials. Mixing, testing, and quality control of asphalt cements. Laboratory 3 hours per week.

CIVL 276 Traffic and Transportation Technology (4 cr.)
Introduction to the techniques of traffic and transportation surveys. The application of survey data to the planning, design and operation of modern transportation systems. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

CIVL 281 Advanced Surveying I (4 cr.)
Layout of curves under complex field conditions, route surveying vertical curves, slope skates, land surveying, establishment and re-establishment of land boundaries, legal aspects of surveying, original surveys and re-surveys, public land surveys. Field work parallels classroom instruction, drills in use of theodolites and transversing equipment, begins project in boundary and topographic survey. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

CIVL 282 Advanced Surveying II (4 cr.)
This course includes topics in surveying astronomy and clestial observations, precise leveling and triangulation, photogrammetry, electronic surveying, and use of surveying equipment. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

CIVL 297 Cooperative Education (1-5 cr.)
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CIVL 298 Seminar and Project (1-5 cr.)
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DATA PROCESSING TECHNOLOGY

DAPR 106 Principles of Data Processing (3 cr.)
An introduction to principles, methods, and techniques of data processing, with emphasis on electronic data processing, capabilities and limitations of automatic data processing equipment; computer languages and applications; organization of data processing systems. Lecture 3 hours per week.

DAPR 120 Computers and Their Application (1 cr.)
An introduction to computational systems, analysis techniques, programming languages. The BASIC language will be used in problem solving. Not for Data Processing majors. Lecture 1 hour per week.

DAPR 138 Computer System Architecture (3 cr.)
Prerequisite DAPR 106 or equivalent. The study of computer system configuration and its operation under a control program. A detailed study of the components and operation of the CPU and of the interaction between I/O channels and the CPU to achieve overlap between processing and input/output. Lecture 3 hours per week.

DAPR 144 Computer Programming (Computer Concepts I) (3 cr.)
Prerequisite DAPR 106 or equivalent. Programming techniques and the various characteristics of computers. Practical experience in programming a series of problems in machine, assembler, or manufacturer's higher level language. Course objective is to provide a proper foundation for materials in subsequent courses rather than providing specific skills in any computer language. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

DAPR 147 Computer Programming (Cobol) (3 cr.)
Prerequisite DAPR 144 or equivalent. Experience in using programming techniques with a high level language. Students will be required to program, debug, and test specified business oriented problems using Cobol. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

DAPR 197 Cooperative Education (1-5 cr.)
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DAPR 236 Data Processing Management (3 cr.)
Prerequisite DAPR 106 or equivalent. Survey of ADP management, covering staff and operating functions; ADP planning, analysis of requirements, system selection, contractual consideration, lease/purchase studies, costing of tangible and intangible benefits. Lecture 3 hours per week.

DAPR 256 Computer Programming (Advanced Cobol) (4 cr.)
Prerequisite DAPR 147. Experience in programming in an operating system environment. The characteristics of OS, use of job control language, files, utility programs, and analysis of error messages. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

DAPR 266 Computer Programming (Fortran) (4 cr.)
Prerequisite DAPR 144 or equivalent. The business applications of Fortran including input/output, floating point arithmetic, loop control, and functions. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

DAPR 268 Computer Programming (PL/1) (4 cr.)
Prerequisite DAPR 144 or equivalent. The sutdy and development of programming capability in the IBM System 360 computer language PL/1. Provides student capability to program in this language. Includes relative advantages and disadvantages of this higher level language in installations using medium scale and large scale computer systems and continuation of the study of magnetic tape and random access programming. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

DAPR 269 Computer Programming (Assembler) (4 cr.)
Prerequisite DAPR 144 or equivalent. The study and development of a manufacturer's assembly language. The student will write and debug programs in an assembler language, and also be capable of employing this language in a total programming system. The principles of de-bugging and core-dump reading will be given major emphasis. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

DAPR 271 Computer Programming (Advanced Assembler) (4 cr.)
Prerequisite DAPR 269. A study of the development of programming capabilities utilizing peripheral devices in addition to the card reader/punch and the printer. Among the peripherals will be direct-access devices and magnetic tape devices. The study of typical applications essential for a business programmer to have a knowledge of the uses, the instructions, and programming techniques required to utilize these devices. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

DAPR 276 Computer Programming (Advanced Fortran) (4 cr.)
Prerequisite DAPR 266 and 269. Experience in programming in a disk and/or tape environment. Modularization and overlay structure. Computational error propagation and debugging techniques. Data management techniques. Extensive practical problem solution using control software and command language, assembly language sub-routines, and utility packages. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

DAPR 281 Systems Analysis I (3 cr.)
Prerequisite DAPR 106. A study of the overall computer based systems analysis and design process; information problems of business organization and the inter-relationships of functions; nature of business problem isolation and definition; initial phase of systems analysis and evaluation. Lecture 3 hours per week.

DAPR 286 Computer Program Applications (4 cr.)
Prerequisite DAPR 281. The characteristics and requirements of basic business applications. Design of a computer solution to an application as a case study. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

DAPR 287 Computer Software Systems (3 cr.)
A study of components, functions and relationships of computer operating systems and their interactions with user programs. Lecture 3 hours per week.

DAPR 297 Cooperative Education (1-5 cr.)
(See page 75)

DAPR 298 Seminar and Project (1-5 cr.)
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DAPR 299 Supervised Study (1-5 cr.)
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DECORATING

DECO 104-105 Introduction to Interior Decorating I-II (3 cr.) (3 cr.)
Learning the principles and applications of residential interior decorating with emphasis on color theory and space planning as well as presentation methods. Lecture 3 hours per week.

DENTAL

DENT 108 Introduction to Dental Health Care Delivery (3 cr.)
Introduction to dental profession and supporting personnel; history and development of dentistry; the role of the dental auxiliaries in clinical setting and to members of dental laboratory craft and others of the dental health team; dental ethics and jusisprudence; professional and educational opportunities. Lecture 3 hours per week.

DENT 110 Introduction to Dental Materials (4 cr.)
Introduction to the physical and chemical characteristics, uses and manipulation of materials used in dental procedures, clinical and laboratory. Emphasis on the general principles of physical properties and the specifications program of the American Dental Association. Lecture 2 hours, Laboratory 4 hours, Total 6 hours per week.

DENT 112 Clinical Procedures I (4 cr.)
Principles and procedures related to dental instruments and equipment; role of the dental assistant in general and speciality practice. Lecture 2 hours, Laboratory 4 hours, Total 6 hours per week.

DENT 121-122 Chairside Assisting I-II (4 cr.) (4 cr.)
The proper procedures of reception and preparation of the patient; care of all dental equipment and instruments, charting of teeth, seating of patient, adjustment of dental chair, preparation of trays and instrument stands, layout and exchange of instruments and materials. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

DENT 123 Chairside Assisting III (6 cr.)
A continuation of DENT 122. The student will be involved in the actual experience of clinical procedures and chairside assisting. Lecture 1 hour, Laboratory 15 hours, Total 16 hours per week.

DENT126 Oral Anatomy (4 cr.)
The anatomy, structure, morphology, and function of the oral structures, including primary and permanent dentition. Laboratory procedures include identification and reproduction of tooth form, study of skulls, and occlusion of teeth. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

DENT 136 Pharmacology (2 cr.)
The chemical therapeutic agents in dentistry, including their preparation, effectiveness, and specific applications. Lecture 2 hours per week.

DENT 137 Dental Anatomy and Physiology (4 cr.)
Introduction to human anatomy and physiology. Emphasis on regions of the head and neck and the primary and permanent teeth. Laboratory exercises include: accurate scale drawings of all teeth except the permanent third molars; tooth carvings, coronal and root portions; and the four permanent teeth: maxillary central incisor, maxillary cuspid, maxillary first becuspid, and mixillary first molar. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

DENT 141 Dental Laboratory Technology I (7 cr.)
Designed to assist students in acquiring the knowledge, understanding, appreciations and attitudes basic to effective construction of complete dentures. Beginning skills in dental laboratory technology methods are developed through planned laboratory exercises and other supervised activities. Lecture 3 hours, Laboratory 12 hours, Total 15 hours per week.

DENT 142 Dental Laboratory Technology II (7 cr.)
An introduction to the procedures and methods used in the construction of cast removable partial dentures. Emphasis is on making of refractory models, waxing, spruing, burnout casting and the finishing and polishing of the partials. Lecture 3 hours, Laboratory 12 hours, Total 15 hours per week.

DENT 143 Dental Laboratory Technology III (7 cr.)
The purpose of this course is to develop an understanding of, and some abilities in, the techniques of crown and bridge construction employed by the commercial laboratories in and around the area. Emphasis will also be placed on the construction of inlays and ceramic restorations. Lecture 3 hours, Laboratory 12 hours, Total 15 hours per week.

DENT 146 Oral Radiographic Techniques (3 cr.)
A study of the nature, physical behavior, biological effects, methods of control, safety precautions, and techniques for exposing, processing and mounting x-rays. Laboratory procedures will include the application of these techniques. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

DENT 147 Nutrition (3 cr.)
Study of nutrition as it relates to dentistry and general health. The principles of nutrition as applied to the clinical practice of dental hygiene.

Dent 150 General and Oral Pathology (3 cr.)
Introduction to general pathology with consideration of the common diseases affecting the human body. Par-

ticular emphasis is given to the study of pathological conditions of the mouth, teeth and their supporting structures. Lecture 3 hours per week.

DENT 190 Coordinated Internship **(1-5 cr.)**
(See Page 75)

DENT 198 Seminar and Project **(1-5 cr.)**
(See Page 75)

DENT 210 Dental Laboratory Materials **(4 cr.)**
The aim of this course is to acquaint the student with the physical properties of the materials used in the lab and how to best make use of this knowledge in the fabrication of a Dental prosthesis. The student will be instructed in the proper handling of these materials and also the inherent limitations of same. Lecture 3 hours, Laboratory 3 hours, Total of 6 hours per week.e

DENT 244 Dental Laboratory Technology IV **(7 cr.)**
A practical laboratory course designed to introduce the student to the study of articulation and occlusion and to the basic principles of surveying and designing cast removable partial dentures. Efforts will be made to produce, under the instructor's direction, a variety of restorations, in the specialty chose by the student, which must closely parallel those cases found in the average dental practice. Lecture 3 hours, Laboratory 12 hours, Total 15 hours per week.

DENT 245 Dental Laboratory Technology V **(8 cr.)**
An advanced and intensified study of the specialties covering areas diverging from the normal. The case and problem method is stressed. Lecture 3 hours, Laboratory 15 hours, Total 18 hours per week.

DENT 246 Dental Laboratory Technology VI **(8 cr.)**
A continuation of DENT 245 in which the student is placed in an environment closely paralleling conditions found in the field. Emphasis will be placed on the construction of dental restorations requiring the efforts of 2 or more of the specialties. Lecture 1 hour, Laboratory 21 hours, Total 22 hours per week.

DENT 290 Coordinated Practice **(1-5 cr.)**
(See Page 75)

DENT 298 Seminar and Project **(1-5 cr.)**
(See page 75)

DENT 299 Supervised Study **(1-5 cr.)**
(See Page 75)

DRAFTING

DRFT 111 Technical Drafting I **(2 cr.)**
Introduction to the techniques and instruments required for success as a draftsman in industry. Use of instruments, lettering, simple descriptive and analytic geometry principles as applied to drafting and freehand sketching, basic principles of orthographic projection in the preparation of simple drawings. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

DRFT 112 Technical Drafting II **(2 cr.)**
Prerequisite DRFT 111 or equivalent. Sections and conventions, threads and fasteners, pictorial drawings, auxiliaries and revolutions. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

DRFT 113 Technical Drafting III **(2 cr.)**
Prerequisite DRFT 112 or equivalent. Assembly and detail drawings, working from the simple to the complex. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

DRFT 114 Technical Drafting IV **(2 cr.)**
Continuation of DRFT 113 with emphasis on production standards. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

DRFT 144 Automotive Drawing Interpretation I **(2 cr.)**
Reading and interpretation of automotive shop drawings, including assembly and exploded drawings of automotive assemblies. Lecture 2 hours per week.

DRFT 154-155 Advanced Technical Illustration I-II **(3 cr.) (3 cr.)**
Prerequisite DRFT 112 or divisional approval. The development of axonometric (pictorial) projections, perspectives, exploded illustrations, industrial shading, inking techniques, and instrument lettering. DRFT 155 will include patent illustrating, photo high-lighting, retouching, schematics and diagrams presentation drafting, pressure tape drafting, and continuation of inking techniques and instrument lettering. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

DRFT 177 Architectural Blueprint Reading **(3 cr.)**
Emphasis on reading, understanding and interpreting standard types of architectural drawings including plans, elevations, sections and details. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

DRFT 197 Cooperative Education **(1-5 cr.)**
(See Page 75)

DRFT 198 Seminar and Project **(1-5 cr.)**
(See page 75)

DRFT 211 Advanced Technical Drafting V **(3 cr.)**
Prerequisite DRFT 113. Use of drafting machines with emphasis on the knowledge and skill required for typical industrial drawing. Electrical and electronic symbols and drawings, piping, complicated gearing drawings, sections, and layout; skill in lettering of all types. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

DRFT 212 Advanced Technical Drafting VI **(3 cr.)**
Prerequisite DRFT 211. Electronic and electromechanical drawings, sheet metal fabrication, radii, fillets, and tolerances; use of ink in lettering and ruling. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

DRFT 213 Advanced Technical Drafting VII **(3 cr.)**
Prerequisite DRFT 212. Design drafting in all aspects as a means of communication. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

DRFT 256 Electronics Drafting **(2 cr.)**
Fundamental principles, practices and methods of presenting electromechanical information through the graphic language. Principles of projection, fastening, materials and finishes, chassis design and fabrication, electronic symbology, diagrammatic drawings, printed circuit drawings and checking of electronic drawings. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

DRFT 297 Cooperative Education **(1-5 cr.)**
(See Page 75)

DRFT 298 Seminar and Project **(1-5 cr.)**
(See Page 75)

ECONOMICS

ECON 160 American Economics **(3 cr.)**
A survey of the history, principles, and policies of the American economic system. Some comparison with alternative economic systems. Lecture 3 hours per week.

ECON 198 Seminar and Project **(1-5 cr.)**
Prerequisite division permission (See page 75)

ECON 211-212-213 Principles of Economics I-II-III **(3 cr.) (3 cr.) (3 cr.)**
The principles of economics and the bearing of these principles on present American conditions, structural and functional aspects of the economy. Analysis, problems and issues relating to organization of business, labor and government institutions and economic stability and growth. Measurements of economic activity. Private enterprise, economic growth and stabilization policies, monetary and fiscal policy. International economic relationships, alternative economic systems. Lecture 3 hours per week.

ECON 299 Supervised Study **(1-5 cr.)**
Prerequisite division permission. (See Page 75)

EDUCATION

EDUC 111-112-113 Educational Techniques in Child Study I-II-III **(3 cr.) (3 cr.) (3 cr.)**
Methods, skills, and techniques of gathering observational data on young children. Running records, timed observations, behavior check-lists, sociograms and other techniques of observing children will be considered. Emphasis on understanding developmental patterns in the physical, social, emotional, and intellectual areas of a child's development through analysis of the records. Lecture 3 hours per week.

EDUC 116 Library Utilization for Instructional Aides **(3 cr.)**
Familiarization and utilization of library materials for preparation of instructional materials by instructional aides. Current literature and its application to the classroom. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

EDUC 117 Introduction to Reading Methods **(3 cr.)**
Introduction to the current practices of teaching reading in the elementary school. Familiarization with materials currently in use, observation of various reading techniques and trends in the classroom. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

EDUC 121-122-123 Childhood Education I-II-III **(3 cr.) (3 cr.) (3 cr.)**
Theory and concepts of early childhood education (121), elementary age education (122), and adolescent education (123). Characteristics for each age group covering the following categories: general relations with adults; intellectual skills; physical growth; and relations with children in their own peer group. Lecture 3 hours per week.

EDUC 130 Instructional Equipment Laboratory **(1 cr.)**
The operation and use of standard instructional equipment with emphasis upon audiovisual equipment such as movie projectors, tape recorders, slide projectors, and tutorial machines; general procedures for obtaining films and other special learning materials. Laboratory 3 hours per week.

EDUC 136 Materials and Equipment for Instructional Aides **(3 cr.)**
The preparation of view graphs, the construction of graphic charts, and other aides; how to select slides and develop material for classroom presentation. The operation, care and use of instructional equipment, including audio-visual equipment most used in the classroom. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

EDUC 137 Creative Activities for Children **(3 cr.)**
This course is designed to prepare individuals for working with young children in art and other creative activities. Emphasizes coverage of suitable materials and the laboratory application. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

EDUC 140 Modern Mathematics Concepts **(3 cr.)**
The techniques and materials used to develop mathematical patterns and concepts in pre-school and primary modern mathematics programs. Instructional aides will learn to prepare, collect and work with materials used to develop mathematical concepts in children. Lecture 3 hours per week.

EDUC 150 Modern Science Concepts **(3 cr.)**
The content and methods of teaching science in the elementary school, beginning with the everyday environment of the child and leading to basic generalizations in science. Lecture 3 hours per week.

EDUC 161-162-163-164 Educational Techniques I-II-III-IV **(3 cr.) (3 cr.) (3 cr.) (3 cr.)**
Provides instructional assistants who are not already employed in a school situation with the supervised practical experience necessary for effective assistance to the classroom teacher. Supervised experience with children at selected schools, child care centers, and other institutions of learning to give prospective instructional assistants opportunities to observe, participate in & evaluate the interaction of teachers, instructional assistants and children. Lectures will include preparation for practicum experiences, and the review and evaluation of those experiences. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

EDUC 181 Instructional Aide Seminar and Practicum I **(6 cr.)**
Supervised experiences with children in early childhood at selected schools, child care centers and other institutions of learning to give prospective aides opportunities to observe, participate in and evaluate the interaction of teachers, aides and children. Weekly seminars will include preparation for ensuring practicums and reviews and evaluations of the earlier practicum experience. In addition, special seminars with visiting leaders and group meetings with teachers will be offered periodically. Lecture 3 hours, Laboratory 9 hours, Total 12 hours per week.

EDUC 182 Instructional Aide Seminar and Practicum II (5 cr.)
Prerequisite EDUC 181. Continuation of EDUC 181. Lecture 2 hours, Laboratory 9 hours, Total 11 hours per week.

EDUC 183 Instructional Aide Seminar and Practicum III (5 cr.)
Prerequisite EDUC 182. Continuation of EDUC 182. Lecture 2 hours, Laboratory 9 hours, Total 11 hours per week.

EDUC 184 Instructional Aide Seminar and Practicum IV (5 cr.)
Prerequisite EDUC 183. Continuation of EDUC 183. Lecture 2 hours, Laboratory 9 hours, Total 11 hours per week.

EDUC 190 Coordinated Internship (1-5 cr.)
(See Page 75)

EDUC 191-192-193 Seminar in Techniques for Head Start Personnel I-II-III (3 cr.) (3 cr.) (3 cr.)
Discussion topics: production of instructional materials, audiovisual instruction, appropriate educational objectives. Lectures: music, art, science, mathematics, first aid, health, physical education. Lecture 3 hours per week.

EDUC 197 Cooperative Education (1-5 cr.)
(See Page 75)

EDUC 198 Seminar and Project (1-5 cr.)
(See Page 75)

EDUC 210 Introduction to Special Education (3 cr.)
Prerequisite PSYC 130 and EDUC 121. A brief overview of the history of special education. The role and responsibilities of the paraprofessional in special education. Emphasis will be on working with educationally and neurologically handicapped. Lecture 3 hours per week.

EDUC 217 Models of Child Development Programs (3 cr.)
Study and discussion of purposes, licensing and staff requirements. Various models and theories of child care will be emphasized. Field trips to various child care centers. Lecture 3 hours per week.

EDUC 236 Child Development Programs Planning and Management (3 cr.)
Prerequisites PSYC 130 and EDUC 121. An intensive course in program planning, methods and materials for activities with young children including theoretical bases. An integral part of the course will be emphasis upon professionalism, personality, and inter-personal skills in the teacher-paraprofessional roles. Positive guidance techniques and classroom management and its relation to healthy personality development. Lecture 3 hours per week.

EDUC 246 Educational Law (3 cr.)
The application of rules of law to the operation of the public schools in Virginia. Legal aspects of the principal instruments of school activities, rights and liabilities of school employees, legal aspects of negotiable instruments and securities. Lecture 3 hours per week.

