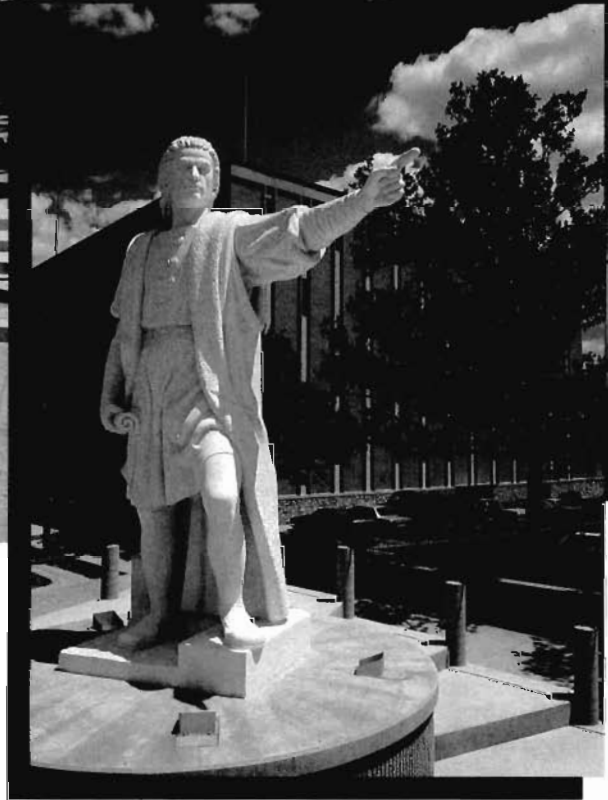
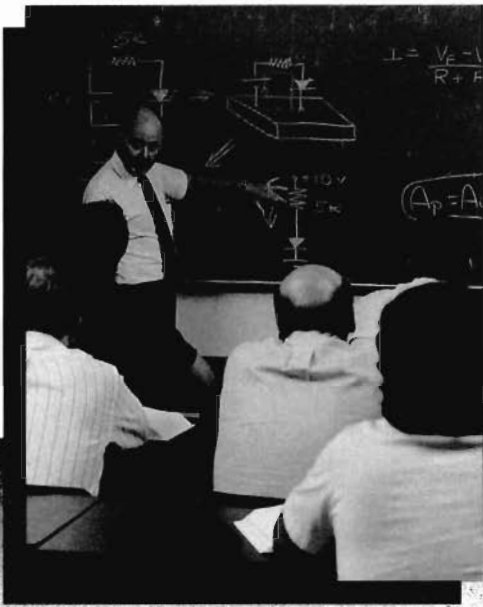


BULLETIN 1990-91



COLUMBUS STATE COMMUNITY COLLEGE

General Information / Programs of Study / Course Descriptions

Course Descriptions

Columbus State's Course Numbering System

No two courses at Columbus State have the same number. The first two digits of a course's four digit number identify the department; the last two numbers identify the individual course within the department.

Listed below are the various departments in order of their course numbers. Refer to this chart to find in which department a given course can be found. For example, 7513 Family Counseling would be found in the Course Descriptions section under Social Services.

09xx Army ROTC	48xx Electro-Mechanical Engineering Technology
10xx Communication Skills	49xx Quality Assurance Technology
11xx Mathematics	50xx Construction Core
13xx Biological and Physical Sciences	51xx Architecture Technology
15xx Social and Behavioral Sciences	52xx Construction Management
18xx Developmental Education	53xx Civil Engineering Technology
19xx Humanities	73xx Legal Assisting Technology
22xx Hospitality Management	74xx Early Childhood Development
24xx Graphic Communications	75xx Social Services
25xx Aviation Maintenance	77xx Interpreting/Transliterating
27xx Computer Programming	78xx Law Enforcement
28xx Financial Management	80xx Medical Laboratory
29xx Retail Management	81xx Dental Laboratory
33xx Secretarial Science	83xx Emergency Medical Services
36xx Real Estate	84xx Mental Health/Chemical Dependency & Mental Retardation
37xx Accounting	85xx Nursing
38xx Business Management	86xx Respiratory Care
39xx Marketing	87xx Gerontology
41xx Automotive Maintenance	88xx Multi-Competency Health
42xx Electronic Engineering Technology	89xx Veterinary Technician Technology
45xx Heating and Air Conditioning	
46xx Mechanical Engineering Technology	

Explanation of Course Description Codes

4 digit course number

Quarter

Class Hours

Lab Hours

Credits

3901 Marketing I (A,W,SP,SU)

A study of marketing fundamentals in a changing environment. Concepts and applications of various marketing strategies and marketing research techniques as they apply to the marketing mix, consumer behavior and marketing policies. Prerequisite: 3821 or 2901.

5-0-5

Four digit course number - first two digits indicate the department; the second two identify the specific course. Two digits followed by xx indicate an elective requirement for which only the department is specified; here the student may choose the specific course, subject to approval of his/her advisor. Where no digits appear, the elective may come from more than one department.

Quarter - indicates which quarter or quarters the course is offered during the year: A-autumn, W-winter, SP-spring, SU-summer.

Prerequisites - any coursework that must be completed before the student is eligible to enroll for the course. For example, if the number 1002 were listed as a prerequisite for a course, then only students who have completed 1002 would be eligible to register for the course.

Concurrent courses - any coursework that must be completed during the same quarter as the course in which you are enrolling. For example, if course 4205 is concurrent with course 4204, both courses must be taken during the same quarter.

Class hours - the number of hours per week a particular course meets in a lecture classroom.

Lab hours - the number of hours per week a particular class meets in a laboratory situation. This is usually in addition to class hours.

Credits - the number of credits to be awarded to students who successfully complete the course.

Lab fee - the amount of money (if any) required of students registering for the course. This fee is needed to help offset the cost of consumable materials used in lab situations. Examples are chemicals, glassware, booklets, manuals, and edibles.

Accounting Technology

- 3703 Intermediate Accounting I (A)** 4-3-5
A continuation of accounting theory. An in-depth study of the accounting process and accounting records; the nature and content of accounting statements: balance sheet, income statement, and retained earnings statement; analysis of working capital; analysis and methods of valuation and statement presentation of the following items: cash and receivables, inventories and property, plant and equipment. Prerequisite: 3733
- 3704 Intermediate Accounting II (W)** 4-3-5
A continuation of 3703 including analysis and methods of valuation and statement presentation of the following items: current liabilities - contractual and contingent items; intangible assets; deferred charges and long-term liabilities, investments, leases, equity transactions, earnings per share, statement of cash flow. Lab fee: \$1.00. Prerequisite: 3703
- 3712 Accounting Machines and Systems (SP,SU)** 2-5-5
An introduction to systems fundamentals including flowcharting and internal control. A comprehensive application of accounting principles studied in 3731 and 3732 using micro-computers. Lab fee: \$6.00. Prerequisites: 3713 and 3732
- 3713 Data Processing for Accountants (W,SP)** 2-4-4
A survey of types of software packages often used by accountants. In-depth practice in the varied practical applications of Lotus Electronic Spreadsheet is provided. Lab fee: \$6.00. Prerequisite: 2782
- 3714 Cost Accounting (A)** 4-3-5
A study of the field of job order cost accounting; the cost cycle methods of handling materials, labor costs, and manufacturing overhead expenditures (controllable and uncontrollable); process cost accounting; byproducts and joint products; fundamental cost-volume-profit relationships (break-even analysis); flexible budgeting and standard costs. Lab fee: \$1.00. Prerequisite: 3733
- 3716 Auditing (SP,SU)** 3-3-4
A course concerned with identification of professional qualifications and responsibilities of an auditor and study of auditing concepts and techniques utilized in the investigation and appraisal of economic information. Topics of study will include: professional ethics, legal liability, internal control, statistical sampling, reports, and auditing standards and procedures used in an independent audit. Prerequisite: 3733
- 3723 Financial Statement Analysis I (A,SU)** 2-3-3
A study of forms of business organization; source and management of working capital; financial statement presentation; tools of analysis; percentages, comparisons to past performance industry standards, and basic ratios including working capital. Lab fee: \$1.00. Prerequisite: 3733
- 3725 Financial Statement Analysis II (W,SU)** 2-3-3
A continuation of course 3723: ratios of equity, return on equity and return on assets; corporate securities; financing through securities; sources and management of long-term assets, debt, and equity including capital budgeting; expansion and combinations, reorganization, receivership, and dissolution. Prerequisite: 3723
- 3731 Principles of Accounting I (A,W,SP,SU)** 5-0-5
An introductory course in accounting with emphasis on 1) the accounting cycle as applied to a service organization 2) adaptations in accounting for a merchandising concern, and 3) recording through the use of specialized journals. Prerequisite: Placement into 1002
- 3732 Principles of Accounting II (A,W,SP,SU)** 5-0-5
A continuation of 3731 will specifically emphasize the major types of assets, as well as the category of current liabilities, and payroll accounting, with particular emphasis on the effect of their measurement on net income and their presentation in the financial statements. The course is rounded out with a discussion of corporate equity and the Statement of Retained Earnings. Prerequisite: 3731
- 3733 Principles of Accounting III (A,W,SP,SU)** 5-0-5
A continuation of 3732 with special emphasis on accounting problems peculiar to corporations (focusing on long-term liabilities and corporate earnings). A major portion of this course is devoted to the analysis and interpretation of accounting information enabling management to plan their organization's financial destiny. Lastly, the students will be expected to apply their accumulated knowledge of 3731, 3732 and 3733 to a computerized practice set for a merchandising corporate entity. Prerequisite: 3732
- 3735 State and Local Taxation (SP,SU)** 2-3-3
Payroll taxes (withholding and reports), unemployment taxes, workmen's compensation, franchise taxes, personal property taxes (classified and intangible), city income taxes, Ohio personal taxes, sales and use taxes, real estate taxes, and vehicle and other taxes. Prerequisite: 3733
- 3736 Federal Taxation (W,SU)** 4-3-5
Individual income taxes: returns, income exemptions, deductions, gains and losses, rates, adjustments. Problems of proprietorship, partnerships, corporations, inventories, depreciation, accounting, installment and deferred sales treatment. Filing requirements, payments, refunds, claims. Tax planning techniques. Lab fee: \$1.00. Prerequisite: 3733
- 3745 Advanced Accounting (SP)** 3-3-4
Covers series of advanced topics such as partnership accounting, branch accounting, consolidations and installment sale accounting. These topics are such that they round out the student's knowledge of accounting for the most common organizational types. Prerequisite: 3704