EDUC 297 Cooperative Education (1.5 cr.)
(See Page 75)

EDUC 298 Seminar and Project (1.5 cr.)
(See Page 75)

ELECTRONIC TECHNOLOGY

ELEC 114 Fundamentals of Direct Current (4 cr.)
MATH 121 must have been taken previously or must be taken concurrently. A study of current flow and direct current circuits. The course presents work with magnetic circuits. This course utilizes mathematical tools as they are developed in the mathematics course. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 115 Fundamentals of Alternating Current (4 cr.)
Prerequisite ELEC 114. MATH 122 must have been taken previously or must be taken concurrently. The study of time varying currents: The student will use complex numbers and vector concepts in dealing with A.C. impedances. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 116 Introduction to Circuit Analysis (4 cr.)
Prerequisite ELEC 115. A course emphasizing A.C. circuit theory and both A. and D.C. network theorem and provides a continuation of the background information needed to analyze networks with both active and passive elements present. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 120 Introduction to Tubes and Transistors (4 cr.)
ELEC 114 and MATH 121 must have been taken previously or must be taken concurrently. A course concerned with how electronic devices work and the characteristics of these devices. Both tube and solid state device characteristics are covered. This course utilizes the mathematical tools as they become available and the ideas of electronic flow and circuit analysis as they are developed in the fundamentals of electricity course. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 125 Introduction to Electronics (5 cr.)
Prerequisite ELEC 115 and ELEC 120. The theory, properties, and application of vacuum tube and solid state devices, including power supplies. Lecture 4 hours, Laboratory 3 hours, Total 7 hours per week.

ELEC 126 Amplifiers (4 cr.)
Prerequisite or corequisite ELEC 125. Amplifiers both transistor and tube types with emphasis on methods of analysis and design procedures. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 197 Cooperative Education (1-5 cr.)
(See Page 75)

ELEC 217-218 Circuits I-II (2 cr.) (3 cr.)
Corequisite MATH 242. Fundamentals of circuit theory. Elements of network topology, mesh currents and mode voltages. Methods used for solving one-port and two-port networks. Lecture 2-3 hours per week.

ELEC 227 Pulse and Switching Circuits (3 cr.)
Prerequisite ELEC 116 and ELEC 126. Linear and non-linear wave shaping providing base for further study in the areas of computers and automatic controls. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

ELEC 241 Communications I (4 cr.)
Prerequisite ELEC 126. A study of modulation and power in modulated waves; sinusoidal oscillations and oscillators, RF amplifiers and detectors, and AM receivers. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 242 Communications II (4 cr.)
Prerequisite ELEC 241. A study of transmitters and receivers. Topics included are FM receivers, RF power amplification, AM SSB and FM transmitters, and an introduction to transmission lines and antennas. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 243 Communications III (4 cr.)
Prerequisite ELEC 424. A study of Microwave systems. Topics included are microwave tubes, waveguides, antennas and measurements at microwave frequencies. Also, an introduction to radar and television systems is presented. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 249 Television Electronics (3 cr.)
Prerequisites ELEC 242 and ELEC 227. A lecture-demonstration course dealing with the special devices and techniques associated with monochrome and color, broadcast and industrial television transmission and reception. Specifically included are the standards of American television electronics as set down by the National Association of Broadcasters (NAB). Cameras and television receivers are given special emphasis. Lecture 3 hours per week.

ELEC 250 Introduction to Computers (4 cr.)
Prerequisite ELEC 227. A general introduction to concepts and basic features of electronic computers. Topics include: fundamentals of internal operations, number systems, digital circuits, Boolean algebra, basic logical design techniques, analysis of input-output devices, control and arithmetic units, memory units and limited programming. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 260 Control Circuits (4 cr.)
Prerequisite ELEC 227. The principles and applications of electrical controllers are covered in this course, which serves as an introduction to automation. Devices for differentiation, integration and proportioning are studied in detail. Hardware and circuitry for AC and DC industrial control devices, including contactors, starters, speed controllers, time delays, limit switches and pilot devices. Application in the control of industrial equipment-motors, servo units and motor-driven actuators. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 276 Instruments and Measurements (4 cr.)
Co or prerequisite ELEC 241. A study of basic circuits in electronic measurements and application of these circuits in test instruments such as oscilloscopes, vacuum tube voltmeters and bridges. Further study concerned with the accuracy of measurements, how instruments work, proper use of instruments and calibration technique. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 287 Advanced Circuits and New Devices (2 cr.)
Prerequisite division approval. This is a unique course, since it depends so heavily on the judgment of the teaching staff. It is composed of lectures and demonstrations concerned with the latest developments in electronics. Lecture 2 hours per week.

ELEC 297 Cooperative Education (1-5 cr.)
(See Page 75)

ELEC 298 Seminar and Project (1-5 cr.)
Prerequisite division approval (See Page 75)

ENGINEERING

ENGR 10 Introduction to Technical Engineering (2 cr.)
An introductory course to the work of the Engineering Technician. Simple engineering problems; slide rule instruction and applications. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

ENGR 53 Elements of Statics and Strength of Materials (3 cr.)
Prerequisite ENGR 10 or MATH 11. An introductory course for technicians of the basic principles of Statics (forces, equilibrium, moments, etc.) and Strength of materials (centroids, moments of inertia, stress and deformation, shear and moment diagrams, etc.)—Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

ENGR 100 Introduction to Engineering Technology (2 cr.)
Professional fields of engineering; the work of the engineer, requirements of training and character, professional ethics, the division of industrial practice and competition. Pure and simple problems from the various schools of engineering are used with slide-rule applications. Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.

ENGR 101 Introduction to Engineering (2 cr.)
Professional fields of engineering; the work of the engineer, requirements and character, professional problems from the various schools of engineering are used with slide-rule applications. Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.

ENGR 102 Introduction to Engineering Methods (2 cr.)
Prerequisite ENGR 101. Side-rule practice, an introduction to analog and digital computers, programming of digital computer, vector geometry, graphical representation of data; field trips to nearby computer center. Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.

ENGR 103 Conceptual Design and Analysis (2 cr.)
Prerequisite ENGR 102. Engineering fundamentals and concepts in designing for production, prototype and laboratory models, automation, tape programming and vertification; design problems, class reports, and departmental visits at nearby four year college. Lecture 1 hours, Laboratory 2 hours, Total 3 hours per week.

ENGR 121 Engineering Graphics I (2 cr.)
Drawing and theories of projection. Multiview drawings, pictorial drawings and sketching, geometrical construction, sectioning, lettering, dimensioning, auxiliary views, recolutions, assembly drawings. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

ENGR 122 Engineering Graphics II (2 cr.)
Prerequisite ENGR 121. Graphical methods used in engineering design, layout and calculation. Properties and types of graphs for engineering and scientific purposes. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

ENGR 123 Engineering Graphics III (2 cr.)
Prerequisite ENGR 121 or equivalent. A study of the analysis and graphic presentation of the space relationship of fundamental geometric elements: point, line, plane, curved surfaces, development and vectors. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

ENGR 151 Mechanic I (Statics) (4 cr.)
Corequisite MATH 122 or MATH 112. Principles and applications of free body diagrams for force systems, shear and moment diagrams, deflection of beams by numerical integration, and determination of section properties. Lecture 4 hours per week.

ENGR 152 Mechanics II (Strength of Materials) (3 cr.)
Prerequisite ENGR 151. Strength of material concepts. Stress and strain analysis, both elastic and plastic, with emphasis on elastic analysis of axially loaded members, connectors, beams, and columns. Lecture 3 hours per week.

ENGR 153 Mechanics III (3 cr.)
Prerequisite ENGR 151 or equivalent. The study of rigid body mechanics, including kinetics, kinematics, and advanced strength of materials. Lecture 3 hours per week.

ENGR 154 Mechanics Laboratory (1 cr.)
Prerequisite or corequisite ENGR 152. Tension, compression, torsion, bending, fatigue, and hardness of materials. Static and dynamic stresses and strains, stress concentration factors, and statistical evaluation of data. Experiments and/or demonstrations. Laboratory 3 hours per week.

ENGR 197 Cooperative Education (1-5 cr.)
(See Page 75)

ENGR 198 Seminar and Project (1-5 cr.)
(See Page 75)

ENGR 206 Engineering Economy (3 cr.)
Economic decision process in the engineering design environment. Investment, financing, depreciation, manufacturing costs, economic selection replacement. Lecture 3 hours per week.

ENGR 251 Engineering Mechanics I (Statics) (4 cr.)
Corequisite MATH 241. Vector treatment of concepts of force, mass, space, & time, gravitational systems of measurements, forces, moments & vector quantities; analysis of discrete & distributed force systems & their application to bodies in external equilibrium including cranes, trusses; principles of dry friction, centroids & fluid statics. Lecture 4 hours per week.

ENGR 252 Engineering Mechanics II (Mechanics of Solids) (4 cr.)
Prerequisite ENGR 251. Introductory mechanics of continuous media; concepts of stress & deformation due to longitudinal loads, torsion and bending, plane stress. Lecture 4 hours per week.

ENGR 253 Engineering Mechanics III (Dynamics) (4 cr.)
Prerequisite ENGR 251. Vector treatment of coplanar and three-dimensional kinematics and kinetics of particles and rigid bodies including relative motion, mass moments of inertia, Newton's Laws, work and energy, impulse and momentum, vibration, and balancing. Lecture 4 hours per week.

ENGR 297 Cooperative Education (1-5 cr.)
(See Page 75)

ENGR 298 Seminar and Project (1-5 cr.)
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ENGR 299 Supervised Study (1-5 cr.)
(See Page 75)

ENGLISH

ENGL 01 Verbal Studies Laboratory (1-5 cr.)
A developmental course in composition designed for students who need help in all areas of writing to bring their proficiency to the level necessary for entrance into their respective curriculums. Emphasis on individualized instruction. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hours.

ENGL 05 English as a Second Language (1-5 cr.)
A developmental course in the English language for persons whose native language is not standard English. Emphasis on production of English phonemes, intonation patterns, structural patterns, grammar, vocabulary, and idioms. Students are expected to spend a minimum of 3 hours weekly in the language laboratory. Students may re-register for this couse in subsequent quarters as necessary until the course objectives are compelted. Variable hours.

ENGL 08 Reading Improvement (1-5 cr.)
A developmental course using modern techniques, equipment, and materials to increase the student's comprehension, skill, and speed in reading. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hours.

ENGL 101-102-103
Communication Skills I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite satisfactory score on appropriate English proficiency examination. Designed to teach the student to use the English language correctly and effectively and to develop skill in the preparation of reports, articles, essays, and correspondence related to technical fields. Attention to sentence structure and paragraph development to express thoughts in lucid, coherent, well-developed form. Reading selections provide material for discussion and supply topics for frequent writing assignments. Lecture 3 hours per week.

NOTE: The student in a program that requires ENGL 101-102 and a third quarter of English or Speech should consult with his major advisor to determine which English or Speech course would be the most appropriate for his particular program. Please note that the course SPDR 136 is the equivalent of the course

previously known as ENGL 136 and that it has no prerequisite; thus it can be taken at any time: 101-102-136, 101-136-102, or 136-101-102.

ENGL 111-112-113 English Composition I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite satisfactory score on appropriate English proficiency examinations and 4 units of high school English or equivalent. Expository and argumentative writing, ranging from single paragraphs to essays of some length and complexity. Study of logical, rhetorical, and linguistic structures; the methods and conventions of preparing research papers; and the practical criticism of literary types. These courses must be taken in sequence. Lecture 3 hours per week.

ENGL 118 Advanced Reading and Study Development (3 cr.)
A multi-level reading course with emphasis on structural analysis, critical reading, and study techniques for the development of individual skill; laboratory provides enrichment and application of techniques. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

ENGL 126 Introduction to Journalism (3 cr.)
Prerequisite freshman English or divisional approval. This course is designed to acquaint the student with the functions of the news media and the forces which shape them. It provides beginning instruction and practice in gathering, writing, and evaluating the news. It offers practice in copy preparation and production. Lecture 3 hours per week.

ENGL 127 History of Journalism (3 cr.)
Prerequisite freshman English or divisional approval. This course is a survey of American Journalism from the colonial period to the present with emphasis on freedom of the press, propaganda and censorship. Lecture 3 hours per week.

ENGL 128 Survey of Mass Media (3 cr.)
Prerequisite freshman English or divisional approval. This is a survey of radio, television, newspapers, magazines, books and motion pictures. Emphasis is placed on the nature of change in, and the social implications of communications media today. Lecture 3 hours per week.

ENGL 137 Technical Writing (3 cr.)
Prerequisite ENGL 102 or departmental approval. Designed to develop writing proficiency in technical fields. Emphasis on collecting, organizing, and presenting materials applicable to various specialized areas. Lecture 3 hours per week.

ENGL 180 Fundamentals of Business English (3 cr.)
Prerequisite ENGL 102. An intensive study of the qualities and techniques required in the preparation of business correspondence, reports, articles, and memoranda. A practical course in the reading and writing of business-related materials with emphasis on comprehension, analysis, and organization of ideas in a logical pattern. Class 3 hours per week.

ENGL 198 Seminar and Project (1-5 cr.)
(See Page 75)

ENGL 199 Supervised Study (1-5 cr.)
(See Page 75)

ENGL 221 Journalism-News Writing (3 cr.)
Prerequisite ENGL 126 or divisional approval. Intensive practice in reporting and news writing for local newspapers or the college newspaper under supervision of the journalism faculty and other professional journalists. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

ENGL 222 Journalism-Feature Writing (3 cr.)
Prerequisite ENGL 126 or divisional approval. Intensive practice in writing feature articles for newspapers and magazines under the supervision of professional journalists and the journalism faculty. Articles will be submitted for publication. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

ENGL 223 Journalism-Editing (3 cr.)
Prerequisite 9 hours of journalism and divisional approval. Qualified students will receive practical experience working with professional journalists in the preparation and production of copy. Emphasis on selective judgment, editing as a creative process, managerial functions of the editor. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

ENGL 228 Creative Writing (3 cr.)
Prerequisites ENGL 111, 112, 113 or divisional permission. Designed to introduce the student to the fundamentals of writing creatively, involving primarily the use of the imagination. Samples of creative writings will be studied to observe the methods employed in writing poetry, essays, and short stories. Lecture 3 hours per week.

ENGL 246 The Modern Novel (3 cr.)
Prerequisite freshman English or divisional approval. A study of the modern novel. Emphasis on appreciation and interpretation of selected novels. Lecture 3 hours per week.

ENGL 247 The Modern Drama (3 cr.)
Prerequisite freshman English or divisional approval. A study of the modern drama. Emphasis on the understanding and enjoyment of dramatic literature. Lecture 3 hours per week.

ENGL 248 The Modern Short Story (3 cr.)
Prerequisite freshman English or divisional approval. A study of the short story as a literary form. Emphasis on appreciation and interpretation of selected stories. Lecture 3 hours per week.

ENGL 249 Modern Poetry (3 cr.)
Prerequisite freshman English or divisional approval. A study of modern poetry. Emphasis on appreciation and interpretation of selected poems. Lecture 3 hours per week.

ENGL 250 Major American Writers (5 cr.)
Prerequisite ENGL 113 or divisional approval. A study of selected American writers representative of various periods. Students may not receive credit for both Survey of American Literature (ENGL 251-252-253) and ENGL 250 nor any combination of ENGL 260 and ENGL 251-252-253.

ENGL 251-252-253 Survey of American Literature I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite ENGL 113 or divisional approval. American Literature from Colonial times to the present. Emphasis on the ideas, themes, and characteristics of our national literature. Lecture 3 hours per week.

ENGL 259 Afro-American Literature (3 cr.)
An examination of selected works by Black writers in America from early times to the present with emphasis upon the twentieth century. Primary concern will be the tracing in these works of major themes which reveal the Black man's vision of America and his place in it. Lecture 3 hours per week.

ENGL 260 Major English Writers (5 cr.)
Prerequisite ENGL 113 or divisional approval. A study of selected English writers representative of various periods. Students may not receive credit for both Survey of English Literature (ENGL 261-262-263) and ENGL 260 nor any combination of ENGL 260 and ENGL 261-262-263.

ENGL 261-262-263 Survey of English Literature I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite ENGL 113 or divisional approval. A survey of major English writings from early times to the modern period. Emphasis on the ideas, themes, and characteristics of English literature. Lecture 3 hours per week.

ENGL 270 Major Writers in World Literature (5 cr.)
Prerequisite ENGL 113 or divisional approval. A study in depth of writers of various cultures. Students may not receive credit for both Survey of World Literature (ENGL 271-272-273) and ENGL 270 nor any combination of ENGL 270 and ENGL 271-272-273.

ENGL 271-272-273 Survey of World Literature I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite ENGL 113 or equivalent. A course designed to familiarize the student with master works of world literature. Analytical reading and critical writing toward understanding of the periods, the writers, the literary works. Lecture 3 hours per week.

ENGL 298 Seminar and Project (1-5 cr.)
(See Page 75)

ENGL 299 Supervised Study (1-5 cr.)
(See Page 75)

FIRE SCIENCE

FIRE 100 Introduction to Fire Science (3 cr.)
History and philosophy of fire service at the local, state, and national level with emphasis on the organization of the individual fire department; analysis of the overall fire problem, communications, maintenance, training, company fire fighting capabilities, apparatus and equipment. Lecture 3 hours per week.

FIRE 106 Fundamentals of Fire Service Administration (3 cr.)
A study of department and company organization and management, administrative procedures and methods, budgeting and reporting, control of resources, and maintenance of records. Lecture 3 hours per week.

FIRE 108 Fundamentals of Fire Suppression (3 cr.)
Basic concepts involved in fire suppression including fire behavior, principles of fire fighting as applied to small and large scale fires, problems involving the use of tactics, size-up, strategy and employement of equipment and manpower at various echelons. Lecture 3 hours per week.

FIRE 109 Fire Suppression Operations (3 cr.)
The distribution and use of equipment, organization for major fires, pre-planning, command post operations, communications, equipment design and maintenance, and tactics. Lecture 3 hours per week.

FIRE 111 Hazardous Materials I (3 cr.)
Identification and characteristics of materials contributing to fire hazards including chemical, gases, flammable liquids, and radiological materials, and an examination of their storage, handling and transportation, and related fire science problems. Lecture 3 hours per week.

FIRE 112 Hazardous Materials II (3 cr.)
Prerequisite FIRE 100 and FIRE 111. Hazardous materials covering storage, handling, laws, standards, and fire fighting techniques associated with chemicals, gases, flammable liquids, and radio-active materials. Lecture 3 hours per week.

FIRE 116 Fundamentals of Fire Prevention (3 cr.)
An introduction to fire safety through study of fire causes, inspection and investigation procedures. Lecture 3 hours per week.

FIRE 120 Fire Protection Equipment and Systems (3 cr.)
Topics covered are the examination and utilizing of portable extinguisher equipment, sprinkler systems, protection systems for special hazards, and fire alarm and protection systems. Opportunities for visits to local facilities having equipment and ystems affording a critical appraisal. Lecture 3 hours per week.

FIRE 137 Fire Fighting Tactics and Strategy (3 cr.)
Prerequisite FIRE 106 and FIRE 108. Review of combustion and extinguishment. The problems during size-up; developing and implementing tactics and strategy during fires; and the leadership required on the fire round. Lecture 3 hours per week.

FIRE 141 Fire Administration (3 cr.)
Prerequisite FIRE 106. A study of the personnel responsiblity of managers. Centers on line-staff relationships, social change, managerial attitudes and decisions, general organizational planning, and career development for managers. Lecture 3 hours per week.

FIRE 146 Fire Administration and Law (3 cr.)
Application of guideposts relative to firemen and law. Includes introduction to law, the judicial system, city's liability for acts of the fire department, fire prevention bureaus, and general liabilities of firemen. Lecture 3 hours per week.

FIRE 147 Methods of Fire Instruction (3 cr.)
3 lecture hours per week. This course is designed to prepare Fire Management Personel who conduct the in-service training of fire fighters at local Fire Departments. Emphasis will be on development of training methods and aids, such as role-playing, small group discussion & development of individualized learning materials & methods. Each student will be required to develop and present a segment of the fire fighting curriculum of his local fire department. Lecture 3 hours per week.

FIRE 206 Fire Rescue Practices (3 cr.)
Rescue practices; the human body, emergency care of victims, childbirths, artificial respiration, toxic gases, chemicals and diseases, radio-active hazards, rescue problems and techniques. Lecture 3 hours per week.

FIRE 207 Radiation Control Systems (3 cr.)
Radiation control procedures applied by the fire departments and other affected agencies. Includes familiarization with radiological instruments, human exposure to radiation, decontamination procedures, common uses of radioactive materials, and operational procedures. Demonstrations will illustrate established principles. Lecture 3 hours per week.

FIRE 208 Water Distribution Systems (3 cr.)
Principles, techniques, and application of water distribution systems in fire fighting. Emphasis on the use of underground mains, private water supplies, public water systems, hydrants, hose and standpipes. Laboratory equipment and materials will supplement lectures. Lecture 3 hours per week.

FIRE 216 Fire Hydraulics and Equipment (4 cr.)
Prerequisite FIRE 106. Review of basic mathematics; laws and formulas applied to fire service hydraulics, development of mental ability to solve fire flow requirements, water supply needs, and consideration of equipment standards. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

FIRE 227 Building Construction and Codes (4 cr.)
The various types of construction materials and their properties with emphasis on the effect of heat, water, and internal pressures generated under fire conditions. Familiarization with national, state and local ordinances and codes which influence the fire protection field. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

FIRE 228 Codes and Ordinances (3 cr.)
Familiarization with national, state and local laws; ordinances and codes which influence the field of fire prevention and protection; legal aspects of fire prevention and related problems. Lecture 3 hours per week.

FIRE 237 Arson Detection and Investigation (3 cr.)
Prerequisite FIRE 106. Introduction to arson laws and types of incendiary fires. Determining fire causes, recognizing and preserving evidence; interrogation of adults and juveniles; court procedures. Lecture 3 hours per week.

FIRE 290 Coordinated Internship (1-5 cr.)
(See Page 75)

FIRE 298 Seminar and Project (1-5 cr.)
(See Page 75)

FORESTRY

FORE 117 Dendrology (The Study of Trees) (4 cr.)
Prerequisite BIOL 101 or equivalent. A survey of the plant kingdom followed by a study of the commercially important trees of the United States. Emphasis upon field characteristics and environment of the trees of the Southeast. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

FORE 130 Forest and Wildlife Recreation Management (3 cr.)
An introduction to the organization and management of public and private recreation areas including hunting and fishing preserves, campsite area standards, and nature trail development. Lecture 3 hours per week.

FORE 131 Wildlife and Fisheries Management (4 cr.)
An introduction to the principles of wildlife and fisheries management . Emphasis on practices in the southeastern United States. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

FORE 132 Forest Recreation (4 cr.)
A study of recreational use of forest resources including an understanding of the psychology of recreation, planning, and design of forest recreation areas. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

FRENCH

FREN 101-102-103
Elementary French I-II-III (4 cr.) (4 cr.) (4 cr.)
Introductory training in the speaking, understanding, reading, and writing of French with emphasis on manipulation of the structure of the language. Lecture 3 hours, Laboratory and drill 2 hours, Total 5 hours per week. *Not recommended for students who have, within the past two years, received two years high school or one year college credit for this language.*

FREN 104-105 Introductory French I-II (6 cr.) (6 cr.)
The understanding, speaking, reading, and writing of French with emphasis on manipulation of the structure of the language. Lecture 5 hours, Laboratory 3 hours, Total 8 hours per week.

FREN 106 Review of Introductory French (5 cr.)
An intensive review of French structure and phonology; designed for students who have had some previous training in French, but whose proficiency does not qualify them for French 201. *Permission of the department required.*

FREN 199 Supervised Study (1-5 cr.)
(See Page 75)

FREN 201-202-203 Intermediate French I-II-III
(4 cr.) (4 cr.) (4 cr.)
Prerequisite FREN 103 or successful completion of two years of high school French and division permission. Advanced study in the speaking, understanding, reading and writing of French. French is used in the classroom. Lecture 3 hours, Laboratory and drill 2 hours, Total 5 hours per week.

FREN 204-205 Intermediate French I-II (6 cr.) (6 cr.)
Prerequisite FREN 105 or successful completion of two years of high school French and division permission. Advanced study in the understanding, speaking, reading, and writing of French. French used in the classroom. Lecture 5 hours, Laboratory 3 hours, Total 8 hours per week.

FREN 231-232-233 Introduction to French Civilization and Literature I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite FREN 203 or equivalent. An introduction to the background of French life and culture and to the outstanding contributions of France to world civilization from medieval times to the present. Reading is in the original French and French is used in the classroom. Lecture 3 hours per week.

FREN 298 Seminar and Project (1-5 cr.)
(See Page 75)

FREN 299 Supervised Study **(1-5 cr.)**
(See Page 75)

GENERAL

GENL 98 Seminar and Project **(1-5 cr.)**
(See Page 75)

GENL 100 Orientation **(1 cr.)**
This course, required of all beginning college students, is designed essentially as an instrument of group guidance and deals with such problems as adjustment to college, purposes and functions of the college, planning for the future and making the most of the college years and what the college has to offer. Particular emphasis is placed on experiences designed to improve study habits and skills such as reading, listening, and library activities. Lecture 1 hour, Laboratory or seminar 1 hour, Total of 2 hours per week.

GEOGRAPHY

GEOG 240 Introduction to Physical Geography (3 cr.)
A study of the major elements of the natural environment such as land forms, weather and climate, natural vegetation, and soils. Lecture 3 hours per week.

GEOG 250 Introduction to Cultural Geography (3 cr.)
A survey of landscape modification through human agencies and the relationships of culture and geography. Lecture 3 hours per week.

GEOG 260 Introduction to Economic Geography (3 cr.)
A geographic survey of primary production, manufacturing, mining, and trade, covering agriculture, forestry, and fishing. Lecture 3 hours per week.

GEOG 299 Supervised Study **(1-5 cr.)**
Prerequisite division approval (See Page 75)

GEOLOGY

GEOL 101-102-103 General Geology I-II-III (4 cr.) (4 cr.) (4 cr.)
Physical geology, the various modifying agencies at work upon the earth, and their effects. The composition and structure of the earth as a whole. Historical geology, the history of the earth and its plants and animals from the beginning to the present, with emphasis on the principles involved in interpreting geologic evidence. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

GEOL 199 Supervised Study in Geology **(1-5 cr.)**
(See Page 75)

GERMAN

GERM 101-102-103 Elementary German I-II-III (4 cr.) (4 cr.) (4 cr.)
Introductory training in the understanding, speaking, reading, and writing of German with emphasis on manipulation of the structure of the language. Lecture 3 hours, Laboratory and drill 2 hours, Total 5 hours per week. *Not recommended for students who have, within the past two years, received two years high school or one year college credit for this language.*

GERM 106 Review of Introductory German **(5 cr.)**
An intensive review of German structure and phonology; designed for students who have had some previous training in German, but whose proficiency does not qualify them for German 201. *Permission of the department required.*

GERM 199 Supervised Study **(1-5 cr.)**
(See Page 75)

GERM 201-202-203 Intermediate German I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite GERM 103 or successful completion of two years of high school German and division permission. Advanced study in the understanding, speaking, reading and writing of German. German is used in the classroom. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

GERM 231-232-233 Introduction to German Literature I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite GERM 203 or equivalent. Readings in selected works of German literature. German is used in the classroom. Lecture 3 hours per week.

GERM 299 Supervised Study **(1-5 cr.)**
(See Page 75)

GOVERNMENT

GOVT 180 American Constitutional Government (3 cr.)
An introductory course in American government, including fundamental concepts and principles of our constitutional system at the national, state and local levels. Lecture 3 hours per week.

GOVT 187 American National Government **(5 cr.)**
The organization, structure and functions of the national government in the United States. If credit was given for either GOVT 180, GOVT 186, or GOVT 281-282-283, credit cannot be obtained for this course. Lecture 5 hours per week.

GOVT 188 State and Local Government **(5 cr.)**
A study of the theory, structure and functioning of, and interrelationships among, state and local governments in the United States, with illustrations from Virginia jurisdictions. Lecture 5 hours per week.

GOVT 199 Supervised Study **(1-5 cr.)**
Prerequisite division permission. (See Page 75)

GOVT 211 International Relations I **(3 cr.)**
An analysis of the international political system. Includes an introduction to theoretical and analytical approaches to the understanding of the international system and an analysis of the economic, geographic, demographic, and ideological factors and problems affecting the behavior of states toward one another.

GOVT 212 International Relations II **(3 cr.)**
A study of international law and international organizations. The study examines both the origin and the functions of law and organization within the international state system.

GOVT 213 International Relations III (3 cr.)
An examination of the contemporary international political system, concentrating on the policies of the major powers, the motivations and goals of those policies, and the major problems of conflict and adjustment in the contemporary system. May be taken non-sequentially. Lecture 3 hours per week.

GOVT 281-282-283 United States Government I-II-III (3 cr.) (3 cr.) (3 cr.)
Elements of political science, powers, organization and functions of the legislative, executive and judicial branches of the national, state and local governments in the United States; democracy, federalism, the Constitution and civil liberties. These courses need not be taken sequentially. 3 lecture hours per week.

GOVT 299 Supervised Study (1-5 cr.)
Prerequisite division permission. (See Page 75)

HEALTH

HLTH 100 Orientation to Allied Careers (1 cr.)
An orientation to the interrelated roles and functions of various members of the health team. Lecture 1 hour per week.

HLTH 104 First Aid I (2 cr.)
The principles and techniques of safety and first aid according to the accepted content of a standard first aid course. Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.

HLTH 105 First Aid II (2 cr.)
Safety and first aid according to the accepted content of an advanced first aid course with related safety projects and problems. Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.

HLTH 106 First Aid and Safety (3 cr.)
The principles and techniques of safety and first aid according to accepted content of a standard first aid course. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HLTH 110 Concepts of Personal and Community Health (3 cr.)
A course designed to study the concepts related to the maintenance of health, principles of safety, and the prevention of illness at the personal and community level. Lecture 3 hours per week.

HLTH 120 Medical Terminology (5 cr.)
Provides an understanding of medical abbreviations and terms. Includes the study of prefixes, suffixes, stem words, and technical terms with emphasis on proper spelling and usage. Lecture 5 hours per week.

HLTH 124 Medical Terminology I (3 cr.)
Provides an understanding of medical abbreviations and terms. Includes the study of prefixes, suffixes, stem words, and technical terms with emphasis on proper spelling and usage. Lecture 3 hours per week.

HLTH 125 Medical Terminology II (2 cr.)
A continuation of HLTH 124 for those students in health-related curriculums requiring additional understanding of medical terms. Lecture 2 hours per week.

HLTH 146 Occupational Injury and Disease Control (3 cr.)
A study of environmental energy and chemical hazards, including gases, vapors, fumes, dusts, and mists; the importance of protective clothing and equipment; concepts of chemistry and physics fundamental to the control of chemical and energy hazards. Lecture 3 hours per week.

HLTH 150 Concepts of Disease (3 cr.)
A survey course designed specifically for students enrolled in health technology programs. General principles, classification, causes and treatment of selected disease processes are presented. Lecture 3 hours per week.

HLTH 156 Child Health and Nutrition (3 cr.)
Understanding the physical needs of the pre-school child and the methods by which these are met. Emphasis upon health routines, hygiene, nutrition, feeding and clothing habits, childhood diseases, and safety as related to health growth and development. Lecture 3 hours per week.

HLTH 216 Infant-Toddler Development and Care (3 cr.)
Prerequisite HLTH 110 and PSYC 130. Growth and development during pre-natal period to toddlerhood. Various infant programs throughout the U.S. will be analyzed and discussed. The importance of good physical and psychological environment will be studied as related to overall development of child. Lecture 3 hours per week.

HLTH 241 Occupational Health I—Air Pollution and Noise Abatement (3 cr.)
Air pollution control and noise abatement in relation to occupational health; study of the scientific, engineering, and legal aspects; sources and classification of pollutants; sampling and measuring techniques; remedies and controls currently available. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

HLTH 242 Occupational Health II—Biological and Chemical Control (3 cr.)
A study of the uses and control of chemical and biological processes in relation to occupational health; study of the scientific aspects; analysis and measuring techniques; treatments and controls currently available. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

HLTH 243 Occupational Health III—Sanitation (3 cr.)
A study of disease transmission; insect and rodent control; solid waste collection and disposal; food sanitation; industrial hygiene; methods of analysis and control Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

HISTORY

HIST 101-102-103 History of Western Civilization I-II-III (3 cr.) (3 cr.) (3 cr.)
The development of civilization from Ancient times to the present. The second and third quarters deal with the survey of the periods from the Renaissance and Napoleonic Wars respectively. Preferable but not mandatory that courses be taken sequentially. Lecture 3 hours per week.

HIST 111-112-113 American History I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of United States history from its beginning in early colonial times to the present. Preferable but not mandatory that courses be taken sequentially. Lecture 3 hours per week.

HIST 187-188-189 History of the Afro-American I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of Black history, his relationships and contributions to the American society: the period of slavery; the period of caste subordination; the period of new mobility and growing Black protest. Preferrable but not mandatory that courses be taken sequentially. Lecture 3 hours per week.

HIST 221-222-223 American Economic History I-II-III (3 cr.) (3 cr.) (3 cr.)
First quarter deals with economic history of the 19th century and early 20th century in the United States. The second quarter places emphasis on the 1920's and 1930's. The third quarter covers the period since 1930. Preferrable but not mandatory that courses be taken sequentially. Lecture 3 hours per week.

HIST 231-232-233 Survey of Asian Civilization I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of the civilizations of Asia, from their origins to the present day, with emphasis on their cultural aspects. The first quarter considers the Indian subcontinent; the second quarter, China, Japan, and Korea; and the third quarter, the countries of Southeast Asia. Preferable but not mandatory that courses be taken sequentially. Lecture 3 hours per week.

HIST 281-282-283 A Survey of Latin American Civilization I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of Latin American civilization—in its political, economic, and social aspects—from Iberian and Pre-Columbian origins down to the present day. Preferable but not mandatory that courses be taken sequentially. Lecture 3 hours per week.

HIST 299 Supervised Study (1-5 cr.)
Prerequisite division permission (See Page 75)

HORTICULTURE

HORT 100 Introduction to Horticulture (4 cr.)
An introduction to the commercial horticulture industry and an overview of horticultural technology including occupational opportunities. Survey of basic structures, equipment, facilities, and physical arrangements of nurseries, green houses and floral establishments. An introduction to growing, facility maintenance, transplanting and planting will form the laboratory experience. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HORT 101 Plant Propagation I (4 cr.)
Prerequisite CHEM 110 and HORT 100. The various asexual methods of plant production. Theoretical consideration and practical application regarding the use of cuttings, grafts, buds, layering, and the use of hormones. Students will propagate plants by all of these methods with emphasis on those practices which are most commonly used commercially, especially in nurseries. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HORT 102 Plant Propagation II (4 cr.)
A course designed to proved theoretical and practical experiences in producing plants from seeds. Includes the study of genetics in plant breeding, seed dormancy, treatments, germination testing, seedbed preparation, and methods of planting oriented to glass house growing. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HORT 110 Tools and Equipment (3 cr.)
Prerequisites HORT 100. The tools and equipment currently in use in horticulture. Emphasis on the more complicated power-operated equipment including spreaders, sprayers, saws, and tractors. Safety, good maintenance and minor repair stressed. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

HORT 120 Soils (4 cr.)
Prerequisites CHEM 110 and HORT 100. Theoretical and practical knowledge of soils in terms of horticultural activity. Includes soil identification, properties, analysis, fertilizers, sterilization, mixtures, and safety measures involving equipment used in soil work. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HORT 130 Environmental Factors in Plant Growth (3 cr.)
Environmental factors which affect plant growth including rainfall, humidity, wind, temperature, sunlight, irrigation, heating, and shading methods. The relationship of day-length and flowering, supplemental lighting and darkening systems, dormancy, and methods of inducing and breeding dormancy. Lecture 3 hours per week.

HORT 190 Coordinated Internship (1-5 cr.)
(See Page 75)

HORT 198 Seminar and Project (1-5 cr.)
(See Page 75)

HORT 199 Supervised Study (1-5 cr.)
Assignment of problems for independent study incorporating previous instruction and supervised by the instructor. May be repeated for credit. Variable hours.

HORT 210 Plant Pests (4 cr.)
Prerequisite HORT 120. The common plant pests emphasizing the insects and fungi. Includes identification, life cycles, plant damages and their identification.Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HORT 211 Plant Pest Control (4 cr.)
Prerequisite HORT 210. The current methods of controlling insect and fungal pests. The presently used pesticides, insecticides, and herbicides, studied from the standpoint of specificity, selectivity, and total ecological considerations regarding their use. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HORT 220 Nursery Management (4 cr.)
Prerequisite HORT 102. The aspects of nursery work including plant growing, planting, transplanting, balling, burlaping, business methods in the nursery, buying and stocking the nursery and merchandising in this specialized area. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

HORT 230 Greenhouse Management (4 cr.)
The phases of greenhouse activity including seedbed preparation, plant selection, and utilizing the materials

presented in prerequisite courses as they apply to growing under glass; business and selling practices peculiar to this phase of the industry. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

HORT 240 Turf Green Management (4 cr.)
The study of turf grasses in use in this geographical area including propagation and production, planting, maintenance, weed control, insect and disease control, trouble shooting problems, studies regarding the relationships between turf grasses, soils, fertilizers, irrigation and drainage requirements. Practical experience in turf grass management in park areas and golf courses. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HORT 250 Landscape Planning (3 cr.)
Prerequisite HORT 100. The basic symbols used in landscape plans. Drafting and blueprint reading, the preparation of simple landscape plans, and the interpretation of plans designed by a landscape architect. Includes the fundamentals of landscape design, planning areas, walks, drives, and the effective use of trees, lawn, shrubs, ground cover, and foundation plantings. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

HORT 256 Woody Plants (3 cr.)
Identification, culture, and uses of woody plants used in landscaping. Includes deciduous and evergreen, wild and cultivated shrubs and trees. Laboratory 6 hours per week.

HORT 257 Herbaceous Plants (3 cr.)
Identification, culture and uses of annuals, biennials, and perennials used in landscaping. Laboratory 6 hours, Total 6 hours per week.

HORT 260 Flower Shop Management (4 cr.)
The art of floral design as to form, style, and composition. Considers location, management, and operation of a flower shop, and the arrangement of flowers for home, church, hotels, and public buildings. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HORT 266 House and Conservatory Plants (4 cr.)
Identification, culture, and propagation of pot and conservatory plants. Considers the environmental problems unique to the growth of indoor plants and their use in indoor landscaping. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HORT 270 Floral Design and Arranging (2 cr.)
A practical introduction to floral design. Student practice in the basic methods of design and in producing arrangements. Laboratory 6 hours per week.

HORT 280 Governmental Horticulture Regulations (3 cr.)
Federal, state, and local regulations applicable to the horticultural industry. Includes Federal income tax, State sales tax, Federal Trade Commission, trade practice rules for the nursery industry, Federal licenses for heavy equipment, Federal regulations regarding interstate shipment of plants, and various other regulations regarding pesticides, zoning and business licenses. Lecture 3 hours per week.

HORT 290 Coordinated Internship (1-5 cr.)
(See Page 75)

HORT 298 Seminar and Project (1-5 cr.)
(See Page 75)

HOTEL, RESTAURANT, AND INSTITUTIONAL MANAGEMENT

HRIM 111-112-113 Food Science I-II-III (3 cr.) (3 cr.) (3 cr.)
Interrelationship of the physical, biological and chemical principles of food, food preparation, food equipment, and food manufacturing processes. Lecture 3 hours per week.

HRIM 124-125 Principles of Food Preparation I-II (4 cr.) (4 cr.)
Applications of scientific principles and techniques to food preparation. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HRIM 134-135 Nutrition I-II (3 cr.) (3 cr.)
The study of food composition and the nutrients essential to the health of human life, its function and metabolism. Lecture 3 hours per week.

HRIM 140 Principles of Baking (4 cr.)
Application of scientific principles and techniques of baking. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HRIM 146 Hotel/Motel Organization and Management (3 cr.)
A study of the past, present and future of the hospitality industry; organization as a modern tool of management; and the organization of hotel operations. Lecture 3 hours per week.

HRIM 147 Restaurant/Institution Organization and Management (3 cr.)
A thorough analysis of the nature and scope of departmental functions in the food service industry. Emphasis placed on operational practices and problems. Lecture 3 hours per week.

HRIM 156 Club Management (3 cr.)
Problems peculiar to the organization and management of private clubs such as boards of directors, committee organization, legal aspects, and financial considerations. Lecture 3 hours per week.

HRIM 168 Executive Housekeeping (3 cr.)
A detailed study of the housekeeping department with emphasis on organization, staffing and scheduling, staff development, work methods improvements, equipment, cleaning materials and cleaning procedures; maintenance and refurnishing, room design and safety engineering. Lecture 3 hours per week.

HRIM 186 Equipment Layout-Design (3 cr.)
Design, layout and specification requirements of food service equipment. Work measurement studies applied to quantity food production and its interrelationship to manpower and equipment requirements. Lecture 3 hours per week.

HRIM 187 Food Service Facilities, Design and Layout (3 cr.)
A basic course designed to translate a Food Service Facility Study Report into a completed functional arrangement plan of a food service facility. It covers an introduction to blueprint reading and basically the techniques and tools used in drafting including the use of templates. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HRIM 188 Marketing of Hospitality Services (3 cr.)
Principles and practices of marketing the services of the Hotel & Restaurant Industry. Consideration of the marketing concepts; methods leading to customer satisfaction with attention to internal and external stimulation of sales.