- 3746 Accounting Practice (SP)** 3-3-4
A capstone course in the technology intended to tie course material presented throughout the Accounting Technology curriculum to a single practical application - herein students form simulated accounting firms to maintain accounting records for an on-going enterprise. A secondary thrust is intended to assist students in post-graduation pursuits of employment and continuing education. Lab fee: \$3.00. Prerequisite: 3704
- 3747 Advanced Taxation (SP)** 3-3-4
A continuation of 3736, including non-liquidating distributions, accumulated earnings, and undistributed income. Sub-chapter S corporations, stock redemption and partial liquidations, corporate reorganization, and estate and gift taxation. Prerequisites: 3704 and 3736
- 3748 Controllership/CPA Review (SP)** 3-3-4
The emphasis of this course is the practical accounting problems and questions on accounting theory as presented in the C.P.A. examination which students have not had in other Columbus State classes such as: fund accounting, consolidated financial statements, foreign currency transactions, and partnership accounting (including liquidations). Other emphasis will include test taking strategies, Geometry in the G.R.E., statement of cash flow, review of intermediate accounting. Prerequisite: 3704
- 3749 Public Administration/Fund Accounting (SP)** 3-3-4
A course dealing with the principles and applications of fund accounting as it relates to state and local governments. It includes budgeting, accounting, reporting, and auditing for federal government, colleges, universities, and hospitals. Prerequisite: 3704
- 3751 Final Project (SP)** 2-8-5
A capstone course for students who are enrolled in the EDP Auditing Major. The course integrates materials presented throughout the curriculum through use of a simulated accounting engagement. Students will design appropriate software in conjunction with both systems analysis and design and apply it to a period of transactions of a hypothetical business enterprise. Prerequisite: 3704
- 3752 Accounting Internship (A,W,SP,SU)** 0-20-2
A structured employment situation in which the student is introduced into an actual accounting office. The student is expected to perform many of the accounting procedures studied in conjunction with their other classes (i.e., bank reconciliations, payroll, journal entries, etc.) and to gain relevant experience and a limited work record. Weekly supervision of the intern is used to solve any job-related problems and to attempt to develop a sense of responsibility and a professional attitude within the student/intern. Prerequisite: 3703. Concurrent: 3753
- 3753 Internship Seminar (A,W,SP,SU)** 2-0-2
A practical work experience in which the student is expected to perform several operational auditing procedures (i.e., flowcharts, organization charts, analysis of existing internal control, recommendations, etc.) related to an accounting internship position. Emphasis is placed upon analyzing and further understanding the student's working environment. Prerequisite: 3703. Concurrent: 3752
- 3762 Financial Accounting (A,W,SP,SU)** 4-0-4
The first of a two-quarter sequence introducing financial accounting to non-accounting majors. The course is a fundamental study of the principles and procedures of double-entry accounting as applied to sole proprietorships. Concepts of this first course are continued and applied in the second course, Managerial Accounting. Students are advised to avoid any time lapse between these courses. Lab fee: \$1.00.
- 3763 Managerial Accounting (A,W,SP,SU)** 3-0-3
An extension of financial accounting applying introductory accounting techniques to business situations. It is designed to acquaint the student with the use of accounting information in the control of a business operation and the interpretation of such information for management's use. This course is an overview of the analysis of financial statements, cost and responsibility accounting, budgeting, cost volume profit analysis and decision making. Prerequisite: 3762 or 3731
- 3766 Introduction to Accounting I (A,SU)** 5-0-5
The uses of accounting reports for business entities; focus on the uses of accounting for external reporting, emphasizing accounting as a provider of financial information. This course is intended for students who plan to transfer to a four-year college or university to complete a Bachelor's Degree. Not open to Accounting majors.
- 3767 Introduction to Accounting II (W,A)** 5-0-5
A continuation of 3766 with special emphasis on the uses of accounting reports in management decisions and in control of business operations; focus is on the internal use of accounting information. Prerequisite: 3766. Not open to Accounting majors.

Architecture Technology

- 5112 Finish Materials/Installation (A,SP)** 2-4-4
This course is intended to follow 5072 and expose the student to those materials which are specifically associated with the construction of buildings. Topics covered include interior finishes, window and door openings, moisture and thermal protection, acoustical treatments, and mechanical conveyance systems. Lab fee: \$15.00. Prerequisite: 5072
- 5114 Mechanical Systems (HAC) (A,W)** 2-2-3
This course identifies the elements that affect the comfort of interior spaces. It stresses the

fundamentals of comfort conditioning, heat loss and heat gain calculations, methods of heating, ventilation and air conditioning. The student will learn how to incorporate the necessary elements of HVAC into the building envelope. Lab fee: \$15.00. Prerequisites: 5142 and 5074

5115 Mechanical Systems (Electrical) (A,W) 2-2-3
This course deals with the fundamentals of light and lighting in buildings. Essentials of electrical code, electrical systems and standards. Conventional symbols, nomenclature and layouts. Coordination of electrical work with the elements of the building, and fixture and equipment schedules. Lab fee: \$15.00. Prerequisites: 5142 and 5074

5116 Mechanical Systems (Plumbing) (A,SP) 2-2-3
This course emphasizes water supply and sanitation. Deals with plumbing codes, standards, equipment, and techniques. Conventional symbols, nomenclature, details, schedules and other representation on drawings. Lab fee: \$15.00. Prerequisites: 5142 and 5074

5122 Structural Systems (Wood) (A,SP) 1-5-3
This course involves the structural design and detailing of various systems used in wood construction, including conventional light framing, post and beam, trusses, and various plywood panel systems. Additional topics discussed include installation, insulation and protection of wood structures. Lab fee: \$15.00. Prerequisite: 1111 or 1146

5127 Building Construction Standards (A,SP) 3-2-4
This course familiarizes the student with building codes and regulations. It introduces the student to office practices and standards and deals with contractual relationships within the building industry. The course also identifies fundamentals of specification organization and their relationship to other contract documents. Lab fee: \$15.00. Prerequisites: 5072 and 5074

5135 Field Co-Op Experience (SU) 0-40-4
Off-campus work experience in architecture, consulting engineering or construction related paid employment, that augments formal education received in the technology, with actual work conditions and job experience. "N" credit will not be allowed for this course. Lab fee: \$25.00. Prerequisites: 5236 and permission of instructor.

5142 Architectural Graphics I (W,SU) 2-6-4
This course follows construction basic drafting with the emphasis on advanced orthographic projection and basic descriptive geometry as found in the construction of buildings. Problems are designed to develop the students ability to think three-dimensionally and solve problems involving the intersection of surfaces and lines. Computer aided drafting (CAD) is also used. Lab fee: \$15.00. Prerequisite: 5071

5143 Architectural Graphics II (A,SP) 2-8-5
This course introduces the student to basic free-hand line drawing techniques used in the architect's office. The student is briefly introduced to shades and shadows and learns how to construct one and two point perspectives. The student then applies his knowledge and prepares a set of architectural presentation drawings. Lab fee: \$15.00. Prerequisite: 5142

5144 Architectural Graphics III (W,SU) 1-9-4
This course deals with the generation of selected schedules and details utilized by trade mechanics in multiple material construction of walls, floors, roofs, stairs, windows and doors. It will introduce the student to working drawing organization and the coordination of details with the rest of the drawings and specifications. Lab fee: \$15.00. Prerequisites: 5112, 5122, and 5023

5145 Architectural Graphics IV (SP,A) 1-11-5
This course uses all of the knowledge obtained from the previous architectural courses. A complete set of working drawings is created as a team effort. The student learns to incorporate consultant information in the final set of working drawings. Independent search for and use of information is encouraged. Lab fee: \$25.00. Prerequisites: 5144, 5114, 5115, 5116 and 5024

5146 Architectural Graphics V (A,SP) 2-4-4
This course will teach basic techniques of manual architectural rendering using multiple media and color. It will introduce the student to computerized three dimensional modeling of a building project.

5147 Preliminary Drawings (W,SU) 2-4-4
This course will use short-cut design assumptions to teach architecture technicians how to quickly and effectively assist the Architect in creating a set of preliminary drawings.

5151 Landscape Space Principles (A,SP) 2-2-3
This course will study how the use and arrangement of indoor or outdoor landscape space can affect the feelings of people. Lab fee: \$10.00.

5153 Landscape Trees (W,SP) 2-3-3
This course will study the identification parameters, landscape features, growing conditions and cost factors of trees indigenous to the Midwest climate zone. Lab fee: \$10.00. Prerequisite: 1311

5154 Landscape Shrubs (W,SP) 2-3-3
This course will study the identification parameters, landscape features, growing conditions and cost factors of shrubs and ground covers indigenous to the Midwest climate zone. Lab fee: \$10.00. Prerequisite: 1311

5155 Landscape Garden Flowers (W,SP) 2-3-3
This course will study the identification parameters, landscape features, growing conditions and cost factors of herbaceous flowering plants, i.e., annuals, perennials, bulbs and herbs. Lab fee: \$10.00. Prerequisites: 1311 and 5151

5157 Landscape Design I (A,W) 2-3-3
This course will study the application of landscape design principles to construction situations, discuss design vs. style, perform site analysis and draft basic examples of landscape projects. A basic overview of landscape material take-off and estimating will also be covered. Lab fee: \$12.00. Prerequisites: 5074 and 5142

5158 Landscape Maintenance (A,W) 2-3-3
Basic landscape maintenance principles will be discussed with an emphasis on procedures best suited to promote optimum growth and aesthetic qualities of landscape plants. Other areas covered will be disease and insect ID and control as well as soil structure and amendments. Lab fee: \$20.00. Prerequisites: 5072 and 5074

5159 Landscape Design II (W,SP) 2-3-3
This course builds on skills learned in 5157 and emphasized graphic, both manual and computer, representations of plant materials and landscape structures. Lab fee: \$15.00. Prerequisites: 5142, 5153, 5154 and 5157

5161 Landscape Water Systems/Lighting (A,SP) 2-3-3
This course will study the design principles of landscape water and lighting systems. Basic examples of these systems will be drafted and cost/estimation factors will be discussed. Lab fee: \$10.00. Prerequisite: 5259

5162 Decks and Bridges (A,SP) 2-3-3
This course will study the design principles of landscape decks, patios and stonework projects. Basic examples of these projects will be drafted and cost/estimation factors will be discussed. Lab fee: \$10.00. Prerequisite: 5159

5163 Specialty Gardens (W,SU) 2-3-3
This course will study the history, development and basic design principles of large estate specialty gardens. Lab fee: \$12.00. Prerequisite: 5159

5164 Landscape CAD Graphics (W,SU) 2-3-3
This course will build on the minimum computer drafting skills learned in 5157 and 5159 to increase the students ability and speed in using CAD to draft landscape blueprint and specification representations. Lab fee: \$15.00. Prerequisite: 5159

5165 Interior Landscapes (W,SU) 2-3-3
This course will study the landscape features and growing conditions of indoor plant materials, design principles of interior landscape presentations and maintenance procedures for same. Lab fee: \$12.00. Prerequisite: 5159

5184 Architectural Spec Writing (W,SU) 1-5-3
This course will cover manual and computer exercises in creating building specifications, along with explaining the proper organization standards and types, as related to projects, materials and methods. All specifications will be taught in accordance with the CSI Standards. Lab fee: \$15.00. Prerequisites: 5061, 5075 and 5127

Army ROTC

0911 Introduction to Military Establishment 0-3-1
A comprehensive study of the organization, mission, and role of the military establishment of the U.S. Army components and the ROTC program. The course will also include a survey of basic fundamentals of first aid.

0912 Land Navigation 0-3-1
A study of military maps and land navigation techniques including terrain evaluation, scale and distance, and direction and location. The course will also include the basic principles of drill and ceremonies.

0913 Military Basic Leadership (modern) 0-3-1
Examination and application of fundamentals of rifle marksmanship. The course will also include a survey of basic principles and techniques of leadership, drill and ceremonies, and the exercise of command.

0921 National Security Policy 0-3-1
Survey of American Military History from World War II to Vietnam using the principles of war and law of war. Study of US/Soviet policy on use of nuclear, biological or chemical weapons (first strike).

0922 American Military History I 0-3-1
Survey of American Military History; illustrated by selected campaigns and battles. History from the Colonial Period to the Civil War with special emphasis on organization, tactics, technology, campaigns, battles and commanders.

0923 American Military History II 9-3-1
Survey of American military history from the Civil War to World War I. Illustrated by special emphasis on organization, tactics, technology, campaigns, battles and commanders.