HRIM 190 Coordinated Internship (1-5 cr.)
(See Page 75)

HRIM 197 Cooperative Education (1-5 cr.)
(See Page 75)

HRIM 221-222-223 Quantity Food Preparation I-II-III (4 cr.) (4 cr.) (4 cr.)
Principles, standards and practices of cooking and baking applied in large quantity food production. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HRIM 234-235 Diet Therapy I-II (4 cr.) (3 cr.)
Application of nutrition principles in the dietary treatment of hospital patients. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week; Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

HRIM 236 Sanitation (3 cr.)
Prerequisite high school general science, biology, or chemistry. The moral and legal responsibilities involved in assuring sanitary conditions in the food service establishment. Emphasis on the causes and prevention of food poisoning. Lecture 3 hours per week.

HRIM 264-265 Food and Beverage Cost Controls I-II (3 cr.) (3 cr.)
Pre-cost, pre-control methods relative to the menu, production control, purchasing, receiving, inventory control, and profit of food service system. Lecture 3 hours per week.

HRIM 266 Food Purchasing (3 cr.)
Methods and procedures for purchasing food for hotels, restaurants and institutions; markets, federal and trade grades, governmental regulations, packaging, comparative versus price buying, yields and quality controls. Lecture 3 hours per week.

HRIM 277 Personnel Management and Training for Hotel, Restaurants, and Institutions (3 cr.)
A course involving personnel management in the hospitality industry; a discussion of the sensitivities of management to the "human problems" of employees, the definition of goals, and the communication of enthusiasm toward these goals. Emphasis will be placed on the goal of proper training for services required in this industry. Lecture 3 hours per week.

HRIM 286 Catering (3 cr.)
The systematic study of special functions in the hospitality industry. Lecture and demonstrations in banquet layout, menus, services, sales and supervision. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

HRIM 287 Hotel/Motel Front Office Procedures (3 cr.)
An analysis of the jobs in the hotel-motel front office and procedures involved in registering, account for, and checking out guests. Lecture 3 hours per week.

HRIM 289 Hotel and Motel Law (3 cr.)
A study of the laws applicable to the ownership and operation of hotels and motels. The duties to guests, ejection of undesirables, liabilities for personal injuries, damage, arrest and detention of offenders. Lecture 3 hours per week.

HRIM 290 Coordinated Internship (1-5 cr.)
(See Page 75)

HRIM 297 Cooperative Education (1-5 cr.)
(See Page 75)

HRIM 298 Seminar and Project (1-5 cr.)
(See Page 75)

HUMANITIES

HUMN 201-202-203 Survey of Western Culture I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of the Western world which correlates the art, music and literature of the following periods: Greek and Roman, Middle Ages, Renaissance, Elizabethan, Neo-classical, Victorian and Modern. Lecture 3 hours per week.

INDUSTRIAL ENGINEERING

INDT 111-112 Materials and Processes of Industry I-II (3 cr.) (3 cr.)
The objective of this course is to familiarize the student with the materials and processes of modern industry from the drafting and design point of view. The physical properties of industrial materials such as ferrous, non-ferrous metals, woods, plastics and clay products will be studied in terms of design application, processing and fabricating methods. Students will be introduced to cutting, cold forming, hot working, welding, foundry and chipless manufacturing processes which are widely employed in contemporary industry. In addition, the science of precision measurement as applied to inspection practices will be studied. Lecture 3 hours per week.

INDT 127 Safety and Health Standards, Regulations and Codes (3 cr.)
The development of safety standards and sources of standards, including an examination of government regulatory codes and an appraisal of consensus, advisory, and proprietory standards. Lecture 3 hours per week.

INDT 130 Safety Program Organization and Administration (4 cr.)
An introduction to safety and information pertaining to the techniques of organizing and administering practical safety programs. Includes the computation of accident costs and their effects upon productivity. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

INDT 134 Power Source Hazards Control I (3 cr.)
Machine guarding principles and techniques pertaining particularly to mechanical, electrical, and hydraulic equipment applications and methods for grounding electrical equipment. Lecture 3 hours per week.

INDT 136 Industrial Safety Planning (3 cr.)
Practical work in planning a safety program, including plant layout and process arrangement; the importance of good plant housekeeping, illumination standards and the functional use of color dynamics. Lecture 3 hours per week.

INDT 137 Material Handling and Storage (3 cr.)
Comprehensive coverage of mechanical handling equipment, methods for preventing handling injuries, and damage to equipment and materials. Lecture 3 hours per week.

INDT 170 Industrial Management (3 cr.)
A study of organizational structure; operational, financial, accounting and marketing activities, management responsibilities, planning, control, personnel, safety, labor relations, and factors essential to effective management. Lecture 3 hours per week.

INDT 176 Industrial Safety (2 cr.)
Principles and practices of accident prevention, analysis of accident causes, mechanical safeguards, fire prevention, housekeeping, occupational diseases, first aid, safety organization, protection equipment and general safety principles and promotion of same. Lecture 2 hours per week.

INDT 190 Coordinated Internship (1-5 cr.)
(See Page 75)

INDT 198 Seminar and Project (1-5 cr.)
(See Page 75)

INDT 226 Plant Layout (3 cr.)
Arrangement and layout of physical facilities for maximum efficiency of production including stock arrangement, machines, layout of aisles, use of space and techniques for model construction. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

INDT 236 Operational Workplaces (3 cr.)
A safety approach toward the study of standards for floors, walkways, ramps, stairs, ladders, and excavations. The elimination of hazards and conditions which can cause accidents. Lecture 3 hours per week.

INDT 237 Preventative Maintenance (3 cr.)
Various types of maintenance programs, including maintenance management, schedules and controls, and the relationship of these operational matters to the prevention of accidents, injuries, and exposure to health hazards. Lecture 3 hours per week.

INDT 238 Occupational Safety Engineering Techniques (5 cr.)
A practical safety approach to the methods used for the recognition of potentially hazardous situations in the work environment and measures used to correct such situations. Techniques of systems safety concepts and concepts of industrial engineering applicable to an analysis of safe work procedures. Lecture 5 hours per week.

INDT 246 Manufacturing Process Analysis (3 cr.)
Discussion and analysis of occupational safety and health based upon visits to commercial enterprises and surveying safety activities. Visits and discussions related to special industries. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

INDT 286 Quality Control (3 cr.)
Principles of inspection and quality control, with special emphasis on setting up, maintaining and interpreting control charts. Course content includes dimensional control, basic sizes, and applications of tolerances, allowances, limits, precision measurements, comparison measurements, industrial applications, optical, electrical and air limit gauges, comparator; inspection techniques, control charts, and statistics are introduced as quality control instruments. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

INDT 288 Production Planning and Control (3 cr.)
The preparation and analysis of production, planning based on sales forecasts, operation sheets, routing, scheduling, dispatching, follow-up, inventory control, receiving stores and shipping, control forms and reports. Lecture 3 hours per week.

INSTRUMENTATION

INST 116 Instrumentation for Occupational Safety and Health (4 cr.)
A practical course in instrumentation applicable to both occupational safety and industrial hygiene. Interdisciplinary treatment of the identification, working principles, calibration, and practical usage of common instruments and sampling devices. Lecture 2 hours, Laboratory 4 hours, Total 6 hours per week.

LAW ENFORCEMENT

LWNF 100 Introduction to Law Enforcement (3 cr.)
The philosophy and history of law enforcement, overview of crime and police problems; organization and jurisdiction of local, state, and Federal law enforcement agencies; survey of professional career opportunities and qualifications required. Lecture 3 hours per week.

LWNF 110 Patrol Administration (3 cr.)
Examines the various types of patrol and their importance to the overall police function. Emphasis is upon the responsibilities and problems of the administrators and supervisors of a field level law enforcement office; the most efficient methods of the assignment of personnel in order to prevent crime, provide needed police services, and protect the community. Lecture 3 hours per week.

LWNF 114 Police Organization and Administration I (3 cr.)
Prerequisite LWNF 100 & 110. A consideration of police problems at the administrative level. The organization and management of line operations as well as staff and auxiliary services are examined, including investigative, juvenile, and vice units. Lecture 3 hours per week.

LWNF 115 Police Organization and Administration II (3 cr.)
Prerequisite LWNF 114 or divisional approval. A continuation of the analysis of the administrative function begun in LWNF 114. Among the topics included are the organization and management of the personnel, internal control, planning and research, and housing and material functions. Lecture 3 hours per week.

LWNF 116 Police Organization and Administration II (3 cr.)
Prerequisite LWNF 114-115. Principles of organization and administration as applied to the records and communication systems of an urban department, including treatment of police utilization of data processing, and to the concepts of custody, central services, and logistics. Lecture 3 hours per week.

LWNF 117 Special Enforcement Problems (3 cr.)
Crowd control during civil demonstrations, picketing, rioting and other emergency situations; the police role in civil defense; polich pooblhms caused by naocotics addiction; the handling of mentally or emotionally abnormal persons. Lecture 3 hours per week.

LWNF 120 Introduction to Corrections (3 cr.)
(Corrections) The philosophy and overview of Corrections and related problems as an important dimension in the administration of justice; history of corrections, career opportunities, purposes of correctional jurisdictions. Lecture 3 hours per week.

LWNF 124 Jail Operations and Management I (Basic) (3 cr.)
(Corrections) Correctional history as a frame of reference; security procedures in jail operation; the effect of the jail climate on inmates and personnel; criteria for effective supervision of prisoners; correctional aspects of inmate disipline; handling special prisoners. Lecture 3 hours per week.

LWNF 125 Jail Operations and Management II (Advanced) (3 cr.)
(Corrections) The functions of jail management as it relates to jail and community programs, planning of jail operation, legal problems in jail administration, community relations, personnel supervision. Lecture 3 hours per week.

LWNF 126 Prevention and Control of Juvenile Delinquency (3 cr.)
Survey of youth crime stressing the police role in community programs of prevention and control. The philosophy and functioning of the juvenile courts are studied and related to the juvenile program. Lecture 3 hours per week.

LWNF 127 Criminal Offenses (3 cr.)
(Corrections) The study of particular types of crime with emphasis on the pathology of criminals. Lecture 3 hours per week.

LWNF 128 Criminal Behavior (3 cr.)
(Corrections) Analysis of relationship of society, socialization, and deviancy. Social responses to deviancy and criminal offenders. Lecture 3 hours per week.

LWNF 129 Treatment of the Offender (3 cr.)
(Corrections) The theory, practice and problems in the fields of probation and parole as well as in institutional and community treatment of juvenile and adult offenders. Lecture 3 hours per week.

LWNF 140 Introduction to Security Administration (3 cr.)
The historical, philosophical, and legal basis of security. The role of security in a modern society. A survey of the administrative, personnel, and physical aspects of the security field. Lecture 3 hours per week.

LWNF 146 Special and Current Security Problems (3 Cr.)
An analysis of special problem areas such as security education and training, community relations, white-collar crime, drug abuse, theft control, shop-lifting, document control, subversion and sabotage, protection of classified information and business espionage, labor problems, civil disturbances, natural and man-made disasters. Lecture 3 hours per week.

LWNF 155 Assessment of the Correctional Process (3 cr.)
(Corrections) The effectiveness of the courts, penal institutions, probation and parole agencies, and community based correctional facilities in improving and rehabilitating the offender will be assessed. Emphasis will be placed on evaluating standards for effective correctional institutions and programs. Lecture 3 hours per week.

LWNF 156 Corrections and the Community (3 cr.)
(Corrections) The relationship of social norms to both conforming and deviant behavior. Emphasis on the rehabilitation aspects of criminals and their return to the community. Lecture 3 hours per week.

LWNF 157 Assessment of Criminology (3 cr.)
(Corrections) The nature and theories of criminal assessment including the techniques and tests used in assessing the behavioral and rehabilitative aspects of the criminal. Lecture 3 hours per week.

LWNF 158 Introduction to Law Enforcement Photography (3 cr.)
Techniques of photography and their application to law enforcement situations. Dark room operations, theory and practice; field and laboratory exercises; fundamentals of court room presentation of photographic evidence. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

LWNF 159 Legal Challenge to Corrections (3 cr.)
(Corrections) Examines legal changes occuring within and without the criminal process which have implications for corrections; analysis of legal problems related to sentencing, probation, parole, prisoners' rights, loss and restoration of civil rights. Lecture 3 hours per week.

LWNF 176 Criminology (3 cr.)
Volume and scope of crime, and the background of criminal behavior in the American setting; organized crime and its affiliated problems; subjective theories and explanation of crime; the control, treatment and rehabiliation of the criminal offender. Lecture 3 hours per week.

LWNF 187 Traffic Administration and Control (3 cr.)
Traffic problems confronting the field law enforcement administrator, modern methods of traffic facilitation and control, techniques of selective enforcement and police responsibilities in special situations. Lecture 3 hours per week.

LWNF 190 Coordinated Internship (1-5 cr.)
(See Page 75)

LWNF 197 Cooperative Education (1-5 cr.)
(See Page 75)

LWNF 228 Law Enforcement and the Community (3 cr.)
An examination of the current efforts undertaken by the police to achieve an effective working relationship with the community. Among the topics studied in depth are the police image, crisis areas, public and police attitudes, and community relations activities. Lecture 3 hours per week.

LWNF 231-232-233 Criminal Law, Evidence and Procedures I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite 2nd year standing or permission of program. Major crimes; their classification, elements of proof, intent, conspiracy, responsibility, parties and defenses. Emphasis on the common law and Virginia adaptions. Kinds, degrees, and admissibility of evidence; methods and techniques of its acquisition, use in criminal proceedings, moot court activities. Review of court systems with emphasis on procedures from incident to final disposition of the accused and on applicable principles of criminal and civil law. Intended to satisfy transfer requirements for one year of Criminal Law. Lecture 3 hours per week.

LWNF 246 Principles of Criminal Investigation (3 cr.)
Conduct at the crime scene; collection and handling of evidence; interviewing and interrogations; obtaining statements, admissions and confessions; testifying in court. Practical exercises are included. Lecture 3 hours per week.

LWNF 247 Advanced Criminal Investigation (3 cr.)
Prerequisite LWNF 246. Continued study of the investigative process; introduction to scientific aids and examinations; application of investigative techniques to specific offenses. Practical exercises are included. Lecture 3 hours per week.

LWNF 254 Criminal Investigation Techniques I (4 cr.)
Prerequisite 2nd year standing or permission of program. Crime scene searches; collection and preservation of evidence; interrogations and interviews; obtaining statements, admissions and confessions; testifying in court. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

LWNF 255 Criminal Investigation Techniques II(4 cr.)
Prerequisite LWNF 254. A continuation of the study begun in LWNF 254. Advanced laboratory work relating to investigations; introduction and use of scientific aids and examinations; application of investigative techniques to specific offenses. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

LWNF 276 Industrial and Commercial Security (3 cr.)
Organization, methods, techniques and equipment for physical protection of industrial and commercial facilities and prevention of theft of merchandise and valuables by persons within and without those facilities. Practical exercises are included. Lecture 3 hours per week.

LWNF 277 Proprietary and Governmental Security (3 cr.)
Prerequisite LWNF 276, or departmental approval. Parallel Course LWNF 254. Continuation and expansion of principles and procedures begun in LWNF 276. Field work and visits to various types of establishments and installations. Inquiry into internal controls of organization. Application of investigative procedures and techniques. Lecture and demonstrations. Lecture 3 hours per week.

LWNF 290 Coordinated Internship (1-5 cr.)
(See Page 75)

LWNF 297 Cooperative Education (1-5 cr.)
(See Page 75)

LWNF 298 Seminar and Project (1-5 cr.)
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LEGAL

LEGL 126 Legal Research (3 cr.)
Provides an understanding of the function of the law library and will assist in developing research skills through the use of digests, encyclopedias, reporter systems and practice manuals. Lecture 3 hours per week.

LEGL 246 Law of Income Taxation (4 cr.)
A study of the law of income taxation—state, federal, and local—including preparation of income tax returns and related materials. A survey of the various administrative and judicial tribunals, and their jurisdiction, involved in the determination of income tax controversies. Lecture 4 hours per week.

LEGL 256 Legal Aspects of Real Estate (4 cr.)
The law of real property and an in-depth survey of the more common types of real estate transactions and conveyances, such as deeds, contracts, leases, and deeds of trust; drafting problems involving these various instruments; special research projects; a study of the system of recording and search of public documents. Lecture 4 hours per week.

MARKETING

MKTG 100 Principles of Marketing (3 cr.)
The principles, methods, and problems involved in the distribution and marketing of good and services. The various marketing agents; wholesaler, broker, agent, cooperative, and trade associations. Discussions of present day problems and policies connected with the distribution and sale of commodities, pricing, advertising and promotion, and buyer motivation. Lecture 3 hours per week.

MKTG 109 Principles of Salesmanship (3 cr.)
The development of selling standards, methods and buying motives. The organization and training processes necessary for a well coordinated sales plan through united efforts of the sales force. The training of sales personnel for maximum efficiency in selling. Lecture 3 hours per week.

MKTG 110 Fundamentals of Fashion (3 cr.)
Develops an understanding of the principles and procedures involved in the production, distribution and consumption of fashion merchandise. Traces the history and development of fashion and how these changes effect the modern merchandising world. Emphasis on changing consumer characteristics which influence demand for fashion products and effect that fashion marketing activities have on the economy. Lecture 3 hours per week.

MKTG 131-132-133 Traffic and Transportation I-II-III (3 cr.) (3 cr.) (3 cr.)
The requirements for traffic managers in such fields as railroading, trucking, and air travel. Each quarter is based on the Chicago College of Traffic materials which are required for licensing examination. The course outlines the development of transportation, transportation regulations, and the regulations and applications of traffic management. Lecture 3 hours per week.

MKTG 136 Retail Organization & Management (3 cr.)
The organization of businesses to accomplish their goals in the most effective and efficient manner. Location, layout, internal management, policy development, methods of operation, merchandise control and protection, property maintenance, and analysis of results. Lecture 3 hours per week.

MKTG 144-145 Principles of Risk and Insurance I-II (3 cr.) (3 cr.)
An introduction to the principles of risk and insurance. Emphasis given to understanding indemnity, insurable interest, negligence, requisites of insurance, and other basic concepts. Life, health, property, liability and social forms of insurance surveyed as well as structure of the insurance business and the environment in which it operates. Lecture 3 hours per week.

MKTG 150 Principles of Insurance (3 cr.)
A course in insurance principles and practices. Includes an examination of risks and applications in the principal fields of insurance including life, accident and health, fire, liability, surety, and property. Lecture 3 hours per week.

MKTG 156 Principles of Liability Insurance and Claim Adjusting (3 cr.)
Prerequisite MKTG 150 or equivalent. Principles of legal liability and liability insurance, principles of liability adjusting, claims handling problems and procedures, human behavior in adjusting, types of insurers, rate making, regulation, and other aspects of the liability insurance field. Lecture 3 hours per week.

MKTG 164 Principles of Real Estate I (3 cr.)
Practical applications of real estate management principles. Includes a study of contracts, deeds, mortgages, bonds, leases, search, real property leasing and appraisal. Lecture 3 hours per week.

MKTG 165 Principles of Real Estate II (3 cr.)
Prerequisite MKTG 164. Continued examination of marketing fundamentals. Emphasis on techniques required for proper selection analysis and listing of real estate properties. How to determine needed data, how to analyze forms and records for recording and presenting data. Lecture 3 hours per week.

MKTG 166 Real Estate Mathematics (3 cr.)
Designed to apply fundamental mathematics principles to special real estate problems. This includes, but is not limited to, allocation of areas of land, pricing land, computation of commissions, earnings on investment, calculation of escrow funds, and closing costs. Lecture 3 hours per week.

MKTG 180 Introduction to Food Marketing (3 cr.)
Study of food marketing organization, practices, and problems with emphasis on the supermarket. Topics included are: economic importance of food marketing; history and development of food retailing, role of trade groups, systems of food distribution, food industry surveys, supermarket organization and management, food industry issues, and the future of the food industry. Lecture 3 hours per week.

MKTG 197 Cooperative Education (1-5 cr.)
(See Page 75)

MKTG 209 Sales Management (3 cr.)
From the viewpoint of management, study of the organization and operation of the sales division within the business enterprise. Planning, organizing, and controlling the total sales effort, use of the case method of learning. Lecture 3 hours per week.

MKTG 216 Merchandise Information (3 cr.)
A study of merchandise including durables as well as non-durables. Includes detailed analysis of construction, uses, care and related government regulations. Value and quality standards for consumer use are stressed. Emphasis placed on usefulness of product information as a merchandising tool. Lecture 3 hours per week.

MKTG 217 Color, Line and Design in Retailing (3 cr.)
The vital role played by color and design in almost every aspect of the marketing of consumer goods. Emphasis on styling, packaging, advertising, and professional layouts; basic sketching for art forms, balance and color harmony with recognition of basic period architecture as applied to consumer goods. Lecture 3 hours per week.

MKTG 218 Fashion Merchandising (Buying and Control) (3 cr.)
Develops an understanding of the major considerations involved with the buying and merchandising of fashion products. Emphasis is placed on the dynamics of fashion and consumer buying patterns and courses of buying information are analyzed and studied. Discusses fashion buying and inventory control in the merchandising cycle; techniques used in developing fashion buying plans; model stock, unit control and inventory systems. Merchandising selection policy and pricing for profit. Lecture 3 hours per week.

MKTG 219 Fashion Sales Promotion (3 cr.)
Designed to develop an understanding of the principles and procedures of selling fashion and simulates a creative approach to the promotion of fashion merchandising. Student studies sales promotion activities and selling appeals and approaches. Includes study of fashion advertisements, displays, publicity, and other sales promotion techniques involved in the merchandising of fashion items. Lecture 3 hours per week.

MKTG 226 Merchandise Buying and Control (3 cr.)
The place of buying and inventory control in the merchandising cycle; the techniques used in developing merchandise plans, model stock, unit control, and inventory systems, merchandise selection policy and pricing for profits. Lecture 3 hours per week.

MKTG 227 Advertising and Display (4 cr.)
A survey of the forms of advertising and the principles of display as they apply to retail and other distributive businesses. Emphasis on the principles of layout and copy, media selection, analysis of cost and results, and the coordination of advertising and display activities within the store. Lecture 3 hours, per week, Laboratory 2 hours, per week, Total 5 hours per week.

MKTG 228 Sales Promotion and Customer Relations (3 cr.)
The scope and total activities of a sales promotion program designed to coordinate advertising, display and publicity. Effective use of the sales forces and store policies to develop favorable customer relationships. Institutional practices which develop goodwill for the store. Lecture 3 hours per week.

MKTG 241-242-243 Property and Liability Insurance I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite MKTG 144 or divisional permission. Designed to provide the student with an expanded knowledge of principles underlying property and liability insurance. Nature of property and liability insurance; types of coverages; analysis of contracts; uses of insurance in the management of risk. Lecture 3 hours per week.

MKTG 247 Fundamentals of Life and Health Insurance (3 cr.)
Designed to provide the student with an expanded knowledge of the principles underlying life and health insurance. Economic bases of insurance, types of contracts, premium and reserve calculations; legal principles; programming; and business uses. Lecture 3 hours per week.

MKTG 248 Estate Analysis and Planning (3 cr.)
Prerequisite MKTG 247. Integration of all types of insurance and investments into overall estate plan; analysis of needs; correlation with wills, trusts, guardianships, and agencies; tax planning; buy and sell agreements; and estate liquidation. Lecture 3 hours per week.

MKTG 249 Group Insurance and Pensions (3 cr.)
Designed to cover economic and sociological aspects of group life and health coverages; private pension and profit-sharing plans. Lecture 3 hours per week.

MKTG 250 Insurance Claim Adjusting (3 cr.)
Prerequisite MKTG 144-145. Designed to provide ths student with an expanded knowledge of the mechanics of loss settlement. Types of claim representatives; legal principles, policy provisional investigations, special problems of claim settlement; and loss prevention. Lecture 3 hours per week.

MKTG 256 Advanced Liability Insurance Adjusting (3 cr.)
Prerequisites MKTG 156-157. Casualty claims and contract law, tort law, agency and bailments, automobile and products liability, liability insurance contracts, investigation, medical aspects of damage, claim evaluation and settlement negotiation, employer's liability and workmen's compensation. Lecture 3 hours per week.

MKTG 258 Advance Property Insurance Adjusting (3 cr.)
Prerequisite MKTG 158-159. Apportioning losses, insurable interest, mortgages, bailees, building losses, adjusting personal property and merchandise losses, books and records, salvage, rent and rental value losses, leasehold and additional living expense losses, business interruption and extra expense losses, profit and commissions losses. Lecture 3 hours per week.

MKTG 266 Real Estate Sales (3 cr.)
The fundamentals of sales principles as they apply to real estate. The prospect, his motives, his needs, and his abilities to buy real estate. Relations of broker and salesman, salesman and client and community responsibilities. Writing contracts, closing and settlement, and follow-up relations. Lecture 3 hours per week.

MKTG 267 Real Estate Appraisal (3 cr.)
Fundamentals of real estate evaluation; methods used in determining value; application of procedures and techniques by utilizing actual appraisals. Includes the opportunities available in the appraisal field of real estate activity. Lecture 3 hours per week.

MKTG 268 Property Management (3 cr.)
The field of property management; professional aspects of real estate brokerage, properties, neighborhood analysis, tenants and qualifications, aspects of maintenance and repair. Lecture 3 hours per week.

MKTG 269 Real Estate Finance (3 cr.)
Principles and practices of financing real estate sales and properties, analysis of various types of mortgage payments and contracts, financing homes and industrial properties and buildings; loan application, relations between correspondent and investor, construction loans. Lecture 3 hours per week.

MKTG 276 Land Planning and Use (3 cr.)
Land value and usage, planning, zoning regulations, building and site requirements, sanitation and utilities, highest and best use concept, population analysis, influence of market forces and public policies. Lecture 3 hours per week.

MKTG 277 Legal Aspects of Real Estate (3 cr.)
A study of Virginia real estate law including rights incident to property ownership and management, agency contract and application to real estate transfer, conveyancing, probate proceedings, trust transactions. Lecture 3 hours per week.

MKTG 278 Real Estate Economics (3 cr.)
Nature and classification of land economics, the development of property, construction and subdivision, economic values and real estate evaluations, real estate cycles and business fluctuations, residential market trends, rural property and special purpose property trends. Lecture 3 hours per week.

MKTG 286 Supermarket Merchandising (3 cr.)
Prerequisite MKTG 180. Designed to acquaint the student with merchandising techniques as applied to the supermarket. Receiving, emphasis; the store manager's merchandising responsibilities; and analysis of profit centers, customer motivation; consumer dynamics; product information; space management; in store sales promotion and displays; inventory control; pricing, advertising, brand management; creative merchandising in specific departments; increasing departmental as well as store sales and profits. Lecture 3 hours per week.

MKTG 287 Supermarket Operations (3 cr.)
Prerequisite MKTG 180. A study of operational aspects of the supermarket. Receiving attention; planning, organizing, and controlling the use of capital, personnel, equipment, and facilities; work methods; departmental operations; store security; housekeeping, supply control; sanitation; safety; scheduling; front-end management; cash control; and customer service. Lecture 3 hours per week.

MKTG 297 Cooperative Education **(1-5 cr.)**
(See Page 75)

MKTG 298 Seminar and Project **(1-5 cr.)**
(See Page 75)

MKTG 299 Supervised Study **(1-5 cr.)**
(See Page 75)

MATHEMATICS

MATH 01 Developmental Mathematics **(1-5 cr.)**
A developmental course which bridges the gap between a weak mathematical foundation and the knowledge necessary for the study of mathematical courses in technical and professional programs. Arithmetic, algebra, geometry and trigonometry will be covered. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hours.

MATH 06 Basic Arithmetic **(1-5 cr.)**
A developmental course in review of arithmetical principles and computations, designed to develop the mathematical proficiency necessary for selected curriculum entrance. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hours.

MATH 11-12-13 Elements of Mathematics I-II-III **(3 cr.) (3 cr.) (3 cr.)**
Designed for the occupational student. Practical applications of elementary mathematics including algebra, geometry, trigonometry to everyday problems in the manufacturing and trade world. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

MATH 31-32-33 Algebra I-II-III **(5 cr.) (5 cr.) (5 cr.)**
Fundamental algebraic calculations for students who need a survey of the basic principles of algebra. Includes the essential topics of the first two years of high school algebra. A developmental course. Lecture 5 hours per week.

MATH 36 Plane Geometry **(5 cr.)**
Prerequisite one unit of high school algebra or equivalent. Fundamentals of plane geometry and an introduction to coordinate geometry. A developmental course. Lecture 5 hours per week.

MATH 38 Trigonometry **(5 cr.)**
Prerequisite two units of high school algebra and one half unit of high school geometry or equivalent. Fundamentals of trigonometry for students who need a survey or review of the basic principles of trigonometry. A developmental course. Lecture 5 hours per week.

MATH 99 Supervised Study **(1-5 cr.)**
(See Page 75)

MATH 101-102-103 Fundamentals of Mathematics I-II-III **(3 cr.) (3 cr.) (3 cr.)**
A study of concepts of numbers; fundamental operations with numbers, formulas and equations, graphical analysis, binary numbers, Boolean and Matrix algebra, linear programming, elementary concepts of statistics. Lecture 3 hours per week.

MATH 121-122-123 Engineering Technical Mathematics I-II-III **(5 cr.) (5 cr.) (5 cr.)**
Prerequisite three units of high school mathematics other than general mathematics, and satisfactory score on appropriate mathematics proficiency examinations. Algebra, trigonometry, introduction to calculus, and some emphasis on graphical methods. The course sequence includes solutions of linear and quadratic equations, trigonometric functions, trigonometric curve sketching, logarithms, ratio, proportion and variation, vectors, complex numbers and binomial theorem. Credit cannot be obtained for both this course and MATH 161-162-163 (College Mathematics). Lecture 5 hours per week.

MATH 141-142-143 Introductory Mathematical Analysis I-II-III (Calculus with Analytic Geometry) **(5 cr.) (5 cr.) (5 cr.)**
Prerequisites are a satisfactory score on appropriate mathematics proficiency examinations and four units of high school mathematics including two units of algebra, one in geometry, and one half of trigonometry or equivalent. A modern unified course in analytic geometry and calculus including functions, limits, derivatives, differentials, indefinite integrals, definite integrals, and applications. Lecture 5 hours per week.

MATH 151-152-153 Business Mathematics I-II-III **(3 cr.) (3 cr.) (3 cr.)**
Prerequisite a strong background in basic arithmetic operations. Instruction, review and drill in percentage, cash and trade discounts, mark-up, payroll, sales, property and other taxes, simple and compound interest, bank discounts, interest, investments and annuities. Lecture 3 hours per week.

MATH 161-162-163 College Mathematics I-II-III **(3 cr.) (3 cr.) (3 cr.)**
Prerequisite a satisfactory score on appropriate mathematics proficiency examination and three units of high school mathematics including two units of algebra and one unit of geometry or equivalent. A modern unified course in algebra, trigonometry, analytic geometry, and calculus for students other than those in engineering. Lecture 3 hours per week.

MATH 181-182-183 General College Mathematics I-II-III **(3 cr.) (3 cr.) (3 cr.)**
Intended for students with majors other than mathematics, science or engineering. Prerequisite Algebra I and either Algebra II or Geometry and a satisfactory score on appropriate mathematics proficiency examinations. The first two quarters will include sets, the logic of algebra, the real numbers system, algebraic and transcendental functions, relations and graphs. The third quarter will include permutations, combination, probability, elementary statistics, and trigonometry. Lecture 3 hours per week.

MATH 191-192-193 Finite Mathematics I-II-III **(3 cr.) (3 cr.) (3 cr.)**
This course is intended for students with majors other than mathematics, science or engineering. Prerequisites are a satisfactory score on appropriate mathematics proficiency examinations and three units of high school mathematics including two units of algebra and one unit of geometry or equivalent. Set theory, the real number system, probability theory, vectors, matrices, linear programming, systems of linear equations, introduction to theory of games. Lecture 3 hours per week.

MATH 198 Seminar and Project **(1-5 cr.)**
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MATH 199 Supervised Study **(1-5 cr.)**
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MATH 202 Introduction to Matrix Algebra **(4 cr.)**
Prerequisite MATH 163 or MATH 143 or equivalent. Operations with matrices, determinants, systems of linear equations, vector spaces and linear transformations, bilinear and quadratic forms. Lecture 4 hours per week.

MATH 241-242-243 Advanced Mathematical Analysis I-II-III (Calculus with Analytic Geometry. Differential Equations) **(4 cr.) (4 cr.) (4 cr.)**
(For students in Engineering and Science Curricula.) Prerequisite MATH 143. A modern course including vectors, matrices, partial differentiation, multiple integrals, infinite series, and differential equations. Lecture 4 hours per week.

MATH 261-262-263 Advanced College Mathematics I-II-III **(3 cr.) (3 cr.) (3 cr.)**
Prerequisite MATH 163 or equivalent. A continuation of the unified course in algebra, trigonometry, analytic geometry, and calculus for students other than those in engineering. Topics included are differentiation and integration of exponential, logarithmic, and trigonometric functions; sequences and series; solid analytic geometry; multiple integrals, an introduction to differential equations. Lecture 3 hours per week.

MATH 298 Seminar and Project **(1-5 cr.)**
(See Page 75)

MATH 299 Supervised Study **(1-5 cr.)**
(See Page 75)

MECHANICAL ENGINEERING

MECH 116-117 Numerical Control Programming I-II **(4 cr.) (4 cr.)**
A study dealing with the newer concepts of work handling and automatic machining processes.New techniques in metal forming and machine processes: analysis of electrosonic machining, electrolytic metal removal, numerical controls and simplified building block numerical control system. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

MECH 118 Tool Design **(3 cr.)**
A basic course in design and layout of cutting tools, stamping tools, punches, gauges, dies, blanking and forming tools, notching tools, progressive dies, embossing dies, instruction in use and application of these tools. Lecture 1 hour, Laboratory 5 hours, Total 6 hours per week.

MECH 119 Jig and Fixture Design **(3 cr.)**
Fundamentals of the construction and design of various types of jigs and fixtures including milling, reaming, tapping, and drilling fixtures. Preparation of complete working drawings from layouts, for interchangeable manufacture: computation of fits, limit dimensions, tolerances, tool drawing principles and methods, fundamentals of cutting tools and gauges. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

MECH 131 Machine Laboratory I **(2 cr.)**
Fundamental machine operations of drilling, reaming, turning between centers, chuck work, thread chasing shaper, layout, finishing, cutting speeds, tool care, tool grinding, surface grinder, milling machine operations and tools. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

MECH 132 Machine Laboratory II **(2 cr.)**
A continuation of Machine Lab I with greater emphasis on practical and industrial applications and set-up will be included: inspection tools, gauges, tapers, gear cutting, square threads and fits will also be included. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

MECH 133 Machine Laboratory III **(2 cr.)**
Continued study in which the student will combine the knowledge and skills of the machining, tool, jig and machine design courses to build a simple machine and make the necessary tools for fabrication. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

MECH 141 Materials Laboratory I **(3 cr.)**
Metallurgy, heat treating, tempering, hardening, statics and welding. Testing materials and analysis of effects of industrial processes on materials with emphasis on machine parts. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

MECH 142 Materials Laboratory II **(3 cr.)**
Prerequisite MECH 141. Dynamics including treatment of force, moments, and vectors with emphasis on machine parts. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

MECH 187 Introduction to Instrumentation **(4 cr.)**
Broad introduction to use of industrial electromechanical equipment. Provides an understanding of the methods, techniques, and skills required for installation, services and operation of a variety of industrial control systems. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

MECH 197 Cooperative Education **(1-5 cr.)**
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MECH 198 Seminar and Project **(1-5 cr.)**
(See Page 75)

MECH 215 Advance Jig & Fixture Design I **(3 cr.)**
Corequisite ENGR 152 or MECH 144. Application of the principles, practices, tools and commercial standards of jig and fixture design. Individual project and design work with emphasis on problem-solving and independent design. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

MECH 237-238 Machine Design I-II **(4 cr.) (4 cr.)**
The analytical design of bearings, clutches, coupling, brakes, springs, gearing systems, and power shafting. Emphasis on methods of constructing machine parts and specifications of materials and manufacturing processes. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

MECH 246 Metallurgy I **(4 cr.)**
Prerequisite INDT 112. Fundamentals of metallurgy, grain size, effect on carbon content, and harness testing devices. Different alloys will be tested to determine the effect of heat treatment. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

MECH 247 Metallurgy II **(4 cr.)**
Prerequisite MECH 246. The fundamentals of physical metallurgy, of ferrous and nonferrous alloys, including crystal structure, phase diagrams, coiling curves, solid solutions, eutectic diagrams, grain characteristics, and the application of these to heat treating alloy metals. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

MECH 264 Thermodynamics I **(4 cr.)**
Prerequisite MATH 122 or equivalent. Characteristics of gases; applied study of steam cycles and combustion processes. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

MECH 265 Thermodynamics II **(4 cr.)**
Prerequisite MECH 264. Advanced thermodynamics with emphasis on applications relating to internal combustion engines and gas turbines. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

MECH 286 Precision Measurements **(3 cr.)**
A study of the various precision measuring instruments and their uses in modern industry. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

MECH 297 Cooperative Education **(1-5 cr.)**
(See Page 75)

MECH 298 Seminar and Project **(1-5 cr.)**
(See Page 75)

MEDICAL LABORATORY

MDLB 100 Introduction to Medical Laboratory Technology **(2 cr.)**
Designed to orient the student to the medical laboratory by introducing the basic principles, techniques and vocabulary applicable to all phases of medical laboratory technology. It is principally a laboratory practicum taught in the hospital laboratories and includes venipuncture, specimen preparation, laboratory safety, laboratory glassware, laboratory and hospital organization and professional relationships. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

MDLB 116 Introduction to the Clinical Laboratory **(4 cr.)**
Prerequisite MDLB 100. Introduction to the techniques and methods of venipuncture and urinalysis. Students will spend 6 hours a week in the clinical labs performing venipuncture and urinalysis techniques under the supervision of the lab staff. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

MDLB 124 Clinical Hematology I **(3 cr.)**
The study of various blood components. The student will learn how to obtain blood, methods of examination such as measuring hemoglobin, volume of blood, and how to do white blood count, red blood count, and platelet count. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

MDLB 126 Principles of Hematology **(4 cr.)**
Prerequisite MDLB 110 or equivalent. The theory underlying procedures performed in the hematology laboratory and the relationship between these procedures and the diagnosis of disease. Laboratory instruction will include methods of examination including complete blood counts, platelet counts, sedimentation rates, miscellaneous hematology tests and basic coagulation. Lecture 3 hours, Lecture 3 hours, Total 6 hours per week.

MDLB 190 Coordinated Practice **(1-5 cr.)**
(See Page 75)

MDLB 225 Clinical Hematology II **(7 cr.)**
Prerequisite MDLB 124. Advanced course in the study of blood. Includes coagulation studies, blood formation, abnormalities, and changes seen in various diseases. Lecture 3 hours, Laboratory 12 hours, Total 15 hours per week.

MDLB 250 Principles of Blood Banking and Serology **(4 cr.)**
Prerequisite MDLB 100 or equivalent. The principles and theories of antigen-antibody reactions as related to blood grouping, cross match procedures and diagnostic serology procedures. Lecture 3 hours, Laboratory 3 hours, Total 6 hours.

MDLB 259 Diagnostic Microbiology **(3 cr.)**
Prerequisite BIOL 176 or equivalent. Principles of medical microbiology, including theories of handling and identification of pathogenic species of bacteria. Introduction to medical parasitology, mycology, and virology including identification of those species infecting humans. Lecture 3 hours per week.

MDLB 264-265 Clinical Chemistry I-II **(5 cr.) (8 cr.)**
Prerequisite CHEM 103. Instruction and practice in methods of performing biochemical analysis on biological fluids and clinical specimens. Students are supervised in developing good laboratory techniques and in recognizing technical problems. Lecture 3-4 hours, Laboratory 7-15 hours, Total 7-18 hours per week.

MDLB 277 Clinical Microbiology **(6 cr.)**
Prerequisite BIOL 176 or equivalent. Techniques, methods and procedures used in Clinical microbiology, including bacteriology, parasitology and mycology. Emphasis on aseptic technique and identification of microorganisms affecting humans. Laboratory 18 hours per week.

MDLB 287 Clinical Blood Banking and Serology **(7 cr.)**
Prerequisite MDLB 250. Techniques, methods and procedures used in Clinical Blood Banking and Serology, including blood grouping, compatibility testing and diagnostic serology procedures. Lecture 2 hours, Laboratory 15 hours, Total 17 hours per week.