Automotive Maintenance Technology

- 4106 Shop Experience (A,SP)** 1-8-4
This course is taken during a student's final quarter. It includes a final assessment of skills and knowledge. Skills are measured in a shop condition with the students performing diagnostics and repairs. A review of the eight ASE areas is also included. Lab fee: \$25.00. Prerequisite: Permission of instructor.
- 4151 Shop Orientation (A,W,SP,SU)** 3-3-4
This course covers the operation of an automotive shop. Includes use of hand and power tools and basic maintenance operations on cars and light trucks. This course and 4152 are prerequisites for all other automotive courses. Credit for this course can be obtained by satisfactory completion of the course, documented previous training and/or experience, or by satisfactory results of a proficiency exam administered by the department. Lab fee: \$10.00.
- 4152 Autmotive Principles (A,W,SP,SU)** 3-3-4
This course covers the basic systems of an automobile and their theory of operation. Includes the physical, hydraulic, and electrical theoretical basics, as applied to cars and light trucks. This course and 4151 are prerequisites for all other automotive courses. Credit for this course can be obtained by satisfactory completion of the course, documented previous training and/or experience, or by satisfactory results of a proficiency exam administered by the department. Lab fee: \$10.00.
- 4155 Service Writing (A,W,SP,SU)** 1-2-2
Proper customer service and repair order writing are the basic elements of this course. Estimating cost and time are also part of this course. Prerequisite: 4179
- 4156 Auto Parts - Sales (A,W,SP,SU)** 1-2-2
The duties and responsibilities of a parts department counter-person are covered in this course. The use of catalogs and locator systems, as well as outside sales, are included. Prerequisite: 4179
- 4157 Auto Parts - Inventory Control (A,W,SP,SU)** 1-2-2
This course covers the various inventory control systems that are commonly used in automotive parts departments and stores. Determining inventory levels is an integral part of this course. Prerequisite: 4179
- 4158 Auto Parts - Management (A,W,SP,SU)** 1-2-2
This course covers the various management duties of a parts department manager. Pricing, forecasting, and purchasing are included. Prerequisite: 4179
- 4161 Engine Repair (A,W,SP,SU)** 2-4-4
This course provides a working knowledge of the diagnosis and repair of automotive engines. Minor machining practices are included. Prepares students to achieve national ASE certification in Engine Repair. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Lab fee: \$20.00. Prerequisites: 4151 and 4152.
- 4162 Automatic Transmissions (W,SP,SU)** 2-2-3
This course provides a working knowledge of the diagnosis and repair of automatic transmissions and transaxles. Prepares students to achieve national ASE certification in Automatic Transmissions. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Lab fee: \$10.00. Prerequisites: 4151 and 4152.
- 4163 Manual Transmissions (A,W,SP)** 2-2-3
This course provides a working knowledge of the diagnosis and repair of manual transmissions and transaxles. Prepares students to achieve national ASE certification in Manual Transmissions. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Lab fee: \$10.00. Prerequisites: 4151 and 4152.
- 4164 Suspension and Steering (A,W,SP,SU)** 2-4-4
This course provides a working knowledge of the diagnosis and repair of wheels, tires, suspension systems, steering systems, and wheel alignment diagnosis and adjustment. Prepares students to achieve national ASE certification in Suspension and Steering. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Lab fee: \$15.00. Prerequisites: 4151 and 4152.
- 4165 Brake Systems (A,W,SP,SU)** 2-4-4
This course provides a working knowledge of the diagnosis and repair of the hydraulic system, drum brake systems, disc brake systems, power assist units, and associated systems including wheel bearings, parking brakes and related electrical circuits. Prepares students to achieve national ASE certification in Brake Systems. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Lab fee: \$20.00. Prerequisites: 4151 and 4152.
- 4166 Electrical Systems (A,W,SP,SU)** 3-3-4
This course provides a working knowledge of the diagnosis and repair of general electrical systems: the battery, starting, charging, and lighting systems. Also included are gauges, warning devices, wiper systems, and other electrical accessories. Prepares students to achieve national ASE certification in Electrical Systems. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Lab fee: \$10.00. Prerequisites: 4151 and 4152.
- 4167 Heating and Air Conditioning Systems (W,SP,SU)** 2-2-3
This course provides a working knowledge of the diagnosis and repair of air conditioning systems, refrigeration systems, heating and engine cooling systems, and control units. Prepares students to achieve national ASE certification in Heating and Air Conditioning. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Lab fee: \$15.00. Prerequisites: 4151 and 4152.
- 4168 Engine Performance (A,W,SP,SU)** 2-4-4
This course provides the opportunity to gain a working knowledge of engine condition diagnostics. Includes diagnosis and repair of the ignition system, fuel and exhaust systems, emission control systems, and an introduction to engine electrical and computer control systems. Prepares students to achieve national ASE certification in Engine Performance. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Lab fee: \$15.00. Prerequisites: 4151 and 4152.
- 4171 Advanced Engine Repair (W,SU)** 2-2-3
An advanced course designed to provide students with basic knowledge and skill in automotive machine shop procedures, with emphasis on valve face and seat grinding, cylinder boring and honing, and inspection and service to all parts of the internal combustion engine. Lab fee: \$20.00. Prerequisite: 4161
- 4172 Advanced Automatic Transmissions (A,SP)** 2-2-3
An advanced course in automatic transmission and transaxle diagnostics, overhaul, and design. Lab fee: \$15.00. Prerequisite: 4162
- 4173 Advanced Manual Transmissions (W,SU)** 2-2-3
An advanced course in manual transmission and transaxle diagnostics, overhaul, and design. Lab fee: \$10.00. Prerequisite: 4163
- 4174 Advanced Suspension and Steering (A,SP)** 2-2-3
An advanced course covering detailed diagnostics and service of suspension components. Includes instruction on both two-wheel and four-wheel alignment. Lab fee: \$15.00. Prerequisite: 4164
- 4175 Advanced Brake Systems (W,SU)** 2-2-3
An advanced course covering detailed diagnostics and repair of automotive brake systems. Lab fee: \$15.00. Prerequisite: 4165
- 4176 Advanced Electrical Systems (W,SP,SU)** 2-2-3
An advanced course designed to provide students with a knowledge of electronic components, circuits and diagrams, and testing and service of automotive computer systems. Lab fee: \$15.00. Prerequisite: 4166
- 4177 Advanced Heating and Air Conditioning Systems (SP,SU)** 2-2-3
An advanced course designed to provide the knowledge necessary to diagnosis and repair automotive air conditioning systems, including the diagnosis and repair of automatic temperature controls and related electronic systems. Lab fee: \$20.00. Prerequisite: 4167
- 4178 Advanced Engine Performance (A,W,SP,SU)** 2-2-3
The course is designed to provide students with a working knowledge in the area of detailed engine diagnostics. Diagnosis and repair of fuel injection and computerized engine control systems are included. Lab fee: \$15.00. Prerequisite: 4168
- 4179 Automotive Business Management (A,W,SP,SU)** 2-2-3
An automotive management course covering the role of management in various aspects of the automotive industry. Basic management principles and practices are included. Lab fee: \$10.00. Prerequisite: 4151 and 4152
- 4181 Current Trends in Engine Repair (W,SP)** 1-2-2
The content of this course reflects the technological advances and changes in engine design and repair made by the automobile industry during the current model year. Prerequisite: 4171
- 4182 Current Trends in Automatic Transmissions (A,SP)** 1-2-2
The content of this course reflects the technological advances and changes in automobile transmission design and repair made by the automobile industry during the current model year. Prerequisite: 4172
- 4183 Current Trends in Manual Transmissions (W,SU)** 1-2-2
The content of this course reflects the technological advances and changes in manual transmission design and repair made by the automobile industry during the current model year. Prerequisite: 4173
- 4184 Current Trends in Suspension Steering (A,SP)** 1-2-2
The content of this course reflects the technological advances and changes in steering and suspension system design and repair made by the automobile industry during the current model year. Prerequisite: 4174
- 4185 Current Trends in Brake Systems (W,SU)** 1-2-2
The content of this course reflects the technological advances and changes in brake system design and repair made by the automobile industry during the current model year. Prerequisite: 4175
- 4186 Current Trends in Electrical Systems (W,SU)** 1-2-2
The content of this course reflects the technological advances and changes in electrical system design and repair made by the automobile industry during the current model year. Prerequisite: 4176

- 4187 Current Trends in A/C Systems (W,SP)** 1-2-2
The content of this course reflects the technological advances and changes in heating and air conditioning system design and repair made by the automobile industry during the current model year. Prerequisite: 4177
- 4188 Current Trends in Engine Systems (A,SU)** 1-2-2
The content of this course reflects the technological advances and changes in engine control system design and repair made by the automobile industry during the current model year. Prerequisite: 4178
- 4189 Automotive Service Management (A,W,SP,SU)** 1-2-2
This course covers the various management duties of a service manager. Customer and personnel issues are included, as well as, forecasting, scheduling, and pricing. Prerequisite: 4179

Aviation Maintenance Technology

- 2501 Aviation Theory (A,W,SP,SU)** 4-3-5
Basic science for the aviation maintenance technician, including aerodynamics of lifting and control surfaces, conditioning for flight stability, weight and balance effects, center of gravity limits. Federal Aviation Regulations and Maintenance Records. Lab fee: \$10.00.
- 2502 Aircraft Construction and Design (A,W,SP,SU)** 3-4-5
Develop an understanding of the general language and symbolism of the aviation industry. Blueprint reading and interpretation, fundamentals of drawing, shop sketches for fabrication. Materials and hardware used in aircraft construction. Lab fee: \$10.00.
- 2504 Basic Aviation Maintenance (A,W,SP,SU)** 4-6-6
Select and perform non-destructive testing. Develop an understanding of basic aircraft maintenance procedures and the tools used by the aircraft mechanic. Identification of aircraft hardware. Cleaning and corrosion control. Fabricating and installing fluid lines and fittings. Lab fee: \$10.00.
- 2505 Aircraft Structures I (Welding) (A,W,SP,SU)** 2-3-3
Oxyacetylene welding. Analyzing welds to airworthiness standards. Introduce MIG/TIG procedures. Lab fee: \$10.00. Prerequisites: 2501, 2502 and 2504
- 2506 Aircraft Structures II (A,W,SP,SU)** 7-13-12
Identification of aircraft structural materials, properties of aircraft metals, heat treatment. Layout from blueprints, bend allowances, forming and fabrication techniques. Identification, selection, and use of rivets, fabrication of riveted joints and structures. Protective finishes. Selection and use of inspection procedures. Inspection of wood structures. Maintenance and repair of composite materials. Lab fee: \$10.00. Prerequisite: 2505
- 2508 Aircraft Environmental Control Systems (A,W,SP,SU)** 3-3-4
Inspect, troubleshoot, testing and repair of: cabin atmospheric control system; aircraft fire warning and control systems; anti-icing and deicing systems; pressurization and oxygen systems. Lab fee: \$10.00. Prerequisite: 2553
- 2509 Aircraft Fluid Systems (A,W,SP,SU)** 8-9-11
Inspect, troubleshoot, service and repair of aircraft fluid systems. Basic hydraulic theory. Study of hydraulic pneumatic principles, hydraulic systems, brake systems, landing gear, steering systems, aircraft fuel systems and pneumatic systems. Lab fee: \$10.00. Prerequisites: 2506, 2508 and 2557
- 2511 Aircraft Rigging, Assembly and Inspection (A,W,SP,SU)** 2-6-5
Fundamentals and methods of rigging, disassembly and reassembly and alignment of aircraft components. Maintenance and overhaul of landing gears. 100 hour and annual inspection of the airframe and all associated systems. FAA Regulations and Maintenance Records. Helicopter theory of flight and maintenance. Lab fee: \$10.00. Prerequisites: 2506, 2508 and 2557. Concurrent: 2509

- 2512 Powerplant Theory and Maintenance (Reciprocating Engines) (A,W,SP,SU)** 7-12-11
The theory, operation and maintenance of reciprocating engines. Engine maintenance, repair, overhaul, inspection and troubleshooting. Identification of engine materials, parts, and components, lubrication systems, calibration of tools for testing and maintenance. Hazards of aircraft engine operation. Lab fee: \$10.00. Prerequisites: 2505 and 2553
- 2513 Powerplant Theory and Maintenance (Turbine Engine) (A,W,SP,SU)** 3-3-4
The theory, operation, maintenance and classification of turbine engines. Engine maintenance, repair, overhaul, inspection and troubleshooting. Installation and removal of turbine engines. Lab fee: \$10.00. Prerequisites: 2505 and 2553
- 2514 Magnetos and Ignition Systems (A,W,SP,SU)** 7-8-10
Basic electrical principles in ignition systems. Magneto theory, construction, operation, and overhaul. Review of combustion principles. Types of magnetos. Magneto timing; internal and external. Harness construction, inspection, overhaul, and testing. Booster systems. Jet engine ignition system. Low tension ignition system. Lab fee: 12.00. Prerequisites: 2512 and 2513
- 2515 Carburetion and Fuel Controls (A,W,SP,SU)** 4-6-6
Theory, construction, operation, maintenance, overhaul and troubleshooting of float, pressure, and injection type carburetors. The theory, construction, operation, maintenance and troubleshooting of jet engine fuel controls, engine supercharging and induction systems. Lab fee: \$10.00. Prerequisites: 2512 and 2513