MDLB 290 Coordinated Practice **(1-5 cr.)**
(See Page 75)

MDLB 298 Seminar and Project **(1-5 cr.)**
(See Page 75)

MEDICAL RECORDS

MDRS 100 Medical Report Transcription **(3 cr.)**
Prerequisites HLTH 120 or 124 and ability to type 40 words per minute. The operation and care of dictating and transcribing machines; development of skill in the transcription and preparation of reports for the medical record. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

MDRS 111-112 Medical Record Science I-II (4 cr.) (4 cr.)
Provides an understanding of the routine procedures necessary for adequate maintenance and preservation of medical records. Includes methods of analyzing, coding, indexing, and recording of statistical information, preparation of medical abstracts and insurance reports; legal aspects of medical records; administrative duties of the medical record technician; standards of hospital accreditation; and the role of electronic data processing procedures in the storage and retrieval of medical records. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

MDRS 190 Coordinated Practice (1-5 cr.)
(See Page 75)

MDRS 213-214- Medical Record Science III-IV (4 cr.) (4 cr.)
A continuation of MDRS 111-112. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

MDRS 290 Coordinated Practice (1-5 cr.)
(See Page 75)

MDRS 298 Seminar and Project (1-5 cr.)
(See Page 75)

MUSIC

MUSC 109 Music for Children (3 cr.)
A study of the selection and use of music for children's activities. Music for singing, rhythm, and movements. Use of the keyboard and autoharp. Emphasis on pre-school through elementary grades. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

MUSC 111-112-113 Music Theory I-II-III (4 cr.) (4 cr.) (4 cr.)
Elements of musical notation. Structure of scales, intervals, triads and chords. Development of ability to sing at sight and write from dictation melodies in all keys, clefs, and meters. Beginning analysis of the Bach chorale style and construction of cadential phrases in that style. Similar experience at the keyboard. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

MUSC 121-122-123 Music Appreciation I-II-III (3 cr.) (3 cr.) (3 cr.)
This course aims to increase the variety and depth of the student's interest in music and related cultural activities. Emphasis is upon the relation of music as an art to our daily lives and to society, to promote an understanding of the spirit of the art which will lead to the emotional and aesthetic development of the individual, and enable him to enjoy intelligent listening. Lecture 3 hours per week.

MUSC 124-125 American Music I-II (3 cr.) (3 cr.)
The development of music in America from the Pilgrims to the present, in the light of the philosophical, political, geographical, and sociological developments of the country. Lecture 3 hours per week.

MUSC 131-132-133 Class Voice I-II-III (2 cr.) (2 cr.) (2 cr.)
An introduction to the many aspects of a singer from the physical act through the aesthetic experience. The course is designed for the average singer who desires vocal improvement and the voice major as an addition to and extension of skills and knowledge necessary for the artistic development. Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.

MUSC 137 Applied Music-Voice (1-2 cr.)
Singing, proper breath control, diction and development of tone. Standard vocal repertoire will be studied. Departmental permission required. One-two half-hour lessons per week. 4-8 hours practice (laboratory) required. (Estimated cost $6.00 per half-hour.)

MUSC 138 Chorus (1 cr.)
Courses in Ensemble consist of performance from the standard repertories including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Lecture 3 hours per week.

MUSC 139 Small Vocal Ensemble (1 cr.)
Courses in Ensemble consist of performance from the standard repertoires including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Laboratory 3 hours per week.

MUSC 141-142-143 Class Piano I-II-III (2 cr.) (2 cr.) (2 cr.)
Instruction in keyboard fundamentals, standard repertoire designed to give students the necessary proficiency to meet the basic keyboard requirement of a non-piano major in music, and for the student who desires improvement in keyboard technique. Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.

MUSC 147 Applied Music-Keyboard (1-2 cr.)
Instruction in piano or organ. Standard repertoire will be studied. Departmental permission required. One-two half-hour sessions per week. 4-8 hours practice (laboratory) required. (Estimated cost $6.00 per half-hour.)

MUSC 148 Orchestra (1 cr.)
Courses in Ensemble consist of performance from the standard repertories including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Laboratory 3 hours per week.

MUSC 149 Band (1 cr.)
Courses in Ensemble consist of performance from the standard repertoires including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Laboratory 3 hours per week.

MUSC 157 Applied Music Woodwinds (1-2 cr.)
Instruction in fundamentals of the woodwind instruments. Standard repertoire be studied. Departmental permission required. One-two half-hour lessons per week. 4-8 hours practice (laboratory) required. (Estimated cost $16.00 per half-hour.)

MUSC 159 Woodwind Ensemble (1 cr.)
Courses in Ensemble consist of performance from the standard repertoires including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Laboratory 3 hours per week.

MUSC 167 Applied Music-Strings (1-2 cr.)
Instruction in fundamentals of the string instruments. Standard repertoire will be studied. Departmental permission required. One-two half-hour lessons per week. 4-8 hours practice (laboratory) required. (Estimated cost $6.00 per half-hour.)

MUSC 169 String Ensemble (1 cr.)
Courses in Ensemble consist of performance from the standard repertoires including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Laboratory 3 hours per week.

MUSC 177 Applied Music-Brass (1-2 cr.)
Instruction in fundamentals of the brass instruments. Standard repertoire will be studied. Departmental permission required. One-two half-hour lessons per week. 4-8 hours practice (laboratory) required. (Estimated cost $6.00 per half-hour.)

MUSC 179 Brass Ensemble (1 cr.)
Courses in Ensemble consist of performance from the standard repertoires including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Laboratory 3 hours per week.

MUSC 187 Applied Music-Percussion (1-2 cr.)
Instruction in fundamentals of percussion instruments. Standard repertoire will be studied. Departmental permission required. One-two half-hour lessons per week. 4-8 hours practice (laboratory) required. (Estimated cost $6.00 per half-hour.)

MUSC 189 Percussion Ensemble (1 cr.)
Courses in Ensemble consist of performance from the standard repertoires including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Laboratory 3 hours per week.

MUSC 198 Seminar and Project (1-5 cr.)
Prerequisite permission of instructor. (See Page 75)

MUSC 199 Supervised Study (1-5 cr.)
Preparation of concert material for recital, supervised by the instructor. (See Page 75)

MUSC 211-212-213 Advanced Music Theory I-II-III (4 cr.) (4 cr.) (4 cr.)
Continuation of MUSC 111-112-113. Development of facility in the analysis and usage of diatonic and chromatic harmonies. Continued study in analysis of Bach style, sight-singing, ear-training, and keyboard harmony. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

MUSC 214-215 Composition I-II (2 cr.) (2 cr.)
Prerequisite MUSC 111-112-113 or departmental permission. Individually supervised practice in writing short compositions in specified small forms. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

MUSC 220 The History of Jazz (3 cr.)
A study of the underlying elements of jazz concentrating on its cultural and historical development from its earliest stages to the present. Illustrated by musical examples through recordings and other audio visual devices. No previous knowledge of music is required. Lecture 3 hours per week.

MUSC 221-222-223 History of Music I-II-III (3 cr.) (3 cr.) (3 cr.)
Primarily for music majors. A chronological study of music styles from antiquity to the present time. Relationship of the historical development of music to parallel movements in art, drama, and literature. Development of techniques for listening analytically and critically to Music.I, Music to 1600.II, 1600 to 1820. III, 1820 to present. Lecture 3 hours per week.

MUSC 224-225 The History of Opera I-II (3 cr.) (3 cr.)
Development of operatic style through the study of representative works from 1600 to present. Lecture 3 hours per week.

MUSC 237 Advanced Applied Music-Voice (1-2 cr.)
A continuation of MUSC 137.

MUSC 238 Chorus (1 cr.)
A continuation of MUSC 138.

MUSC 247 Advanced Applied Music Keyboard (1-2 cr.)
A continuation of MUSC 147. (Estimated cost $6.00 per half-hour.)

MUSC 248 Orchestra (1 cr.)
A continuation of MUSC 148. (Laboratory 3 hours per week.)

MUSC 257 Advanced Applied Music-Woodwinds (1-2 cr.)
A continuation of MUSC 157. (Estimated cost $6.00 per half-hour.)

MUSC 267 Advanced Applied Music-Strings (1-2 cr.)
A continuation of MUSC 167. (Estimated cost $6.00 per half-hour.)

MUSC 277 Advanced Applied Music-Brass (1-2 cr.)
A continuation of MUSC 177. (Estimated cost $6.00 per half-hour.)

MUSC 287 Advanced Applied Music-Percussion (1-2 cr.)
A continuation of MUSC 187. (Estimated cost $6.00 per half-hour.)

MUSC 296 Recreation Music (1-2 cr.)
The role and integration of musical activities in recreation and park programs; singing, instruments, rhythm and dance. Introduction to leadership skills, utilization and resource materials. Laboratory 3 hours per week.

NATURAL SCIENCE

NASC 100 Survey of Science (4 cr.)
A general survey course designed to familiarize the student with the basic principles of biological and physical sciences. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

NASC 111-112-113 Health Science I-II-III (4 cr.) (4 cr.) (4 cr.)
Human anatomy and physiology, microbiology, pathology and bacteriology; study of organ tissues, body systems and functions, chemistry as it relates to physiology, principles of physics as applied to health science. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

NASC 121-122-123 Natural Sciences I-II-III (4 cr.) (4 cr.) (4 cr.)
This is a multidisciplinary course primarily for non-science majors. The course integrates the main fields of science, and emphasizes the motivations of the scientific disciplines and how these interact. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

NASC 130 Body Structure and Function (3 cr.)
A survey of the structure and function of the human body. This course is designed for non-health or non-science majors. Lecture 3 hours per week.

NASC 141-142-143 Fundamental Sciences for Respiratory Therapy I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite admission to program. Focus upon the major fields of scientific study; inorganic, organic and physiological chemistry, physics of gases, fluids, and electricity and laboratory mathematics. Course integrates the scientific disciplines as they relate to respiratory therapy. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

NURSING

NURS 111 Fundamentals of Nursing I (5 cr.)
The development of nursing skills for the physical, psychological, and social needs of patients. Selected clinical laboratory experience in cooperating health and welfare agencies. Lecture 3 hours, Laboratory 6 hours, Total 9 hours per week.

NURS 112 Fundamentals of Nursing II (6 cr.)
Continuation of NURS 111. Lecture 3 hours, Laboratory 9 hours, Total 12 hours per week.

NURS 113 Fundamentals of Nursing III (8 cr.)
Continuation of NURS 112. Lecture 4 hours, Laboratory 12 hours, Total 16 hours per week.

NURS 221-222-223-224 Nursing in Major Health Problems I-II-III-IV (8 cr.) (8 cr.) (8 cr.) (8 cr.)
Prerequisites NURS 111-112-113, NASC 111-112-113. Representative problems in the nursing care of patients of all age groups with illness requiring medical, surgical, and psychiatric care. Related clinical experiences to further develop the knowledge and skills required to provide nursing care for each patient's needs. The scope, prevention, diagnosis, treatment, and control of major areas of illness in the United States. Lecture 4 hours, Laboratory 12 hours, Total 16 hours per week.

NURS 298 Seminar and Project (1-5 cr.)
(See Page 75)

PHILOSOPHY AND RELIGION

Phil 101-102-103 Introduction to Philosophy I-II-III (3 cr.) (3 cr.) (3 cr.)
An introductory study of some philosophical issues concerning the perception and belief of man in society. Lecture 3 hours per week.

PHIL 110 Logic (3 cr.)
The study of logic as the scientific investigation of valid reasoning. Lecture 3 hours per week.

PHIL 201-202-203 History of Western Philosophy I-II-III (3 cr.) (3 cr.) (3 cr.)
A historical survey of representative philosophers from the Pre-Socratics to the present. Introduces the student to the development of philosophical thought through selected readings of original works and appropriate critical materials. Lecture 3 hours per week.

PHIL 210 Ethics (3 cr.)
Prerequisite PHIL 201 or 202. Systematic study of representative ethical systems as they apply to present day living. Lecture 3 hours per week.

PHIL 216 Aesthetics (3 cr.)
An examination of a variety of attempts to define beauty and the norms of taste and criticism. Attention is given to problems specific to particular art forms as well as to the more general theories about the nature of art. Lecture 3 hours per week.

PHIL 221 Literature of the Bible I (3 cr.)
A study of the literature of the Old Testament. Lecture 3 hours per week.

PHIL 222 Literature of the Bible II (3 cr.)
A study of the literature of the New Testament. Lecture 3 hours per week.

PHIL 231 Comparative Religion I (3 cr.)
A survey of the religions of India and East Asia—Hinduism, Buddhism, Confucianism, Taoism & Shinto. Lecture 3 hours per week.

PHIL 232 Comparative Religion II (3 cr.)
A survey of the four great monotheistic religions—Zoroastrianism, Judaism, Islam and Christianity. Lecture 3 hours per week.

PHIL 246 Christianity (3 cr.)
Its origins and historical development; its basic metaphysical and theological assumptions; its essential doctrines and their origins; and the present state of the church in the modern world. Lecture 3 hours per week.

PHIL 299 Supervised Study (1-5 cr.)
(See Page 75)

PHYSICAL EDUCATION

PHED 100 Fundamentals of Physical Activity (1 cr.)
The role of physical activity in daily living; methods of personal evaluation of physical fitness and performance, meaningful interpretations of such evaluations, and the design of activity programs and patterns. Lecture 1 hour, Laboratory 1 hour, Total 2 hours per week.

PHED 106 Physical Performance and Conditioning (1 cr.)
Principles underlying the development of performance and conditioning factors such as strength, balance, power, agility, cardiovascular function, coordination. Lecture 1 hour, Laboratory 1 hour, Total 2 hours per week.

PHED 108 Physical Activities for Children (3 cr.)
Methods and materials for teaching simple rhythm, recreational games, singing games and other movement experiences. Emphasis on the pre-school through elementary ages. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week. This course cannot be taken to satisfy the physical education requirement for graduation.

PHED 109 Physical Activities for Pre-Adolescents & Adolescents (3 cr.)
An understanding of the physical development & physical capabilities of pre-adolescents & adolescents. The methods & materials for teaching are group games, individual & team sports skills, & other movement experiences. Emphasis on the role of the aide in supervising activities, on the social adjustments, safety precautions, and relationship of physical development to total development of both age groups. Lecture 2 hours, Laboratory 2 hours, Total 4 hours a week. This course cannot be taken to satisfy the physical education requirement for graduation.

PHED 110 Angling and Casting (1 cr.)
The fundamentals of sport fishing, spinning, spin casting, bait casting and fly casting with the related knowledge of conservation and safety. Laboratory 2 hours per week.

PHED 111 Archery (1 cr.)
The fundamentals of target archery and/or field archery; equipment, safety, and conservation. Laboratory 2 hours per week.

PHED 113 Boating (1 cr.)
Prerequisite appropriate skill in swimming. The fundamentals used in propelling and handling canoes, row boats, and other small craft; descriptive and functional terminology, construction and care of equipment, conservation, and safety. Laboratory 2 hours per week.

PHED 115 Ice Skating (1 cr.)
The fundamentals of ice skating; figures, equipment, types of skating, and safety. Laboratory 2 hours per week. (Estimated cost $13.50.)

PHED 117 Shooting and Firearm Safety (1 cr.)
Shooting and firearm safety; arms, selection and care of equipment, forms of the sport of shooting; personal safety and survival in situations associated with hunting and sport shooting. Laboratory 2 hours per week.

PHED 130 Badminton (1 cr.)
Badminton; equipment, strategy for play, and rules. Laboratory 2 hours per week.

PHED 131 Bowling (1 cr.)
A course designed to present the fundamentals of bowling; equipment, rules and personal conduct. Laboratory 2 hours per week. (Estimated cost $11.00.)

PHED 133 Golf (1 cr.)
The fundamentals of golf; equipment, rules, strategy for play, and personal conduct. Laboratory 2 hours per week. (Estimated cost $10.00.)

PHED 134 Handball (1 cr.)
The fundamentals of handball, types of games, rules, equipment, and strategy for team and individual play. Laboratory 2 hours per week. (Estimated cost $15.00.)

PHED 135 Tennis (1 cr.)
The fundamentals of tennis; rules, strategy for team and individual play, and personal dress and conduct. Laboratory 2 hours per week.

PHED 137 Fencing (1 cr.)
Study and practice in fundamentals of foil fencing. Laboratory 2 hours per week.

PHED 150 Diving (1 cr.)
Prerequisite appropriate skill in swimming. The fundamentals of diving; performance and personal safety. Laboratory 2 hours per week. (Estimated cost $18.00.)

PHED 151 Senior Life Saving (1 cr.)
Prerequisite appropriate skill in swimming. The fundamentals of rescue and survival in the water; first aid safety. Preparation for the examination for the Red Cross Senior Life Saving Certificate. Laboratory 2 hours per week. (Estimated cost $18.00.)

PHED 152 Skin and Scuba Diving (1 cr.)
The fundamentals of swimming; personal performance and safety. Laboratory 2 hours per week. (Estimated cost $65.00.)

PHED 153 Swimming (1 cr.)
The fundamentals of swimming; personal performance and safety. Laboratory 2 hours per week. (Estimated cost $18.00.)

PHED 160 Contemporary Dance (1 cr.)
The fundamentals and techniques employed in dance as a creative art form; choreography and performance. Laboratory 2 hours per week.

PHED 161 Folk Dance (1 cr.)
The fundamental step patterns, rhythmic patterns, positions, and formations of the traditional and ethnic group and individual dances emphasizing those of foreign origin; dance forms, their cultural environment, social performance, and significance. Laboratory 2 hours per week.

PHED 163 Social Dance (1 cr.)
The fundamental step patterns, rhythmic patterns and positions of the social or ballroom dance forms; dance as a significant form of social behavior. Labb4ratory 2 hours per week.

PHED 164 Square Dance (1 cr.)
The fundamental step and movement patterns, rhythmic patterns, and formations of the American square dance; historical significance and development. Laboratory 2 hours per week.

PHED 170 Basketball (1 cr.)
Basketball; proper skills, techniques, teamwork and strategy in play, equipment, rules and safety. Laboratory 2 hours per week.

PHED 174 Volleyball (1 cr.)
Volley; proper skills, techniques, team play, and strategy in play; rules, equipment and safety. Laboratory 2 hours per week.

PHED 200 An Introduction to Health, Physical Education and Recreation (2 cr.)
An introduction to the terms, aims, objectives, teacher preparation programs, career opportunities, professional organizations, and problems in the fields of health, physical education, and recreation. Primarily

for prospective majors in the field. Lecture 2 hours per week. This course cannot be taken to satisfy the physical education requirement for graduation.

PHED 201 Body Dynamics (2 cr.)
An understanding and performance of skilled movements in various activities. Essential factors effecting the human body in skilled movement and performance. Lecture 2 hours per week. This course cannot be taken to satisfy the physical education requirement for graduation.

PHYSICAL THERAPY

PSTH 101 Fundamentals of Physical Therapy I (5 cr.)
An introduction to the principles of physical therapy, rehabilitative procedures, and basic patient care skills. Includes the development of basic skills involving application of common treatment modalities, body mechanics, transfer techniques. Includes selected clinical laboratory experience in cooperating health agencies. Lecture 3 hours, Laboratory 6 hours, Total 9 hours per week.

PSTH 102 Fundamentals of Physical Therapy II(5 cr.)
A continuation of Fundamentals of Physical Therapy I. Lecture 1 hour, Laboratory 12 hours, Total 13 hours per week.

PSTH 103 Fundamentals of Physical Therapy III (8 cr.)
A continuation of Fundamentals of Physical Therapy II. Lecture 4 hours, Laboratory 12 hours, Total 16 hours per week.

PSTH 201-202-203 Advanced Physical Therapy Assisting Procedures I-II-III (8 cr.)
Designed to enable the student to participate in the care of the more complex medical-surgical disability groups; assist with appropriate rehabilitative care and testing procedures; and continue the development of skills in utilizing the special treatment modalities, applied kinesiology and therapeutic exercises. Lecture 4 hours, Laboratory 12 hours, Total 16 hours per week.

PSTH 298 Seminar and Project (1-5 cr.)
(See Page 75)

PHYSICS

PHYS 101-102-103 Introductory Physics I-II-III (4 cr.) (4 cr.) (4 cr.)
A survey of general physics, treating briefly the fundamentals of mechanics, properties of matter, heat, magnetism, electricity, sound, light, and radiation. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

PHYS 198 Seminar and Project (1-5 cr.)
(See Page 75)

PHYS 199 Supervised Study (1-5 cr.)
(See Page 75)

PHYS 221-222-223-224 General University Physics I-II-III-IV (4 cr.) (4 cr.) (4 cr.) (4 cr.)
Prerequisite MATH 143 or corequisite MATH 241 or equivalent. General University Physics designed for students in engineering, physics or mathematics. Includes mechanics, relativity, electro-magnetism, ray and wave optics, statistical quantum mechanics, solid state and nuclear physics. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

PHYS 298 Seminar and Project (1-5 cr.)
(See Page 75)

PHYS 299 Supervised Study (1-5 cr.)
(See Page 75)

PSYCHOLOGY

PHYC 110 Principles of Applied Psychology (3 cr.)
The general principles of perception, learning, and conscious and unconscious motivation which are operative in all practical applications of psychology to life and work. Lecture 3 hours per week.

PSYC 116 The Psychology of Personal Adjustment (3 cr.)
Prerequisite PSYC 110. Characteristics of mental health. Psychological principles applied to the development of a mature personality and to the problems of everyday life. Effective methods in study and work. Lecture 3 hours per week.