- 2516 Propellers (A,W,SP,SU)** 5-6-7
Aerodynamic principles of propellers. Propeller types, construction and operation. Inspection, repair, and troubleshooting. Installation and removal, tracking and balancing. Controllable propellers. Constant speed governor control: construction, operation, maintenance, adjustment, troubleshooting. Reversible propellers. Hazards of propeller operation. Lab fee: \$10.00. Prerequisites: 2514 and 2515. Concurrent: 2517
- 2517 Powerplant and Systems and Inspection (A,W,SP,SU)** 6-8-9
One hundred hour and annual inspection of powerplants and powerplant systems. Use of inspection equipment and aids. Procedures for returning aircraft engine to active service. FAA Regulations and Maintenance Records. Lab fee: \$10.00. Prerequisites: 2514 and 2515
- 2553 Basic Aviation Technology (A,W,SP,SU)** 5-8-9
Basic electricity for the aviation maintenance system including reading and interpreting electrical circuits diagrams. Basic principles of direct and alternating currents. Batteries, alternators, and generators. Ground operation and servicing of aircraft. Direct current motors and alternating current motors. Understanding maintenance publications, forms and records. Lab fee: \$10.00. Prerequisites: 2501, 2502 and 2504
- 2557 Aircraft Electrical System (A,W,SP,SU)** 6-10-10
Review of electrical fundamentals. Alternating current instrument systems. Reading electrical blueprints. Wiring practices, bonding, shielding. Generator control systems. Electrical engine starting systems. Electrical power units. Avionics installation and inspection. Vacuum systems, maintenance and repair. Lab fee: \$10.00. Prerequisite: 2553

Biological and Physical Sciences

- 1301-1306 Special Topics in Biological and Physical Sciences (On Demand)** 1-6
Selected materials from the regular course offerings, designed to meet specific needs. May be used for independent studies. Lab fee: Determined according to content.
- 1311 Elementary Chemistry I (A,W,SP,SU)** 4-3-5
An introductory course in fundamental chemical concepts and laboratory techniques. Topics include atomic structure, periodic classification of elements, stoichiometry, solutions, acids and bases, pH and buffers, the gas laws, chemical equilibrium, and nuclear chemistry. Lab fee: \$6.00. Safety training and goggles are required for laboratory sessions and are provided by the department. Prerequisites: 1341 or 1345 or equivalent; 1105 or equivalent; placement into 1002; placement into 1813. Not open to students with credit for 1371, 1372, or 1373. This course and 1312 provide a two-quarter sequence in physical science that will fulfill the elective requirement for the Associate of Science Degree.
- 1312 Elementary Chemistry II (W,SU)** 4-3-5
An introductory course in fundamental organic chemistry and laboratory techniques. The study of carbon compounds organized according to functional groups including carbohydrates, lipids, proteins, enzymes, and vitamins. Emphasis is placed on physiological function. Safety training and goggles are required for laboratory sessions and are provided by the department. Lab fee: \$6.00. Prerequisite: 1311
- 1313 General and Biological Chemistry (A,W,SP,SU)** 3-4-5
This is a course in elementary chemical concepts designed primarily for allied health students. It includes the study of principles of general chemistry, carbon compounds, and biochemical classes. Related laboratory work and demonstrations. Safety training and goggles are required for laboratory sessions and are provided by the department. Lab fee: \$6.00. Prerequisites: 1341 or 1345 or equivalent, and placement into 1812. Not open to students with credit for 1312.
- 1314 General Biology (A,W,SP,SU)** 4-3-5
A general biology course designed to introduce the student to major concepts in the subject areas of cell biology, genetics, evolution, diversity of life, and ecology. Lab fee: \$12.00. Prerequisite: Placement into 1002. Not open to students with credit for 1374 or 1375. This course and 1315 or 1326 provide a two-quarter sequence in biological science that will fulfill the elective requirement for the Associate of Science Degree.
- 1315 General Microbiology (A,W,SP,SU)** 3-4-5
A general microbiology course for non-majors. Topics covered include taxonomy, morphology and staining, culture techniques, bacterial metabolism and physical and chemical methods for microbial control. General concepts in immunology, including host defense mechanisms and hypersensitivity, are also covered. Related laboratory is required, including identification of unknown bacteria. Lab fee: \$16.00. Prerequisites: 1341 or 1347 or equivalent, 1343 or equivalent, and placement into 1002 and 1813.
- 1316 Microbial Diseases (On Demand)** 3-0-3
A basic study of the concepts of microbial disease. Topics covered are host-parasite interactions and resistance and immunity to disease, including the development of the immune system and mechanisms of antigen-antibody reactions. Additional topics for detailed discussion are human airborne, foodborne and waterborne infections and human contact diseases. Prerequisites: 1315, 1003, and placement into 1813.
- 1317 College Physics (Mechanics and Heat) (A,W,SP,SU)** 4-3-5
A study of classical mechanics, including statics and kinematics, Newton's laws of motion, linear and angular momentum, work and energy, and properties of solids and fluids. Elementary concepts of heat are introduced, including temperature and thermal expansion, the ideal gas law, calorimetry, and heat transfer. Related laboratory and demonstrations. Lab fee: \$6.00. Prerequisites: 1109 or 1111 or equivalent, placement into 1002, and placement into 1813. Not open to students with credit for 1377 or 1378. This course and 1318 provide a two-quarter sequence in physical science that will fulfill the elective requirement for the Associate of Science Degree.

- 1318 College Physics (Electricity, Magnetism and Light) (A,W,SP,SU) 4-3-5**
A continuation of 1317. Topics in classical electricity and magnetism include electric potential, current and resistance, dc circuits, magnetic forces and fields, and electromagnetic induction. The nature of light is introduced and the principles of geometrical and physical optics, including optical instruments, are treated. Related laboratory and demonstrations. Lab fee: \$6.00. Prerequisites: 1317, and 1114 or 1112 or equivalent. Not open to students with credit for 1379.
- 1319 College Physics (Modern Physics) (On Demand) 4-3-5**
A continuation of 1318. Topics include alternating current, electromagnetic waves, kinetic theory of gases, thermodynamics, and modern physics. The major emphasis of the course is on topics in modern physics, including special relativity, quantum mechanics, atomic and nuclear physics, nuclear radiation, and nuclear energy. Related laboratory and demonstrations. Lab fee: \$6.00. Prerequisite: 1318. Not open to students with credit for 1379.
- 1324 Human Genetics (On Demand) 3-0-3**
Mendelian and classical genetics are presented. Emphasis is also placed on the discovery of the DNA molecule and its structure, genetic mutations and diseases as well as genetic engineering and its implications. Prerequisites: 1343 or high school biology, and placement into 1812 and 1002.
- 1325 General Botany (On Demand) 4-3-5**
This course covers the biology of the major plant groups. Topics include diversity, physiology, reproduction, ecology, and economic significance. Lab fee: \$10.00. Prerequisites: Placement into 1002; 1341 or equivalent; 1343 or equivalent.
- 1326 Introduction to Ecology (On Demand) 4-3-5**
This course provides an introduction to ecology. Topics include population dynamics, distribution of species, and energetics. Lab fee: \$10.00. Prerequisites: 1314, 1341 or equivalent.
- 1331 Anatomy (A,SP,SU) 0-6-3**
A one-quarter anatomy course covering all systems: skin, skeletal, muscular, nervous, circulatory, urinary, reproductive, respiratory, digestive, endocrine and special senses. Lab fee: \$16.00. Prerequisite: 1343 or high school biology. Concurrent: May be taken concurrently with 1332. Not open to students with credit for 1361.
- 1332 Physiology (W,SU) 3-2-4**
An introductory course in human physiology that covers the cell and tissues as well as the nervous, muscular, circulatory, urinary, respiratory and digestive systems. Lab fee: \$6.00. Prerequisites: 1331 or 1361 or concurrent; and placement into 1002 and 1812. Not open to students with credit for 1321, 1322, 1366, 1367, 1368 or 1369.
- 1333 Human Pathophysiology (On Demand) 4-0-4**
This course deals with the disordered functioning of the human body due to disease. It is designed for students or practitioners in nursing or other allied health professions who wish to increase their understanding of the changes occurring in physiology due to an abnormality. Prerequisites: 1332 or 1369 or equivalent; 1312 or 1313 or equivalent.
- 1341 Introduction to Chemistry (A,W,SP,SU) 3-3-4**
A preparatory chemistry course covering the basic concepts of chemistry with emphasis on the physical and chemical properties of matter, problem-solving, and an introduction to chemical reactions. Related laboratory work and demonstrations. Safety training and goggles are required for laboratory sessions and are provided by the department. Lab fee: \$6.00. Prerequisites: 1105 or equivalent, and placement into 1812. Not open to students with credit for 1311, 1312, 1313, 1371, 1372, or 1373.
- 1342 Introduction to Physics (A,SP) 3-3-4**
A survey of the basic concepts of physics with emphasis on energy and its various forms. Topics include mechanics, heat, electricity, and waves. Related laboratory and demonstrations. Lab fee: \$6.00. Prerequisites: 1105 or equivalent, and placement into 1812. Not open to students with credit for 1317, 1318, 1377, 1378, 1381, 1382, 1383, or 1385.
- 1343 Introduction to Biological Sciences (A,W,SP,SU) 4-0-4**
A general biology course in which basic principles of the characteristics of life, biochemistry, cell reproduction and genetics are explored. Prerequisite: Placement into 1812. Not open to students with credit for 1314, 1321, 1322, 1331, 1332, 1346, 1347, 1361, 1366, 1367, 1368, 1369, 1374 or 1375.
- 1344 Introduction to Anatomy and Physiology (A,W,SP,SU) 3-0-3**
A general overview of normal human anatomy and physiology. Topics include the cell, tissues, musculo-skeletal, nervous, cardiovascular, genitourinary, digestive, respiratory and endocrine systems. Prerequisite: Placement into 1812. Not open to students with credit for 1321, 1322, 1331, 1332, 1361, 1366, 1367, 1368, or 1369.
- 1345 Natural Science I (Foundations of Science) (A,W,SP,SU) 4-3-5**
This course covers the evolution of the physical and biological sciences from antiquity to the modern era. Topics include early ideas of the physical world, the principles of mechanics and optics, microscopy, biological classifications, the chemical properties of selected elements and compounds, and chemical bonding. Related laboratory and demonstrations. Safety training and goggles are required for the chemistry laboratory and are provided by the department. Lab fee: \$8.00. Prerequisites: Placement into 1002 and 1812.
- 1346 Natural Science II (Revolutions in Science) (A,W,SP,SU) 4-3-5**
This course covers the development of the natural sciences from the mid-nineteenth century to the present. Topics include the laws of chemical combination, chemical reactions, evolution and natural selection, the diversity of life, the concept of energy, heat and thermodynamics, statistical methods in physics, the nature of light, and quantum mechanics. Related laboratory demonstrations. Safety training and goggles are required for the chemistry laboratory and are provided by the department. Lab fee: \$8.00. Prerequisites: 1345 or equivalent, and placement into 1002 and 1812.
- 1347 Natural Science III (Substances of Life) (A,W,SP,SU) 4-3-5**
This course integrates the study of chemistry and biology with an emphasis on topics which have had an impact on the development of science in the twentieth century. Topics include the ways scientists communicate information, the modern advances of organic chemistry and biochemistry, the processes of mitosis and meiosis, and genetics. Discussions cover scientific information as well as any ethical and moral implications of scientific advances. Related laboratory and demonstrations. Lab fee: \$6.00. Prerequisite: 1346 or equivalent or permission of the instructor.
- 1349 Anatomy and Physiology Laboratory (A,W,SP) 1-2-2**
An optional laboratory course designed to supplement 1344. Physiological principles of the cell and the nervous, cardiovascular, genitourinary, digestive, respiratory and endocrine systems will be featured with appropriate anatomy and physiology laboratory exercises included. Lab fee: \$15.00. Concurrent or prerequisite: 1344
- 1361 Human Anatomy (A,W,SP,SU) 3-4-5**
The gross anatomy of the entire human body is presented in detail. The cat is used for laboratory dissection. Lab fee: \$17.00. Prerequisites: 1343 or 1344 or 1347 or equivalent and placement into 1002 and 1813. Not open to students with credit for 1321 or 1322, or 1331. This course and 1369 provide a two-quarter sequence in biological science that will fulfill the elective requirement for the Associate of Science Degree.
- 1362 Human Embryology (On Demand) 3-0-3**
Starting with gametogenesis and reproduction, the embryological development of humans from fertilization to birth is presented for morphogenesis and organogenesis of the following: face, neck, pharynx, limbs, circulatory system, nervous system, respiratory system, digestive system, urinary system, and reproductive system. Prerequisites: 1331 or 1361, and placement into 1813 and 1002.
- 1369 Human Physiology (A,W,SP,SU) 4-2-5**
An introductory course in human physiology designed to cover the normal physiology of all organ systems. Lab fee: \$7.00. Prerequisites: 1361 or 1331 or equivalent, 1313 or equivalent, placement into 1002 and 1813. Not open to students with credit for 1321 and 1322, 1332, 1366, 1367 and 1368.
- 1371 General Chemistry I (A,W,SP) 4-3-5**
A course in fundamental chemical principles. Topics include chemical calculations, atomic structure, periodic classification, bonding, and the mole concept. Laboratory sessions provide bench experiences. Safety training and goggles are required for laboratory sessions and are provided by the department. Lab fee: \$6.00. Prerequisites: high school chemistry or 1341, 1109 or equivalent, and placement into 1002 and 1813. This course and 1372 provide a two-quarter sequence in physical science that will fulfill the elective requirement for the Associate of Science Degree.
- 1372 General Chemistry II (On Demand) 4-3-5**
A continuation of 1371. Topics include solutions, oxidation-reduction reactions, kinetics, equilibrium, and acid-base chemistry. Laboratory sessions provide bench experiences. Safety training and goggles are required for laboratory sessions and are provided by the department. Lab fee: \$6.00. Prerequisite: 1371
- 1373 General Chemistry III (On Demand) 4-3-5**
A continuation of 1372. Topics include acid-base equilibria, qualitative analyses, thermodynamics, electrochemistry, and the transition elements. Laboratory sessions provide bench experiences. Safety training and goggles are required for laboratory sessions and are provided by the department. Lab fee: \$6.00. Prerequisite: 1372
- 1374 Biological Sciences I (A,W,SP,SU) 4-3-5**
A biology course designed for biology majors that provides an in-depth coverage of cell biology, genetics and embryology. Lab fee: \$17.00. Prerequisites: 1108 or equivalent, and placement into 1002 and 1813. Concurrent or prerequisite: 1313 or 1312. This course and 1375 provide a two-quarter sequence in biological science that will fulfill the elective requirement for the Associate of Science Degree.
- 1375 Biological Sciences II (A,W,SP,SU) 4-3-5**
A continuation of 1374. A biology course designed for biology majors that provides an in-depth coverage of evolution, diversity of life, and ecology. Lab fee: \$17.00. Prerequisite: 1374
- 1377 General Physics I (A,W,SP,SU) 4-3-5**
A course in the fundamental principles of mechanics. Topics treated include vectors, equilibrium, kinematics and dynamics of a particle, energy, momentum, rotation, elasticity, simple harmonic motion, and the behavior of fluids. Related laboratory and demonstrations. Lab fee: \$6.00. Prerequisites: High school physics or 1342 recommended and placement into 1002 and 1813. Concurrent or prerequisite: 1115. This course and 1378 provide a two-quarter sequence in physical science that will fulfill the elective requirement for the Associate of Science Degree.
- 1378 General Physics II (A,W,SP,SU) 4-3-5**
A continuation of 1377. Topics covered include temperature, thermal expansion, specific and latent heat, heat transfer, thermodynamics, kinetic theory, mechanical waves, sound, Coulomb's law, electric fields and potentials, capacitors and dielectrics, current and resistance, dc circuits. Related laboratory and demonstrations. Lab fee: \$6.00. Prerequisite: 1377. Concurrent or prerequisite: 1116
- 1379 General Physics III (On Demand) 4-3-5**
A continuation of 1378. Topics include magnetic fields and forces, electromagnetic induction, magnetic properties of matter, ac circuits, electromagnetic waves, light, mirrors, lenses, interference, diffraction, polarization, relativity, photons, structure of atoms, nuclei, and

solids. Related laboratory and demonstrations. Lab fee: \$6.00. Prerequisite: 1378. Concurrent or prerequisite: 1117

1381 Technical Physics (Mechanics) (A,W,SP,SU) 3-3-4
A course in the basic principles of mechanics. Major topics include equilibrium of rigid bodies, particle motion, Newton's laws of motion, work and energy, conservation principles, and rotational motion. Related laboratory and demonstrations. Lab fee: \$6.00. Prerequisites: 1111 or 1146 or equivalent, and placement into 1812. Not open to students with credit for 1317 or 1377.

1382 Technical Physics (Electricity and Magnetism) (On Demand) 3-3-4
A course in the basic principles of electricity and magnetism. Major topics include electric charge and fields, capacitance, current and resistance, dc circuits, magnetic forces and fields, magnetic properties of matter, and alternating current. Related laboratory and demonstrations. Lab fee: \$6.00. Prerequisites: 1111 or 1146 or equivalent, and placement into 1812. Not open to students with credit for 1318 or 1379.

1383 Technical Physics (Properties of Matter) (W,SU) 3-3-4
A course in the basic principles associated with the mechanical and thermal properties of matter. Major topics include elasticity, fluid mechanics, heat and temperature, energy transformations, heat transfer, ideal and real gases, thermodynamics, vibrations and wave motion. Related laboratory and demonstrations. Lab fee: \$6.00. Prerequisites: 1111 or 1146 or equivalent, and placement into 1812. Not open to students with credit for 1317 or 1378.

1384 Technical Physics (Light and Optics) (On Demand) 3-3-4
A course in the basic principles of optics. Major topics include electromagnetic waves, physical and geometric optics, with special attention given to lenses, mirrors, and optical instruments. Related laboratory and demonstrations. Lab fee: \$7.00. Prerequisites: 1108 or equivalent, and placement into 1812. Not open to students with credit for 1318 or 1379.

1385 Technical Physics (Heat, Light, Sound) (A,W,SP,SU) 3-3-4
A course in the basic principles associated with heat, light, and acoustic phenomena. Major topics include temperature and heat, heat transfer, wave and particle nature of light, atomic theory, solid-state theory, electronics, and acoustics. Related laboratory and demonstrations. Lab fee: \$9.00. Prerequisites: 1112 or equivalent, and placement into 1812. Not open to students with credit for 1317, 1318, 1319, 1378, or 1379.

Business Management Technology

Students who enroll in Business Management courses must test (ASSET) into 1813 (Critical Analysis in Reading) and 1001 (Language Development) before enrolling in any Business Management courses.

3809 Small Business Development (A,SP) 4-0-4
First of a two-quarter sequence that introduces the fundamental considerations in planning and executing the start-up of a new small business venture. Concentrates on planning selected critical aspects of a business plan in the areas of: Orientation to Small Business, Strategic Planning, Financial Considerations, Location, Layout and Beginning Inventory. Lab fee: \$3.00.

3811 Small Business Operations (W,SU) 4-0-4
This course is a sequel to 3809 and completes the basic instruction necessary for competence in managing a small business enterprise. Topics covered will include effective operation of an established business with emphasis on strategic planning, market analysis, pricing, inventory control and credit collections. Prerequisite: 3809

3812 Government and Business (A,SP) 3-0-3
Presents the relationship between the operations of business organizations as they interact with and impact upon society. Various government regulations, environmental issues and ethical issues will be explored. Lab fee: \$1.00. Prerequisite: 3821

3813 Management (A,W,SP,SU) 5-0-5
The basic management processes of planning, organizing, leading, controlling and staffing business organizations are covered. The organization is viewed as a system of interdependent parts which interacts with the outside environment. Lab fee: \$1.00. Prerequisite: 3821.

3814 Organizational Behavior for Management (A,W,SP,SU) 3-0-3
An introduction to the fundamental concepts of human relations in an organization. Topics include intrapersonal, interpersonal and organizational communication styles, understanding the self motivational techniques, and personal and organizational values and attitudes. Lab fee: \$1.00. Prerequisite: 3813.

3821 Introduction to Business (A,W,SP,SU) 5-0-5
A discussion of all significant activities in the field of business including the interaction of business with internal and external forces, ownership, organization, marketing, location, purchasing, production, personnel, finance, and control. These areas are described as related to the basic principles of management and economics. Lab fee: \$1.00.

3823 Business Law I (A,W,SP,SU) 3-0-3
Survey of the legal framework of business, the nature of legal systems and the law, including contracts, criminal, and the law of torts. Lab fee: \$1.00.

3824 Business Law II (A,W,SP,SU) 3-0-3
A continuation of 3823. Exploring the law of agency, corporations, partnerships, and property. Lab fee: \$1.00. Prerequisite: 3823.

3825 Business Law III (W,SU) 3-0-3
An advanced examination of law as it pertains to business with an emphasis on specialty areas of the law designed for the protection of business assets including the law of sales, commercial paper and secured transactions under the Uniform Commercial Code; debtor/creditor rights under the laws of bankruptcy; and the use of wills, trusts and estate planning techniques for the protection and transfer of business interest. Lab fee: \$1.00. Prerequisite: 3824.

3828 Case Studies in Business Seminar (A,W,SP,SU) 3-0-3
The fundamentals of problem solving and decision making will be covered in-depth and applied, using the case approach to a variety of organizational situations. A group case presentation will be a requirement of the course. Lab fee: \$8.00. Prerequisite: Open to graduating students only.

3829 Case Studies in Small Business 4-0-4
Cases covering all functional areas of small business management will be analyzed and presented. Emphasis will be placed on the problem-solving process as a tool for developing and implementing small business management strategies and operational techniques. In addition, a small business computer simulation will be required to apply skills learned. Lab fee: \$2.00. Prerequisites: 3809 and 3811.

3831 Personnel Interviewing (A,W,SU) 3-0-3
An in-depth study of the legal aspects of interviewing and various types of interviews conducted in business from both the employer and employee frame of reference. Interviewing techniques will be presented utilizing video tape playback. Lab fee: \$2.00.

3832 Personnel Management (A,W,SP,SU) 4-0-4
A study of the philosophy, principles, and legal aspects of personnel management including policy making, recruiting, selection, training, evaluation, wage and salary administration, benefit programs, employee rights, representations and safety. Lab fee: \$1.00. Prerequisite: 3813.

3833 Management Decisions (A,W,SP,SU) 0-4-2
A practical presentation of how to apply fundamental accounting principles to the decision making process in business. A computer simulation is used as an integral part of this course. Lab fee: \$10.00. Prerequisite: Open to graduating students only.

3834 Compensation Management (W,SU) 4-0-4
An in-depth study of the history, principles and theories of both monetary and non-monetary compensation, the laws governing compensation, the processes and methods used to price jobs, the development of compensation packages and policies for various levels of employees and their uses to the organization. Lab fee: \$1.00. Prerequisite: 3832 and 1131

3835 Industrial Relations (A,W,SP,SU) 4-0-4
A survey of industrial relations, including the history of the labor movement, labor legislation, collective bargaining, and daily contract administration. Simulations of an actual bargaining, grievance and arbitration will be presented by the students. Lab fee: \$1.00. Prerequisite: 3832

3836 Staffing Under the Law (A,SP) 3-0-3
A thorough review of the legal aspects and boundaries of the human resources process for all organizations. Topics covered include determining hiring needs, the hiring process, discrimination, affirmative action, sexual harassment, discipline, W.C. OSHA and termination issues. Lab fee: \$1.00. Prerequisite: 3832

3838 Administration of Personnel (W,SU) 5-0-5
A capstone course for the Personnel Major curriculum. A hands-on application seminar course wherein students serve as a "Board of Directors" developing the full range of human resource policies and procedures. Draws on information and skills gained in previous core courses. Lab fee: \$1.00. Prerequisite: Open to graduating students only.