PSYC 120 Experiences in Personal Growth (3 cr.)
An interdisciplinary approach designed to enable an individual to understand himself better in relation to his immediate environment, community and society. Stimulation, role playing, and other experiential techniques will be used to accomplish this objective. Some of the experiences will take place off campus. Approval of division is required for admission. Lecture 3 hours per week.

PSYC 128 Human Relations (3 cr.)
The study of human personality and its reaction upon other personalities. The application of psychology to problems in industry and private life. Some introduction to such matters as selection, training and placement of employees. Lecture 3 hours per week.

PSYC 130 Child Growth and Development (3 cr.)
Prerequisite PSYC 110 or division permission. The development of the child from one stage of growth to the next, concentrating on the physical, intellectual, social and emotional factors in his personality. Recent studies in child development will be presented. The course is designed to provide a background for those students who intend to become nurses, teachers, or enter other occupations involving continuous work with children. Lecture 3 hours per week.

PSYC 201-202-203 General Psychology I-II-III (3 cr.) (3 cr.) (3 cr.)
The principles of behavior with a relating of experimental data to practical problems: the measurement of ability, sensory and perceptive processes, organic basis of behavior, hereditary, maturation, learning and thinking, motivation, emotion, personality and social factors in behavior. Lecture 3 hours per week.

PSYC 210 Social Psychology (3 cr.)
A study of the individual in social contexts, his social role and socialization process. Personal and social factors in perceptive attitudes toward individuals and groups; group structures and intergroup relations. Lecture 3 hours per week.

PSYC 231-232-233 Human Growth and Development I-II-III (3 cr.) (3 cr.) (3 cr.)
The study and interpretation of human behavior through the life cycle. Concepts and principles describing the dynamics of human development and behavior and their relation to the work and purpose of the school. The scientific method, heredity, psychological development, perception, motivation, learning, emotions, cognitive processes, personality, frustration, intelligence, and mental processes. Lecture 3 hours per week.

PSYC 298 Seminar and Project (1-5 cr.)
Prerequisite division permission.(See Page 75)

PSYC 299 Supervised Study (1-5 cr.)
Prerequisite division permission.(See Page 75)

PUBLIC SERVICE

PBSV 100 Introduction to Highway Transportation (4 cr.)
Nature and scope of the Highway Transportation System. Survey of the major functional areas of the highway transportation systems with emphasis on their interaction. Lecture 4 hours, Total 4 hours per week.

PBSV 104 Highway Traffic Administration I (4 cr.)
Examination of United States transportation systems, emphasizing efficient, safe and rapid operation. Activities and agencies concerned with increasing efficiency. System's development components, social, economic and political impacts. Survey of present and future needs. Lecture 4 hours, Total 4 hours per week.

PBSV 105 Highway Traffic Administration II (4 cr.)
Police and court traffic administration. Administration and maintenance of motor vehicle and driver records. Traffic direction and control, traffic accident investigation, and traffic law enforcement. Communication aspects of highway traffic administration. Highway traffic education programs and public information. Motor vehicle fleet safety programs. Utilizing traffic safety research. Lecture 4 hours, Total 4 hours per week.

PBSV 108 Safety Principles in Motor Vehicle Transportation (3 cr.)
An investigation of the principles and practices which have a bearing on highway traffic safety and its attendant problems. Topics include: the role of driver education, effect of traffic density, traffic operations and control, influencing driver behavior, economics of highway safety, convenient highway transportation. Lecture 3 hours, Total 3 hours per week.

PBSV 110 Introduction to Public Administration (3 cr.)
Principles and concepts underlying the field of public administration in federal, state, and local government. Includes the role of government in modern society; the relationship of administrative and policy processes; organizational structure and relationships; new and emerging organizational forms and functions of government. Lecture 3 hours per week.

PBSV 116 Public Personnel Administration (3 cr.)
Human resource development; historical development of public personnel administration, recruitment, selection, training, classification, grievance procedures, and related processes of public personnel administration; new concepts in personnel administration; manpower programs; overview of labor relations in government employment. Lecture 3 hours per week.

PBSV 117 Public Finance Administration (3 cr.)
Organization and functions of fiscal administration; financial planning and control; analysis of the budgeting process; budget preparation; revenue sources; intergovernmental financial relationship; debt management; data processing applications in fiscal administration; analysis of the fiscal process in various government agencies; purchasing; special assessments; capital improvement budgeting. Lecture 3 hours per week.

PBSV 150 Introduction to Community and Social Service (3 cr.)
Consideration of the basic principles, scope, and functions, as well as the practices and current trends in community and social service work. A broad view of the field is presented to provide students with an appreciation of community and social service work as a career. Lecture 3 hours per week.

PBSV 256 Interviewing Skills (3 cr.)
A study and analysis of the technique of interviewing. Includes the significance of representing a government or private agency, human relations, confidentiality, beginning the interview, interchange of information, handling complaints and criticism, ending the interview. Lecture 3 hours per week.

RECREATION AND PARKS

RCPK 100 Introduction to the Recreation and Parks Field (3 cr.)
Development of the recreation and parks movement. Theory of leisure and environmental awareness. The economic importance, type of areas and facilities. Career opportunities in public, private, and industrial agencies and institutions. Lecture 3 hours per week.

RCPK 101 Recreation and Parks Management I (3 cr.)
Introduction to personnel management, supervision, planning and organization for the recreation and parks field. Community relations. Lecture 3 hours per week.

RCPK 102 Recreation and Parks Management II (3 cr.)
Introduction to elements of fiscal planning and development, budget preparation, documentation and presentation of projects. Lecture 3 hours per week.

RCPK 103 Recreation and Parks Management III (3 cr.)
Problems and practices in maintenance of buildings, areas and equipment. Tree pruning, safety and emergency procedures. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

RCPK 108 Recreation for Special Groups (3 cr.)
Equips students with the competencies needed to direct recreation activities for special groups such as mentally retarded, physically handicapped, and hospitalized. Leadership techniques for conducting social recreation, drama, music, and sports are emphasized. Lecture 3 hours per week.

RCPK 110 Recreational Applied Arts Management (2 cr.)
Planning and practical application of the basic skills of arts and crafts for adoption in the community recreation field. An overview or survey course which includes practical field work in crafts as well as the ordering and issuing of materials for programs and program supervision. Lecture 1 hours, Laboratory 2 hours, Total 3 hours per week.

RCPK 116 Social Recreation Leadership (3 cr.)
The programs for recreation in the schools, home, church, youth groups, and other community organizations and institutions. Practical work in social and recreational activity leadership. Designed for those who may wish to engage or specialize in recreational leadership. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

RCPK 126 Natural Resources and the Urban Environment (2 cr.)
Introduction to the wise use of natural resources in the urban situation. History and philosophy of conservation methods and techniques. Utilization of park facilities and interpretative programs. Interpretative techniques, the web of life. Lecture 2 hours per week.

RCPK 136 Program Planning Organization and Group Leadership (2 cr.)
Elements and principles or organizing, conducting, and evaluating various types of effective recreation programs for a variety of groups; playgrounds, recreation centers, parks, camps, and senior citizen groups. Lecture 2 hours per week.

RCPK 137 Organization and Management of Recreational Sports Activities (3 cr.)
Officiating and instructional activities; aspects of recreational sports; game rules and administering of tournaments. Lecture 3 hours per week.

RCPK 138 Fundamentals of Camp Management and Operation (3 cr.)
Principles of modern camping; sites, equipment, programming. Managerial responsibility and operation, maintenance, supervision and planning of private and public camp grounds, and day camps. Organization and supervision of recreation group camping and private camps for various ages or family groups. Includes field trips. Lecture 3 hours per week.

RCPK 146 Community and Family Recreation (3 cr.)
Survey of problems, functions and methods of recreation services for the community. Interpretation and importance of community recreation. Family recreational activities. Programs and leadership; recreation services, standards, quality, coordination, and community organizations. Lecture 3 hours per week.

RCPK 190 Coordinated Internship (1-5 cr.)
(See Page 75)

RCPK 197 Cooperative Education (1-5 cr.)
(See Page 75)

RCPK 207 Recreational Drama (1 cr.)
Prepares recreation leaders to direct informal creative dramatics, chiefly for children. Includes improvisation, pantomime, storytelling, charades, dramatic games, and acting combined with other art forms. Lecture 2 hours per week.

RCPK 216 Interpretation in Urban Environment (4 cr.)
Practical applications of interpretative techniques and methods for the urgan citizen. Problems in resources management: public relations activities and political pressures. Field studies—the future of man. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

RCPK 290 Coordinated Internship (1-5 cr.)
(See Page 75)

RCPK 297, Cooperative Education (1-5 cr.)
(See Page 75)

RCPK 298 Seminar and Project (1-5 cr.)
(See Page 75)

RCP 299 Supervised Study (1-5 cr.)

RECREATION VEHICLE

RVEH 116 Motorcycle Machine Laboratory (3 cr.)
The theory, practice and use of machinery equipment used in reconditioning and repairing motorcycles. Special emphasis will be placed on measuring instruments, valve refinishing, cylinder and piston reconditioning, use of dial indicator, resurfacing and welding. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

RVEH 120 Introduction to Motorcycle Mechanics (3 cr.)
The motorcycle, its systems, operating principles, problems and repair techniques. Introduction to tools, equipment, shop layout, general maintenance and diagnosis. Special emphasis is placed on shop safety and safe use of basic equipment. There is no prerequisite for this course. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

RVEH 126 Motorcycle Fuel Systems (4 cr.)
Analysis of motorcycle fuel systems to include tanks, valves, filters and carburetors (slide type, diaphram, and conventional type) and fuel injection. Special emphasis will be placed on diagnosis and adjustment, especially jetting and needle positioning. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

RVEH 127 Motorcycle Electrical Systems (3 cr.)
Electricity and magnetism symbols and circuitry as applies to the motorcycle electrical system. Includes storage batteries, generators, alternators, regulating systems, starters, lighting systems. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

RVEH 156 Motorcycle Drive Trains (3 cr.)
The operation, design, construction and repair of power train components including primary drive systems (both gear and chain), clutches (wet, dry automatic and centifugal), transmissions. Final drive systems (sprocket, chains, rings and pinion type). Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

RVEH 176 Motorcycle Two-Stroke Engines (3 cr.)
Analysis of piston, cylinder, rods, crankshafts, bearings, cases, lubrication systems. Special emphasis will be placed on diagnosis and rebuilding techniques. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

RVEH 177 Motorcycle Four-Stroke Engines (4 cr.)
Analysis of piston and cylinder conditions, intake and exhaust valve mechanisms, bearings, crankshafts, rods, lubrication systems, and cooling systems. Special emphasis will be placed on diagnosis and rebuilding techniques. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

RVEH 198 Motorcycle Seminar and Project (1-5 cr.)
(See Page 75)

RESPIRATORY THERAPY

RPTH 136 Fundamental Arts I (3 cr.)
Focus upon historical aspects leading to present status of modern day cardiorespiratory therapy. Also nursing arts relative to psychosocial, physical and special unit patient care and its interrelationship to therapy; general hospital safety. Lecture 3 hours per week.

RPTH 144 Fundamental Theory and Procedures I (4 cr.)
Focus upon gas, aerosol, and humidification therapies emphasizing the techniques, skills and understanding necessary to properly and effectively administer these therapy methods. Focus also upon cleaning, maintenance, storage and safety aspects of equipment involved. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

RPTH 145 Fundamental Theory and Procedures II (4 cr.)
Focus is upon artificial ventilation therapy-controlled and/or assisted or intermittent. All basic types of ventilator/respirators emphasizing all techniques, skills and understanding necessary to properly and effectively administer these methods. Focus also upon cleaning, maintenance, storage and safety aspects of equipment involved. Lecture 3 hours, Laboratory 3 hours, Total 6 hours.

RPTH 190 Coordinated Clinical Practice I (4 cr.)
(See Page 75)

RPTH 231 Cardiopulmonary Science I (3 cr.)
Pharmacological basis of drugs used in cardiovascular and respiratory therapy. Focus upon theory, origin, and source of drugs; prescriptions, mathematics of dosages and solutions, action, influencing conditions, preparation, administration. Lecture 3 hours per week.

RPTH 232 Cardiopulmonary Science II (4 cr.)
Focus upon anatomy and physiology as it relates to cardiovascular and respiratory systems. Basic normal and abnormal function and patterns of thorax and contents, basic embryology—comparing neonatal states to adult. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

RPTH 233 Cardiopulmonary Science III (4 cr.)
Pathophysiology of Medical and Surgical diseases treatment. Emphasis upon therapy's relation to basic pathological processes, of disease problems from standpoint of etiological, symptomatic, diagnostic, therapeutic, and prognostic point of view. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

RPTH 236 Fundamental Arts II (3 cr.)
Focus upon administration, economics, planning and development of technical department management. Also ethics, professional behavior and responsibility, and legal considerations relative to therapy. Lecture 3 hours per week.

RPTH 241 Fundamental Theory and Procedures III (4 cr.)
Focus upon advanced techniques of ventilatory management, including respiratory monitoring, patient care plans, integration of team care. Emphasis on acute, intensive care patient cardio-respiratory problems. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

RPTH 242 Fundamental Theory and Procedures IV (4 cr.)
Focus upon cardio-pulmonary resuscitation and airway management plus management of emergencies involving cardio-respiratory problems in both adults and infants. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

RPTH 243 Fundamental Theory and Procedures V (4 cr.)
Focus upon pulmonary function testing and diagnostic, blood gas analysis and gas analysis emphasizing relation to physiological states and interpolation to patient care objectives. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

RPTH 290 Coordinated Clinical Practice (1-5 cr.)
(See Page 75)

RPTH 298 Seminar and Project (2 cr.)
(See Page 75)

SCIENCE TECHNOLOGY

SCTE 101-102-103 Science Technology Techniques I-II-III (3 cr.) (3 cr.) (3 cr.)
A modularized course in the study of techniques widely used in the scientific, technical occupations within the area. Modules will include: (1) recordkeeping, use of pH meter, colorimeter, solution preparation, care and cleaning of glassware, use of simple and analytical balances; (2) computations of laboratory data, microscopic techniques, titratron, pipetting, concepts of biochemistry; (3) bacterial culturing, media making, metric measurements, use of Spectronic 20, serial dilutions, slide specimen preparation. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

SCTE 110 Careers in Science Technology (1 cr.)
Survey of career literature in science technology. Field trips to employers of science technology personnel to observe the responsibilities and opportunities of these occupations. Seminars to discuss and evaluate these experiences. Laboratory 3 hours per week.

SCTE 124-125 Applied Science Techniques I-II (3 cr.) (3 cr.)
Operating laboratory equipment, field settings, and experiences in an on-the-job setting. Modules, some prepared by personnel in the cooperating laboratories, will include air pollution measurements, water sampling, and animal care. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

SCTE 204-205 Science Technology Techniques IV-V (3 cr.) (3 cr.)
Continuation of SCTE 103. Prerequisites: SCTE 103, 125. A modularized course in the study of advanced and specialized techniques widely used in the scientific, technical occupations within the area. Modules will include use of ion exchange apparatus, microtone, radiation techniques, tailored to particular student interests and employment prospects. Emphasis upon understanding concepts underlying techniques and upon ingenuity in modifying techniques for special purposes. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

SCTE 221-222-223 Science Technology Applications I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisites: SCTE 103, 125. Technical applications in an on-the-job setting. Emphasis upon specialized equipment, learning in actual laboratory setting, diversity in technique types, the development of capacity for independent work. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

SCTE 298 Seminar and Project (1-5 cr.)
(See Page 75)

SECRETARIAL SCIENCE

SECR 111 Typewriting I (3 cr.)
Introduction to keyboard with emphasis on good technique and machine mastery; letter format and styles, tabulation and centering, manuscript typing. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

SECR 112 Typewriting II (3 cr.)
Prerequisite SECR 111 or division permission. Continuation of skill building with emphasis on standards required to meet job requirements in production typing. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

SECR 113 Typewriting III (3 cr.)
Prerequisite SECR 112 or divisional permission. Skill development with high standards required to meet job requirements in production typing. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

SECR 121 Shorthand I (4 cr.)
Corequisite or prerequisite ENGL 101. Presentation of shorthand principles in Gregg Diamond Jubilee Series with emphasis on basic reading and writing skills, associated vocabulary and grammar. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

SECR 122 Shorthand II (4 cr.)
Prerequisite SECR 121 or divisional permission. Reinforcement of shorthand principles, further development of general business vocabularies and English usage. General business dictation. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

SECR 123 Shorthand III (4 cr.)
Prerequisite SECR 122 or divisional permission. Increased speed in general business dictation. Introduction of specialized business dictation with emphasis on vocabularies. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

SECR 131-132-133 Shorthand Machine Skills I-II-III (4 cr.)
Construction and operation of the machine, basic and advanced writing skills, rapidity in writing skills, development of vocabulary in general and technical language, general and technical letters and technical papers, additional dictation practice.

SECR 136 Filing and Records Management (3 cr.)
Indexing principles, filing procedures and techniques as applied to filing systems, establishment of filing system, selection of equipment and supplies. Survey of system using electronics and microfilm, solution of records management problems. Lecture 3 hours per week.

SECR 138 Office Recordkeeping (3 cr.)
General office routine such as work flow, time scheduling, filing, and communications. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 156 Personal Development (3 cr.)
A course designed to develop, enlarge and improve the personality, over-all appearance, ease in handling business and social situations with resulting self-confidence in job interviews, placement and continued employment. Lecture 3 hours per week.

SECR 197 Cooperative Education (1-5 cr.)
(See Page 75)

SECR 216 Executive Typewriting (3 cr.)
Prerequisite SECR 113 or division permission. Further development of speed and accuracy on production typing with emphasis on employment standards. Instruction in use of the executive style typewriters, reports, tabulations, statistical materials and justified copy. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 217 Typewriting Skill Building (3 cr.)
Prerequisite SECR 113 or division permission. Further development of speed and accuracy on production and in-basket typing with emphasis on employment standards. Preparation for employers' secretarial placement examinations. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

SECR 219 Magnetic Tape Selectric Typewriter (3 cr.)
Prerequisite division permission. Operation of automatic typewriter, procedures for recording and playing back from tapes, revision and updating of tapes, merging information from two tapes. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

SECR 220 Magnetic Card Executive Typewriter (1 cr.)
A self-instructional laboratory course designed to develop proficiency in the operation of the Magnetic Card Executive Typewriter. Laboratory 3 hours per week.