3842 Business Management Internship I (A,W,SP,SU) 0-40-4
Supervised on-the-job application of knowledge and skills acquired in the classroom. Prerequisite: Advisor approval required the quarter before the student actually begins the internship. Concurrent: 3843

3843 Special Problems in Business Management I (A,W,SP,SU) 0-4-2
Application of business management knowledge to specific areas of on-the-job internship. Prerequisite: Advisor approval required. Concurrent: 3842

3846 Business Management Internship II (A,W,SP,SU) 0-40-4
Continuation of 3842. Prerequisites: 3842 and advisor approval required the quarter before the student actually begins the internship. Concurrent: 3847

3847 Special Problems in Business Management II (A,W,SP,SU) 0-4-2
Continuation of 3843. Prerequisite: Advisor approval required. Concurrent: 3846

3848 Small Business Management Internship 0-40-4
Supervised cooperative work experience with on-the-job application of knowledge and skills acquired in the classroom. Prerequisite: Advisor approval required the quarter before the student actually begins the internship. Concurrent: 3849

3849 Small Business Management Seminar 2-0-2
On-campus seminar which allows students to report on small business management knowledge gained in specific areas of the internship. May include a market research survey, case reports or other special projects. Lab fee: \$1.00. Prerequisite: Advisor approval required. Concurrent: 3848

3854 Management Information Principles (A,SP) 3-0-3
The emphasis of this course is on introducing the manager to the resources key to decision-making and to the management of all other resources—information. This course will: (1) teach

students the relationships between data, information, records, manager, and management; (2) discuss manual and computerized information systems; (3) discuss hardware and software options; and (4) introduce the concepts of data communications, networks, distributed systems, and office automation. Specific system applications to be discussed include decision-making systems, financial systems, marketing systems, manufacturing systems, and personnel systems. Lab fee: \$1.00. Prerequisite: 3821 or 3813

3855 Forms Management 3-0-3
A study of the design management system using forms for the control and organization of useful business information. The concepts of analyzing and designing forms using a computer-aided tool will be included. Lab fee: \$3.00.

3857 Office Automation (A,SP) 3-0-3
Intensive study into present and future technological resources used to facilitate the handling of office information. Emphasis will be placed on the cost-effectiveness of selection, placement and the use of equipment and systems used in micrographs, records management, word processing, and other areas. Lab fee: \$1.00.

3859 Records Resource Management (W,SU) 3-0-3
The course is designed to: 1) describe the relationships between data, information, records, management, and managers; 2) to discuss the components of a records management program and how each supports managers' needs; 3) to describe the records management system planning, organizing, controlling, and leading tasks; and 4) to examine ways the (non-records) manager uses the records systems and becomes involved in records-related tasks. Lab fee: \$1.00. Prerequisite: 3854

3868 Negotiation Principles (W,SU) 3-0-3
A review of negotiation objectives, skills, tactics and preparation. The student, with a foundation on the technical aspect of purchasing, now has the opportunities to understand the human behavior part of the acquisition cycle. This involves resolving complex issues with many different people, both inside and outside of the organization.

3871 Purchasing Principles I (W,SU) 3-0-3
This course is designed to teach the basics of purchasing management to the newly appointed buyer or non-purchasing personnel looking to broaden their business perspective. Purchasing Management will be treated as a dynamic and vital function requiring professional people skills and educational background. Topics include: the challenge of purchasing and materials management; objectives and organization; function, specification, quality and inspection, computerization and procedures, and quantity considerations. Lab fee: \$1.00.

3872 Purchasing Principles II (A,SP) 3-0-3
This course, which is a continuation of "Purchasing Principles I", will focus on how the basics of good buying can be used effectively to meet the challenges and responsibilities of the constantly changing business climate. Topics such as forward buying, international purchases, buying capital assets and the purchase of transportation services will be covered in depth through lecture and class discussions. Lab fee: \$1.00. Prerequisite: 3871

3873 Advanced Purchasing Seminar (A,SP) 3-0-3
This course has been designed for the student of purchasing and materials management disciplines as a comprehensive thorough course blending the most current in academic theory and practical day to day necessary skills. It emphasizes purchasing as the primary materials activity while integrating purchasing with other materials activities. Topics include legal considerations, public purchasing, planning and reports. Lab fee: \$1.00. Prerequisite: 3872

3874 Management Training for Supervisors (A,W,SP,SU) 3-0-3
A comprehensive examination of management functions and techniques and of the role of a supervisor. This course will increase awareness of the role and present proven methods and techniques to do a better job. Major areas covered include: setting objectives, problems identification techniques, decision making, time management, management styles, motivation, training subordinates, performance evaluation, verbal and non-verbal communications, interviewing techniques, and a look at the challenge of leadership in an organizational setting. Emphasis will be placed on actual on-the-job problems. Lab fee: \$1.00.

3881-3893 Studies in Contemporary Business 1-6
Studies in Contemporary Business is a specially designed course offering to meet the needs of the constantly changing business community and student population. Prerequisite: Advisor approval.

Civil Engineering Technology

5307 Geotechnical Soils Behavior (A) 2-3-3
An analysis of soil behavior and the design construction of substructures (those parts of structures that transmit loads of structures into earth). Investigation of the principles of excavation, tunneling and building earth support structures. Lab fee: \$10.00. Prerequisites: 5025 and 5072

5315 Heavy Construction Standards (A) 3-2-4
Elements of route location, construction materials, methods and procedures. Relation of design standards to topography and prospective traffic, earthwork measurement, physical design standards, and financing. Lab fee: \$15.00. Prerequisites: 5074, 5075 and 5082

5316 Elementary Hydraulics (A) 2-2-3
Study of water at rest and in motion, criteria for measurement of pressure, velocity, friction and capacity of open channels, pipe lines and metering devices. Lab fee: \$10.00. Prerequisite: 1111 or 1146

5321 Advanced Civil Graphics (W,SU) 2-6-4
Advanced drawing procedures and methods for contract drawings with emphasis on ink work, formality and accuracy. Use of CAD equipment. Lab fee: \$20.00. Prerequisite: 5071

5325 Townsite/Urban Development (W,SP) 1-5-3
Analysis of data and related inventory methods needed to logically plan development of all land use types. Study the forces and actions by public agencies and private interests that create the urban form. Review methods of resolving conflicts and understand the applicable land use regulations or standards that govern area development. Lab fee: \$15.00. Prerequisites: 5078, 5082 and 5321

5327 Water Supply Systems (W) 2-3-3
A study of design parameters and the planning process of water supply, storage, treatment, transmission and distribution systems. Lab fee: \$12.00.

5328 Storm and Wastewater Systems (A) 2-3-3
A study of the planning process and design parameters of storm water and sanitary collection systems and treatment processes. Lab fee: \$12.00.

5337 Field Project (SP) 2-8-5
The participant will plan, layout and prepare detailed drawings for a project thereby integrating knowledge gained in preceding civil engineering courses. Professional Civil Engineering office atmosphere, techniques and procedures will be simulated to provide the student with team concept experience. Actual work site project can be substituted with prior approval of instructor. Lab fee: \$20.00. Prerequisite: Permission of instructor

5338 Environmental Analysis (A) 1-5-3
A study in environmental considerations which enter into the Civil Engineering planning process. Lab fee: \$20.00. Prerequisites: 1111 or 1146, 5316 and 5072

5345 Survey Law (W) 2-3-3
A study of the legal codes and practices as applicable within the job duties of a two year Civil Engineering technician. Municipal records research will be utilized as one learning method. Lab fee: \$15.00. Prerequisites: 5078 and 5082

5357 Field Co-Op Experience (SU) 0-40-4
Off-campus work experience in construction, consulting engineering or construction related paid employment, that augments formal education received in the technology, with actual work conditions and job experience. "N" credit will not be allowed for this course. Lab fee: \$30.00. Prerequisites: 5236 and permission of instructor.

5361 Hazardous Waste Regulations (A) 2-2-3
A study of the local, state and national codes and regulations as they apply to storage, utilization and disposal site preparation for hazardous waste materials. Lab fee: \$12.00. Prerequisites: 5328, 5338 and 5072

5383 Land Subdivision Systems (A,SP) 2-3-3
Advanced surveying including section and subdivision lines and residential property lines. Re-establishment of property boundaries and legal considerations for boundary descriptions including local municipal records searching. Lab fee: \$15.00. Prerequisites: 5078, 5082 and 5345

5384 Civil Spec Writing (A) 1-5-3
This course will cover manual and computer exercises in creating civil specifications, along with explaining the proper organization, standards and types, as related to projects, materials and methods. All specifications will be taught in accordance with the CSI standards. Lab fee: \$15.00. Prerequisites: 5075 and 5315

5385 Automated Mapping Process (W) 2-4-4
This course will take senior level civil technology students with basic word processor and computer graphics skills and teach them the proper procedures and the skills necessary to transfer existing organizational manual mapping data on to an automated computer informational system. Lab fee: \$20.00. Prerequisites: 2782, 5321, 5325, 5345 and 5383

5386 Civil Project Management (SP) 2-4-4
This course will cover the techniques of proper project management related to civil engineering, from concept to end of project. Lab fee: \$20.00. Prerequisites: 2782, 5077, 5079, 5251 and 5261

Communication Skills

1001 Language Development (A,W,SP,SU) 5-0-5
Students develop skills in reading and writing in preparation for 1002 by analyzing the writing of students and professionals and by developing paragraphs and short essays using narration and description. Lab fee: \$1.00. Prerequisite: 1831 or placement. Credit will not count toward graduation in any degree program.

1002 Beginning Composition (A,W,SP,SU) 3-0-3
Students compose clear, concise expository essays using various modes such as definition, exemplification, process, cause and effect, comparison and contrast. This course is required for all degrees. Lab fee: \$1.00. Prerequisite: 1001 with a grade of "C" or higher or placement by ASSET test.

1003 Essay and Research (A,W,SP,SU) 3-0-3
This course is a continuation of 1002 expanded to include argumentation. Research techniques are taught, and research papers using MLA documentation are written. Lab fee: \$1.00. Prerequisite: 1002 with a grade of "C" or higher

1004 Technical Writing (A,W,SP,SU) 3-0-3
Students learn the principles of technical writing and practice those types of writing required of technicians, including letters, memos, and reports as required in a student's technology. A

problem solving report is written. Resume preparation and job search techniques are covered. Oral reports using visual aids are required. Lab fee: \$1.00. Prerequisite: 1003 with a grade of "C" or higher and at least two quarters or equivalent in the student's technology.

1006 Technical Communications (A,W,SP) 3-0-3
Students specializing in a variety of human services and health care fields practice the writing styles that are most applicable to the kinds of recordkeeping essential to their professions. Using case studies, students write narration, description, summary, and evaluation. Ethical and legal issues such as confidentiality are briefly discussed. Job search techniques and letter, memo and report formats are covered. This course may substitute for 1004 and 1014 in certain technologies; check with your academic advisor. Lab fee: \$1.00. Prerequisites: 1002, admittance to the program, and current clinical/field placement.

1007 Creative Writing (SP) 3-0-3
Students are introduced to the fundamental techniques of creative writing. Using peer group analysis and workshop techniques, students will develop short pieces in a variety of genres. Prerequisite: 1002

1008 Introduction to Mass Communications (W) 5-0-5
Students will become better consumers of news and other mass media through the study and discussion of the history, roles, and impact of mass media in American society. Principal ethical, policy, and legal questions confronting reporters and media are reviewed. Students are introduced to news writing, advertising, and public relations techniques. Prerequisite: 1003

1009 Communication for the Mass Media (A,W) 3-0-3
This course prepares students to communicate effectively with the mass media including newspapers, magazines, radio, and television through press conferences, news releases, feature stories, research reports, and statements. Students will prepare and present a portfolio that may include news and feature stories, brochures, flyers, research and other assignments completed in the course. Prerequisite: 1003. Concurrent: 1024

1014 Business Communications (A,W,SP,SU) 3-0-3
Emphasis is placed on principles of effective business writing. Students practice writing business letters and memos. A problem-solving or technical report related to the student's area of concentration is required. Resume preparation and job search techniques are covered. Lab fee: \$1.00. Prerequisite: 1002 with a grade of "C" or higher and at least two quarters in a technology or equivalent work experience.

1024 Speech (A,W,SP,SU) 3-0-3
Emphasis is placed on both verbal and nonverbal communication techniques in public speaking. Individual presentations, including at least three major speeches, are required. The fundamental principles of interpersonal communications and small group discussion are introduced. Audio and/or video taping of selected projects will occur. This course, or its equivalent, is required for all degrees. Lab fee: \$2.00. Prerequisite: 1001; students should take this course after, or in conjunction with, 1002.

1025 Oral Interpretation (A,W,SP,SU) 3-0-3
Students will read literature orally and listen critically. The cultural and social functions of oral literature will be discussed. Emphasis will be placed on analyzing literary works, recognizing their emotional and dramatic values, and projecting those qualities through oral presentations. Writing assignments include response journals and short critical papers. This course is recommended as a substitute for 1024 for all Associate of Arts and Associate of Science students. Lab fee: \$2.00. Prerequisite: 1002

1027 Conference and Group Discussion (A,W,SP,SU) 3-0-3
Through role play, discussion, and participation, students will develop attitudes, skills, and knowledge of methods necessary to effectively participate in discussion at conferences, in committees, and in other small groups. Rules of parliamentary procedure are introduced. This course is recommended as a substitute for 1024 in some technologies. Check with your academic advisor. Prerequisite: 1002

1031 Introduction to Literature (A,W,SP,SU) 3-0-3
Students are introduced to the major forms of literature by reading and discussing poetry, drama, and short stories. Practical experience in the critical analysis of literature is acquired through the writing of essays and journals and through the presentation of short oral reports. This course, or its equivalent, is required for all Associate of Arts and Associate of Science degrees. Prerequisite: 1003 with a grade of "C" or higher.

1032-1034 Special Topics: Writing About the American Experience (A,W,SP,SU) 5-0-5
Students will read selected pieces of American literature to explore the variety of experiences that define the American nation. Writing assignments include response journals, documented critical papers, and essay examinations. The courses may substitute for 1031 or meet elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in literature. Prerequisite: 1003 with a grade of "C" or higher.

1035 Introduction to Science Fiction (W,SP) 3-0-3
The historical roots and literary forms of science fiction are introduced. From their readings and viewing of films, students will write critiques, reports, and research papers about science fiction as a literary genre. Prerequisite: 1003

1052-1053 Special Topics: English Literary Perspectives (A,W,SP,SU) 5-0-5
Students will read selected works by English-speaking writers. Using a global perspective, the course will provide insights into how English-speaking writers from various continents have responded through literature to personal, cultural, and artistic influences. Through several literary approaches, students will gain an understanding of the authors, the periods and lands they represent, and the various ways they have handled literary themes. Writing assignments include response journals, documented critical papers, and essay examinations. These courses meet elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in literature. Prerequisite: 1031 or equivalent.

1055 Developmental English as a Second Language (A,W,SP,SU) 15-0-15
Students will practice listening, speaking, reading, and writing skills using American English syntax and vocabulary. Oral reports and paragraph writing are introduced. Placement is determined by Asset test. Lab fee: \$3.00. Credit will not count toward graduation in any degree program.

1056 English as a Second Language: Conversation and Composition (A,W,SP,SU) 10-0-10
A continuation of 1055, in this course students will write longer pieces and research and present longer oral reports in order to integrate listening, speaking and writing skills. Daily reading and writing assignments are required. Lab fee: \$3.00. Prerequisite: 1055 or placement. Credit will not count toward graduation in any degree program.

1057 English as a Second Language: Reading and Composition (A,W,SP,SU) 5-0-5
Students practice reading and writing skills in preparation for entry into regular American English courses. At the end of this course, students have American English skills adequate to enter into 1002. Lab fee: \$2.00. Prerequisite: 1056 or placement. Credit will not count toward graduation in any degree program.

1058-1061 Special Topics: Alternative Literary Voices (A,W,SP,SU) 5-0-5
Students will read selected works by writers outside the mainstream literary tradition. By focusing on specific groups such as women, Afro-American, and Hispanic-American writers, the course will show how representative authors have responded through literature to personal, cultural, political, and artistic influences. Through several literary approaches, students will gain an understanding of the authors, the groups they represent, and the uniqueness of their respective literary voices. Writing assignments include response journals, documented critical papers, and essay examinations. These courses meet elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in literature. Prerequisite: 1031 or equivalent.

1064 Introduction to Drama (A,SP,SU) 5-0-5
Students will study selected masterpieces of western drama and discuss their social, political, and cultural influences. Students will write critical analyses of drama. Prerequisite: 1003

1096-1098 Special Topics in Communications (On Demand) 1-5
Special topics from the communication skills areas designed to meet specific needs. Prerequisites vary.

Computer Programming Technology

2701 Assembly Language I (W,SP) 2-8-5
Introduction to programming in Assembly Language on an IBM mainframe. Students learn the basic principles of editing numeric data and packed decimal arithmetic. Programs are run on an IBM mainframe computer system using the DOS/VSE operating system. Lab fee: \$40.00. Prerequisite: 2706.

2702 Assembly Language II (SP,SU) 2-3-3
A continuation of 2701. Emphasizes the use of binary arithmetic, table handling, sequential disk files, and the external sort. Programs are run on an IBM mainframe computer system using the DOS/VSE operating system. Lab fee: \$25.00. Prerequisite: 2701

2705 Introduction to Computer Applications (A,W,SU) 2-3-3
An introductory course designed to provide computer programming majors with fundamental data processing concepts. Topics covered include an overview of hardware and software, systems analysis and design, data communications and programming. Hands-on lab experience using DOS, LOTUS 1-2-3, Word Perfect, and dBASE on an IBM PC is emphasized. Lab fee: \$25.00. Prerequisites: 1106, 2782 and acceptance into the Computer Programming Technology.

2706 Program Design and Development (A,W,S) 2-3-3
Introduction to programming logic for business applications. No programming language is used. Students develop language-independent solutions to typical business applications involving the use of totals, minor and major control breaks, and a sequential update. Lab fee: \$5.00. Prerequisite: 2782. Concurrent: 2705

2709 Introduction to AS/400 (SP,SU) 2-3-3
Survey of IBM AS/400 computer system operation and use of application development tools. Lab fee: \$25.00. Prerequisite: 2705

2714 BASIC Business Language (On Demand) 2-3-3
Introduction to the BASIC programming language with business applications. Lab fee: \$25.00. Prerequisites: 2706 and programming experience in another language

2715 COBOL I (A,SU) 2-8-5
Introduction to the concepts and techniques of batch COBOL programming using structured programming techniques. Sorts and sequential access methods are stressed. Opportunity will be provided to run under alternate mediums. Lab fee: \$40.00. Prerequisite: 2701

2717 Introduction to RPG (A) 2-8-5
Study of the fundamentals of Report Program Generator (RPG) programming language, particularly as it applies to an IBM AS/400 computer. Lab fee: \$40.00. Prerequisites: 2706 and programming experience in another language

2718 Advanced RPG (W) 2-8-5
A continuation of 2717. Advanced course in RPG programming using the IBM AS/400 computer. Topics include RPG/3 and RPG/400 enhancement to the RPG language, structural RPG coding and interactive file processing. Lab fee: \$40.00. Prerequisite: 2717

2726 Systems Analysis I (A) 3-2-4
An introduction to the science of systems analysis and design to include explanation of systems flowcharting, documentation and decision support systems. Readings concerning selected topics of current interest in the field of systems analysis will be presented. Prerequisite: 2701

2727 Systems Analysis II (W) 3-2-4
A continuation of 2726. Application of the principles of systems analysis and design. The student will learn to use system flowcharting techniques to design typical business systems. Additionally, the students will learn to apply the principles of systems analysis and design to manage and develop large data processing projects. Prerequisite: 2726

2728 Operating Systems (SP,SU) 2-3-3
Selected topics of current interest will be presented, including a comparative discussion of operating systems, for micros (MS/PC-DOS), mini (OS/400) and mainframe (DOS/VSE, OS/VSI, and OS/V52). The student will code several JCL lab exercises. Lab fee: \$25.00. Prerequisite: 2701

2755 COBOL II (W) 2-8-5
A continuation of 2715. Random access through VSAM file structure and table handling is stressed. Opportunity will be provided to run under alternate mediums. Lab fee: \$40.00. Prerequisite: 2715

2756 COBOL (CICS) (S) 2-8-5
On-line programming using IBM's CICS system. Pseudo-conversational techniques will be used to solve a variety of business applications. Lab fee: \$40.00. Prerequisite: 2755

2757 Final Project (SP,SU) 2-8-5
Students will work in small groups to design, choose appropriate medium and program a typical business system. Lab fee: \$40.00. Prerequisite: 2727

2759 ACP Examination (SP,SU) 0-3-1
Students will review topics covered in all previous technical courses. Students will be eligible to sit for the Associate Computer Professional (ACP) examination administered by the Institute for the Certification of Computer Professionals (ICCP). All students in Computer Programming Technology will take 2759 during their graduating quarter. Lab fee: \$20.00. Prerequisite: 2757

2771 DataBase Programming (A,W,SP,SU) 2-3-3
This course presents an overview of DataBase Management Systems (DBMS) programming techniques and systems. The student will write programs using dBASE IIIplus and the Structured Query Language (SQL). Lab fee: \$25.00. Prerequisites: 2706 and programming experience in another language.

2772 Advanced LOTUS 1-2-3 (A,W,SP,SU) 2-3-3
A comprehensive study of LOTUS 1-2-3 software package including the use of graphics and macros. Lab fee: \$25.00. Prerequisites: 2706 and programming experience in another language.

2773 C Language Programming (A,W,SP,SU) 2-8-5
An introductory course in C language programming. Lab problems are oriented toward the writing of interactive programs with business applications. The operating environment is the IBM PC and compatibles running under MS/DOS utilizing a compiler. Lab fee: \$40.00. Prerequisites: 2701 and programming experience in another language

2774 Advanced C (W) 2-8-5
An advanced course in C Language programming. Selected advanced topics such as random access file handling, create files, interrupts and graphics will be presented. Lab problems will be run on IBM personal computer running under MS/PC-DOS utilizing a compiler. This course is business application oriented. Lab fee: \$40.00. Prerequisite: 2773

2782 Computer Literacy I (A,W,SP,SU) 2-2-3
An introductory course designed to provide non-computer programming majors with basic information about computer hardware, software, data communications, operating systems, popular application packages and ethical issues. Hands-on experience using the IBM PC and a popular integrated software package (PFS:First Choice) is emphasized in the course. The software package introduces the student to business applications using a word processor, file manager, spreadsheet, graphics and communications. Note: This course meets the Computer Literacy requirements for all technologies. This course is a prerequisite for the Computer Programming Technology, and thus, does not count toward requirements for the Computer Programming Technology. Lab fee: \$20.00.