SECR 221 Shorthand Transcription I **(3 cr.)**

Prerequisites SECR 113 and SECR 123 or division permission. Review of principles of shorthand, development of vocabulary and phrases, speed building on general business dictation and transcription. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 222 Shorthand Transcription II **(3 cr.)**

Prerequisite SECR 221 or division permission. Continuation of speed building with emphasis on particular areas of general business, developing special vocabulariesphrases, and shortcuts. Emphasis on spelling, grammar, and other transcription skills. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 223 Shorthand Transcription III **(3 cr.)**

Prerequisite SECR 222 or division permission. Speed building in typical business dictation with speed and accuracy in transcription from shorthand notes. Preparation for employers' secretarial placement examinations. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 227 Medical Transcription **(3 cr.)**

Prerequisite SECR 222 or division permission. Medical secretary preparation. Skill in taking dictation and transcribing material involving medical shorthand forms and phrases. Proficiency in use of medical vocabulary, forms and procedures. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 231 Legal Transcription I **(3 cr.)**

Prerequisite SECR 123 and SECR 113 or division permission. Skill in taking dictation and transcription is developed through concentrated study and practice of high-frequency law terminology. The meanings, usage, spelling, pronounciation, and construction of shorthand outlines for the more common legal terms are stressed. Study of foreign-language syllables appearing in law terms is emphasized. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 232 Legal Transcription II **(3 cr.)**

Prerequisite SECR 231 and SECR 261 or division permission. A further refinement in taking and transcribing material involving legal shorthand forms and phrases. The preparation of client and court documents. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 233 Legal Transcription III **(3 cr.)**

Prerequisite SECR 232 or division permission. Further development of skill in taking dictation and transcribing material similar to that used in courts and legal offices. Emphasis is on speed and accuracy in production. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 236 Specialized Typewriter Applications **(3 cr.)**

Prerequisite SECR 113 or division permission. Development of proficiency in use of a variety of specialized typewriters, including the executive typewriter and automatic typewriters involving magnetic tape or cards and similar electronic work processing devices. Emphasis on techniques and application with development of speed and accuracy in production operation. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

SECR 241 Secretarial Procedures I **(3 cr.)**

Prerequisite SECR 113 and SECR 123 or division permission. Study of word-processing management, office layout and landscape, research in office supplies and equipment, review of copying and duplicating equipment, spirit duplicator and stencil techniques. Guest speakers and office simulation through case studies, in-baskets, and field trips. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 242 Secretarial Procedures II **(3 cr.)**

Prerequisite SECR 241 or division permission. Continuation of SECR 241 with special emphasis on secretarial procedures and responsibilities in the following areas: office hostess, appointment calendar techniques, mail handling, communication services including composing of business correspondence, travel and conference arrangements. Guest speakers and office simulation through case studies, in-baskets, and field trips. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 243 Secretarial Procedures III **(3 cr.)**

Prerequisite SECR 242 or division permission. Continuation of SECR 242 with special emphasis on secretarial responsibilities in collecting business information, processing and presenting business data, maintaining records in banking, securities, and insurance transactions, payroll and tax procedures. Guest speakers and office simulation through case studies, in-baskets and field trips. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 254-255 Machine Transcription I-II **(3 cr.) (3 cr.)**

Introduction to and development of modern machine transcription incorporating efficient operation of transcribing equipment, good listening techniques, grammar, punctuation, correct business English usage and business formats. Emphasis is placed on high production rates of mailable copy. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 261 Legal Secretarial Procedures I **(3 cr.)**

Prerequisite SECR 123 and SECR 113 or division permission. Research into community service agencies that are essential to the law office. Procedures involving legal vocabulary. Techniques required for the form and style of client and legal documents. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 262 Legal Secretarial Procedures II **(3 cr.)**

Prerequisite SECR 231 and SECR 261 or division permission. Instruction in law office procedures, law office filing, record keeping, and reference materials. The preparation of forms, court documents and instruction necessary to commence, continue, and conclude a legal matter. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 263 Legal Secretarial Procedures III **(3 cr.)**

Prerequisite SECR 262 or division permission. Further refinement and simulation of procedures followed in law offices and courts, including specialized machine transcription, field trips, seminars. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 274-275 Medical Secretarial Procedures I-II **(3 cr.) (3 cr.)**

Prerequisite SECR 241. Instruction in medical office procedures, medical office filing and record keeping,

extension of medical vocabulary, preparation of medical reports, and special correspondence requirements. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SECR 297 Cooperative Education (1-5 cr.)
(See Page 75)

SECR 298 Seminar and Project (1-5 cr.)
Prerequisite SECR 222 and SECR 242 or program permission.(See Page 75)

SECR 299 Supervised Study (1-5 cr.)
(See Page 75)

SOCIAL SCIENCE

SOSC 101-102-103 Contemporary American Civilization I-II-III (3 cr.) (3 cr.) (3 cr.)
An analysis of the factors involved in the development of the American Society and American Culture to develop an understanding of American history. American government, American economics, and man's role in society. These courses need not be taken sequentially. Lecture 3 hours per week.

SOSC 121-122-123 Current American Social Problems I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of contemporary America from the perspective of the Social Sciences designed to provide a basis for the forming of individual judgments on major American domestic issues. The Constitution of the United States provides a primary vehicle for exploration of problems underlying current political, economic, social and individual behavioral patterns and for discussions of relevant applications in the news of today. Lecture 3 hours per week.

SOSC 180 Man in the Modern World (3 cr.)
Prerequisite division permission. Survey of contemporary social, political, and economic problems related to industrialization, urbanization, the role of government, national and international tensions. Lecture 3 hours per week.

SOSC 199 Supervised Study (1-5 cr.)
(See Page 75)

SOCIOLOGY

SOCI 101-102-103 Introductory Sociology I-II-III (3 cr.) (3 cr.) (3 cr.)
SOCI 101 is prerequisite for either SOCI 102 or SOCI 103. The fundamental concepts and the general principles of sociology; social institutions, population study, human ecology and community study, culture, human nature and personality, social interaction and stratification, and social problems. Lecture 3 hours per week.

SOCI 116 Child-Parent-Community Relations (3 cr.)
This course is designed to assist the student in learning about and utilizing resources within a given community that are designed to create an environment suitable for the development of children. The course will focus on the standards and interrelationships within the community that influence children's developing concepts concerning education, religion, ethical values, and citizenship. Lecture 3 hours per week.

SOCI 236 Marriage and the Family (3 cr.)
Prerequisite SOCI 101, or 104. A study of comparative family systems and problems related to marriage and the family. Lecture 3 hours per week.

SOCI 240 Introductory Anthropology (3 cr.)
A study of the origin and evolution of man based upon the fossil record, and an analysis of the status of modern racial grouping. Lecture 3 hours per week.

SOCI 244 Introductory Anthropology (5 cr.)
A study of the origin and evolution of man based upon the fossil record, and an analysis of the status of modern racial grouping. Lecture 5 hours per week.

SOCI 246 Cultural Anthropology (3 cr.)
Prerequisite SOCI 101,240, or 244. The application of the concept of culture to the study of contemporary societies, both primitive and modern. Such institutional areas as magic and ritual, crime, custom, law, economy, courtship, marriage and childbearing will be analyzed cross-culturally. Lecture 3 hours per week.

SOCI 247 Cultural Anthropology (5 cr.)
Prerequisite SOCI 101, 240 or 244. The application of the concept of culture to the study of contemporary societies, both primitive and modern. Such institutional areas as magic and ritual, crime, custom, law, economy, courtship, marriage and childbearing will be analyzed cross-culturally. Lecture 3 hours per week.

SOCI 248 Case Studies in Cultural Anthropology (3 cr.)
A comparative, in-depth study of the structure and organization of selected primative societies. Lecture 3 hours per week.

SOCI 298 Seminar and Project (1-5 cr.)
Prerequisite division permission.(See Page 75)

SOCI 299 Supervised Study (1-5 cr.)
(See Page 75)Prerequisite division permission

SPANISH

SPAN 101-102-103 Elementary Spanish I-II-III (4 cr.) (4 cr.) (4 cr.)
Introductory training in the understanding, speaking, reading, and writing of Spanish with emphasis on manipulation of the structure of the language. Lecture 3 hours, Laboratory and drill 2 hours, Total 5 hours per week. *Not recommended for students who have, within the past two years, received 2 years high school or one year college credit for this language.*

SPAN 104-105 Introductory Spanish I-II (6 cr.) (6 cr.)
The understanding, speaking, reading, and writing of Spanish with emphasis on manipulation of the structure of the language. Lecture 5 hours, Laboratory 3 hours, Total 8 hours per week.

SPAN 106 Review of Introductory Spanish (5 cr.)
An intensive review of Spanish structure and phonology; designed for students who have had some previous training in Spanish, but whose proficiency does not qualify them for Spanish 201. *Permission of the division required.*

SPAN 199 Supervised Study **(1-5 cr.)**
(See Page 75)

SPAN 201-202-203 Intermediate Spanish I-II-III
(4 cr.) (4 cr.) (4 cr.)
Prerequisite Spanish 103, 106, or successful completion of two years of high school Spanish and permission of the instructor. Advanced training in the classroom. Lecture 3 hours, Laboratory and drill 2 hours, Total 5 hours per week.

SPAN 204-205 Intermediate Spanish I-II (6 cr.) (6 cr.)
Prerequisite SPAN 105 or successful completion of two years of high school Spanish and division permission. Advanced study in the understanding, speaking, reading, and writing of Spanish. Spanish is used in the classroom. Lecture 5 hours, Laboratory 3 hours, Total 8 hours per week.

SPAN 231-232-233 Survey of Spanish Literature and Civilization I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite SPAN 203 or equivalent. An introduction to Spanish life and culture and to the contributions of Spain to world civilization from medieval times to the present. Readings in the original Spanish. Spanish is used in the classroom. Lecture 3 hours per week.

SPAN 234-235-236 Hispanic Culture and Civilization I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite SPAN 103. An introduction to Hispanic Culture with emphasis on Latin American life and civilization and including literature survey. Spanish is used in the classroom.

SPAN 299 Supervised Study **(1-5 cr.)**
Lecture 3 hours per week.

SPEECH AND DRAMA

SPDR 106-107 Introduction to the Theatre I-II
(3 cr.) (3 cr.)
The principles of drama; the study of the development of theatre production; study of selected plays as theatrical presentations. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

SPDR 111-112-113 Acting I-II-III (3 cr.) (3 cr.) (3 cr.)
A study of styles of acting. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SPDR 119 Theatre Workshop **(1-5 cr.)**
Organization and work in the various activities of play production. Practice in set design, stage carpentry, theatre development, sound, costumes, lights, stage managing, props, promotion, and stage crew. May be repeated for credit. Variable hours.

SPDR 130 Principles of Public Speaking **(5 cr.)**
Theory and principles of public address. Emphasis will be on preparation and delivery. Lecture 5 hours per week.

SPDR 131-132-133 Fundamentals of Public Speaking I-II-III (3 cr.) (3 cr.) (3 cr.)
Introduction to the art of public speaking, covering analysis of audience and occasion, organization, writing and wording, rhetorical argumentation, and delivery. Practice in forms of expository public speaking, persuasive speaking, and special types of public address. Lecture 3 hours per week.

SPDR 136 Oral Communications **(3 cr.)**
A study of effective communication with emphasis on speaking and listening. Lecture 3 hours per week.

SPDR 141-142-143 Voice and Diction
(3 cr.) (3 cr.) (3 cr.)
A Study through phonetics of the correct speech sounds, drills in pronunciation, enunciation, and voice usage. Lecture 3 hours per week.

SPDR 157 Debate **(3 cr.)**
Prerequisite either SPDR 130, 136, 137, or permission of the division. The presentation of oral argument and debate. Emphasis upon effectiveness in the analysis of issues, evidence, the reasoning process and skill in oral presentation. Lecture 3 hours per week.

SPDR 198 Seminar and Project **(1-5 cr.)**
(See Page 75)

SPDR 199 Supervised Study **(1-5 cr.)**
(See Page 75)

SPDR 201-202-203 History of Theatre I-II-III
(3 cr.) (3 cr.) (3 cr.)
A survey of theory and history of the theatre from Greeks to the Modern. Lecture 3 hours per week.

SPDR 218 Directing **(3 cr.)**
Fundamentals of stage direction. Lecture 3 hours per week.

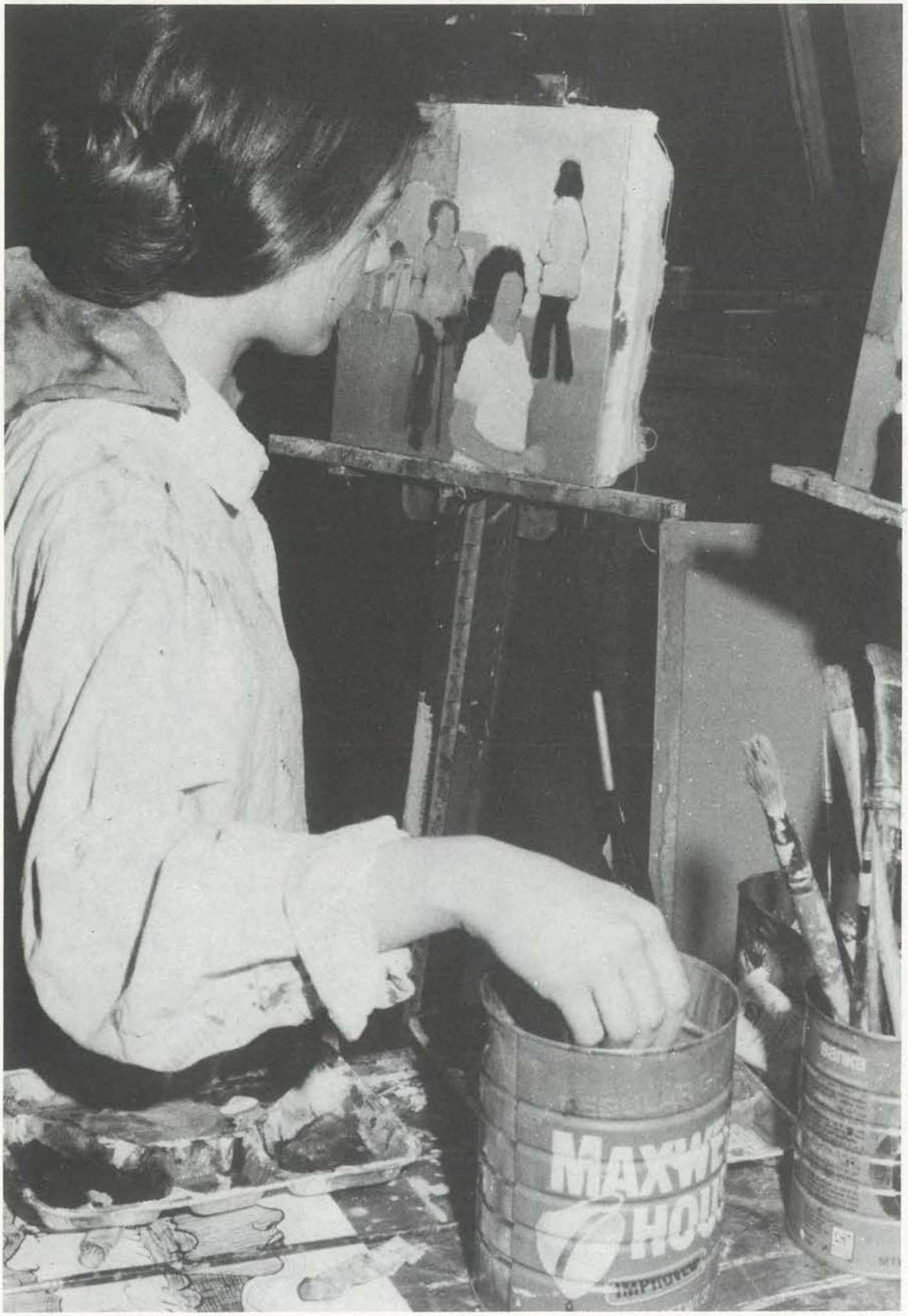
SPDR 230 Advanced Public Speaking **(5 cr.)**
Prerequisite either SPDR 130, 136, 137 or division approval. Preparation and delivery of the various advanced forms and methods of public address. Lecture 5 hours per week.

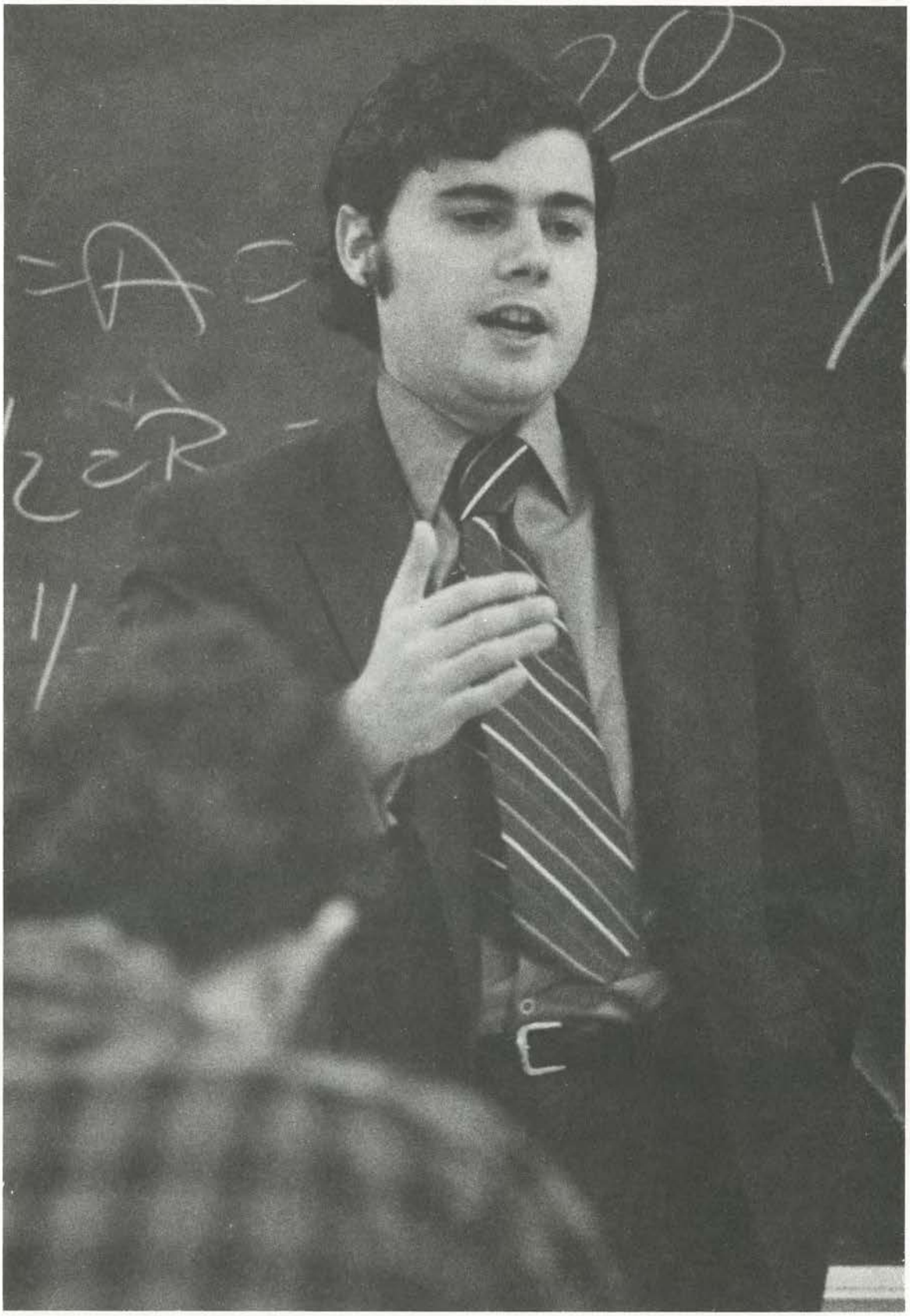
SPDR 256-257 Group Discussion I-II (3 cr.) (3 cr.)
Techniques and purposes of group discussion. Lecture 3 hours per week.

SPDR 266 The Art of the Film **(3 cr.)**
An introduction to the art of the film: a survey of the history of the film; viewing, discussion and analysis of selected films; introduction to the film techniques of composition, shot sequence, lighting, visual symbolism, sound effects, editing. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

SPDR 298 Seminar and Project **(1-5 cr.)**
(See Page 75)

SPDR 299 Supervised Study **(1-5 cr.)**
(See Page 75)





FACULTY AND STAFF

The five campuses are indicated as follows: AL, Alexandria; AN, Annandale; LO, Loudoun; MA, Manassas and WO, Woodbridge. Those individuals with cross campus responsibilities are indicated as CS, College Staff.

Acosta, Joan V.; Nursing Diploma, Kings County Hosp. of Nursing, R.N., New York, Virginia; *Student Health Nurse (AL)*

Adams, Muriel H.;*Instructor;* A.A., Central Fla. Jr. Coll., B.S., Medical Coll. of Ga.;*Medical Record Technology (AN)*

Aiello, Nancy C.; *Instructor;* B.A., M.S., Syracuse Univ.; *Biology (AN)*

Alcorn, George M.; *Assoc. Prof.;* B.A., Eastern Nazarene Coll., M.Ed., Keene St. Coll., Univ. of N.H.; *Data Processing (AN)*

Alford, Terry; *Instructor;* B.A., M.A., Ph.D., Mississipi State Univ.; *History (AN)*

Allen, Eileen A.; *Assoc. Prof.;* A.B., Univ. of Md., M.A., Geo. Wash. Univ.; *English (AN)*

Argue, Judith A.; *Instructor;* B.A., Luther Coll.; *Mathematics (AN)*

Arnold, Merle H.; *Ass't. Prof.;* B.S., Seattle Univ., PhD., Univ. of Notre Dame; *Chemistry (AN)*

Atchison, Evelyn S.; *Ass't. Prof.;* B.S.N., Duquesne Univ., M.S.N., Catholic Univ. of America; *Nursing (AN)*

Attig, Larry L.; *Instructor;* B.A., Drake Univ., M.Ed., Univ. of Va.; *Counselor (AN)*

Auvil, Jean R.; *Instructor;* A.B., Berea Coll., M.A., American Univ.; *Art (AL)*

Avery, Fay; *Ass't. Prof.; B.A., Parsons Coll., M.Ed., Univ. of Buffalo; Coordinator, Cooperative Education (AL)*

Bailey, Haroldine; *Instructor;* B.A., Colby Coll., M.Ed., Howard Univ.; *Counselor (AL)*

Bailey, Sandra; *Instructor;* B.S., Indiana Univ.; *Head, Medical Record Technology Program (AN)*

Baldwin, Susan M.; *Ass't. Prof.;* B.A., Boston Coll., M.A., Univ. of Ky.; *Foreign Languages (AN)*

Bandstra, James R.; *Ass't. Prof.;* A.B., Dordt College; *Data Processing (AL)*

Banks, Anne J.; *Instructor;* B.A.,Wellesley Coll., M.F.A., Geo. Wash. Univ.; *Ass't. Division Ch. Fine Arts & Comm. Art (AL)*

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