2784 IBM PC Assembler (A) 2-8-5
Introduction to programming in the IBM assembly language for the personal computer. The student will code and test lab problems on the IBM PC. Lab fee: \$40.00. Prerequisite: 2701

2785 Data Base Systems (W,SU) 2-3-3
An introduction to data base systems in theory and application. Students will design and build a data base on IBM personal computers using a popular data base package. Lab fee: \$25.00. Prerequisite: 2771

2786 Computer Literacy II (A,W,SP,SU) 2-2-3
A continuation of 2782. This course will introduce the non-computer programming majors to software application packages for spreadsheets (Lotus 1-2-3), data base management (dBase III Plus), word processing (WordPerfect) and the fundamental concepts of the Disk Operating System (DOS) for the IBM PC. Hands-on experience in the microcomputer lab is emphasized

to allow the student to acquire skills which will enable the use of the software mentioned above. Note: This course is not open to students in the Computer Programming Technology. Lab fee: \$20.00. Prerequisite: 2782

2787 Data Communications for Business (SP) 2-3-3
This is an introductory course in data communications designed specifically for end users of communications systems in a business environment. It introduces the student to the basic data communications concepts used in micro, mini and mainframe computer systems. Both computer hardware and software are covered as well as the various communications media and protocols. Lab work involves the use of data communications software on various hardware platforms. Lab fee: \$25.00. Prerequisite: 2705

2788 Local Area Networks (SP) 2-3-3
An introductory course on Local Area Networks (LANs). This course will explore the current technology available for LANs including both hardware and software. Lab fee: \$25.00. Prerequisite: 2705

2791 Special Topics in CIS I (On Demand) 1-0-1

2792 Special Topics in CIS II (On Demand) 2-0-2

2793 Special Topics in CIS III (On Demand) 3-0-3

2794 Special Topics in CIS IV (On Demand) 4-0-4

2795 Special Topics in CIS V (On Demand) 5-0-5

Special topics in CIS is a series of courses specifically designed to meet the needs of the constantly changing business community and student population. Courses will be designed with the advice of the particular group requesting the course and approval of the department chairman.

Construction Core

5023 Structural Steel Systems (SP,W) 1-5-3

Design and drafting exercises of steel construction techniques and detailing using the steel construction handbooks. Structural layout, details, schedules, shop drawing techniques, checking and coordination of steel structural elements with other parts of the building will be examined. Some computer and materials testing lab exercises will be scheduled. Lab fee: \$15.00. Prerequisites: 5025, 5074 and 5026

5024 Structural Concrete Systems (W,SP) 1-5-3

Design and drafting exercises of concrete construction techniques and detailing using the concrete construction handbooks. Structural layout, details, schedules, shop drawing techniques, checking and coordination of concrete structural elements with other parts of the building will be examined. Some computer and materials testing lab exercises will be scheduled. Lab fee: \$15.00. Prerequisites: 5025, 5026 and 5074

5025 Construction Statics (A,W,SP,SU) 2-2-3

This is a beginning course in structural analysis as applied to the field of construction. The emphasis is on the analysis of forces and reacting forces, load transference and the application of elementary concepts of strength of materials. The student should be able to size conventionally loaded simple beams in wood or steel. Lab fee: \$10.00. Prerequisite: 1111 or 1146

5026 Construction Strength of Materials (A,W,SU) 2-2-3

This course is the second in the structural sequence following 5025. The emphasis is on calculating the required resisting stresses of beams, columns and trusses. Topics covered include shear bending, properties of sections, stress and strain. Lab fee: \$10.00. Prerequisite: 5025

5028 Brick/Masonry Structural Systems <W,SU) 2-3-3

Design and drafting exercises of brick and masonry structures as detailed in the industry handbooks. Structural layout details, schedules, shop drawing techniques, checking and coordination of masonry elements will be examined. Some computer and materials testing lab exercises will be scheduled.

5061 Spec Writing Fundamentals 2-3-3

This course will teach the fundamentals of spec writing based on the CSI and CONDOC formats. Students will learn how to write basic specs and how to index these specs to working drawings. Students will write specs typical to their individual profession after learning the basics. Lab fee: \$12.00

5071 Construction Basic Drafting (A,W,SP,SU) 2-6-4

This is a basic drafting course using both manual and computer aided drafting (CAD). Areas covered include lettering, linework, layout, dimensioning, geometric construction, orthographic projection and isometric. Problems are drawn from throughout the construction industry. Lab fee: \$15.00.

5072 Basic Construction Materials (A,W,SP,SU) 1-5-3

A study of soil, concrete, masonry, wood and metal properties, form and use of these basic construction materials and products by means of laboratory examination and elementary testing. Field trips to manufacturing facilities and construction projects, as available, will be included. Lab fee: \$10.00.

5073 Construction Industry Survey (A,W,SP,SU) 3-0-3

An introduction to the employment fields within the construction technologies with emphasis on architecture, civil engineering, and construction management. The development of an appreciation of the many diverse human personality characteristics used in the construction industry jobs and contributions of workers within the industry. Management, organization practices and interrelationships of special interest groups will be discussed.

5074 Building Construction Drawings (A,W,SP,SU) 2-3-3
Reading and interpretation of construction drawings and project manuals as related to residential, commercial, and industrial construction projects. Interpretation of the relationship between plans, elevations, sections, details, and the coordination of these drawings with materials specifications. The use of basic construction math will be explained along with the interpretation of construction terms and symbols. The Dodge SCAN microfilm readers and Sweets catalogues will be used in this course. Lab fee: \$15.00. Prerequisite: 1106 or 1145 concurrent.

5075 Construction Contract Documents (A,W,SP,SU) 2-3-3
Intensive study of all documents related to a project with emphasis on the important legal aspects of each, and the role of the contractor in the project. Lab fee: \$7.00.

5076 Construction Quantity Survey (A,W,SP,SU) 1-4-3
Development of the use of construction math relative to linear, square and cubic measures of common construction materials. The computation and organization of basic material quantities used in a typical building construction project including the site preparation. Lab fee: \$15.00. Prerequisites: 5074 and 1145

5077 Supervising Field Operations (W,SP) 2-3-3
An overview of the principles of field supervision which includes leadership skill, problem solving, motivation techniques, problem solving processes, communication methods and useful supervisory aids for construction projects. Lab fee: \$7.00.

5078 Building Layout & Measurement (A,W,SP,SU) 2-6-4
A comprehensive study of the techniques and procedures utilized to locate, measure and check construction components for both new and existing buildings and related structures. Development of hands-on skills using the tools and survey equipment in construction simulated application exercises. Utilization of contract documents as sources of information for layout and measurement of projects as well as the documentation techniques used to record field activities. Lab fee: \$25.00. Prerequisites: 1111 or 1146 and 5074

5079 Heavy Construction Estimating (A,W,SP,SU) 2-3-3
Development of topics such as material price extensions, equipment fleet analysis and computer simulation using the CAT VEHSIM software, as related to highway/heavy construction equipment owning and operating costs. Lab fee: \$15.00. Prerequisites: 5076, 5215, and 5222

5082 Heavy Construction Layout & Measurement (A,W,SP,SU) 2-6-4
A comprehensive study of the techniques and procedures, building on those skills learned in 5078 and utilized to locate, measure, and check construction components for both new and existing highways and public works structures. Development of hands-on skills by using the tools and survey equipment in construction simulated application exercises. Utilization of contract documents as sources of information for layout and measurement of projects as well as the documentation techniques used to record field activities. Lab fee: \$25.00. Prerequisites: 1111 or 1146 and 5215

5083 Building Estimating (A,W,SP,SU) 2-3-3
Development of topics such as material price extensions, equipment requirements, labor requirements, and time requirements as related to building construction projects. Lab fee: \$15.00. Prerequisites: 5074, 5234 and 5076

5084 Construction CAD Drafting (W,SU) 1-5-3
This course is an entry level computer aided drafting class. The class will utilize Auto CAD version 10 in stand-alone PC exercises using methods of orthographic drawing generation and dimensioning. After mastering system basics, students will be given individual projects related to their profession. Lab fee: \$12.00.

5085 Construction CAD Drafting II 2-3-3
This course will build on 5084 Auto CAD Drafting skills to increase speed by learning higher level edit commands, polyline application techniques and customized library modules. These exercises will be offered as PC stand-alone projects using Auto CAD version 10. Lab fee: \$12.00. Prerequisite: 5084

Construction Management Technology

5202 Managing a Construction Company (A,W,SP) 2-3-3
An overview of the operations of a construction firm with a simulation of the management process by student teams demonstrating skills and competencies required. Lab fee: \$3.00.

5203 Construction Financial Management (SP) 2-3-3
A review of the records required and the methods of producing these records as applied to the medium size contracting firm. The course summarizes the financial records required for operating and government reporting. Lab fee: \$5.00. Prerequisite: 5202

5204 Construction Project Financing (SU) 2-3-3
This course will study the methods of financing commercial construction projects, preparation and presentation of proposals and computer exercises in typical software used to prepare construction project proposals. Prerequisites: 5203, 5241 and 5261

5215 Heavy Construction Drawings (A,W,SP) 2-3-3
Reading and interpretation of construction drawings as related to highway and public works construction projects. Interpretation of the relationships of plans, elevations, sections and

details, and the coordination with published specifications. A basic method of material quantity take-off will be explained. Lab fee: \$8.00.

5222 Heavy Construction Methods (W,SP) 2-3-3
A study of methods used to build horizontal projects, such as highways, dams, airports, bridges and utility lines. The various pieces of equipment and materials used in these type projects will be explained as well as the processes used. Lab fee: \$8.00.

5234 Building Construction Methods (A,W,SP,SU) 2-3-3
A study of the methods used in work-site preparation, materials handling systems, assembly of construction materials and systems as related to building projects such as offices, schools, stores, industrial buildings and hospitals, along with the strategies employed to control and coordinate these activities.

5235 Construction Work Experience (SU) 0-40-4
Off-campus work experience in construction, consulting engineering or construction related paid employment, that augments formal education received in the technology, with actual work conditions and job experience. "N" credit will not be allowed for this course. Lab fee: \$15.00. Prerequisites: 5236 and permission of instructor

5236 Work Experience Seminar (SP) 1-0-1
This class will prepare the student to work as a co-op student in a construction related position. Resumes, interviews, and job preparation will be discussed. The student taking this class should have been a student in one of the construction engineering technology programs for at least two previous quarters. Lab fee: \$2.00.

5241 Planning and Scheduling (A,SU) 2-3-3
A study of project control and coordination through systematic planning and scheduling, including operational adjustments for resource changes and alterations. Computer computation of critical path methods and analysis. Lab fee: \$9.00. Prerequisite: 5222 or 5234

5242 Safety and Loss Prevention (A,W,SP,SU) 2-3-3
Identification of work hazards and unsafe practices, safety codes and standards, safety programs and training with the role of O.S.H.A. and insurance companies in safety programs. Basic first aid and CPR are included. How to develop theft reduction programs with the cooperation of local law enforcement departments and insurance companies will also be studied. Lab fee: \$11.00. Prerequisites: 5222 or 5234

5244 Marketing Construction Services (SP,W) 2-3-3
Application of data analysis principles to the area of finding business projects. Contract negotiation, financial and contract packaging, along with the study of techniques of written and oral communications will be developed to include recording on-site activities to prospective clients. Lab fee: \$9.00. Prerequisites: 5222 and 5234

5245 Construction Bidding Strategies (A,W) 2-3-3
Extended study of how bids should be analyzed, how overhead and profit can be calculated, how to determine the financial objectives, and how to analyze the competition based upon market analysis and past bid figures. Lab fee: \$11.00. Prerequisite: 5079 or 5083

5251 Construction Cost Controls (A,W) 2-3-3
Methods and techniques of cost analysis used to develop skills in controlling construction computer computation of costs, budgets, and related critical path analysis and adjustment, operating costs and cost forecasting of completed production. Lab fee: \$9.00. Prerequisite: 5241

5252 Construction Contract Law (A,W) 2-3-3
Analysis of the special conditions of construction law as applied to contractual on-site conditions, document usage, negotiations of disputes, change orders and master contracts. Lab fee: \$2.00. Prerequisites: 5075 and 5253

5253 Construction Labor Law (A,SU) 2-3-3
Investigation of the legal areas of labor contracts, project contracts, NLRB regulations, insurance requirements, fringe benefit collection, dispute resolution, arbitration and litigation as related to construction labor disputes. Lab fee: \$5.00. Prerequisite: 5075

5254 Construction Quality Control (W) 2-3-3
A study of the techniques and methodology used in controlling quality on the construction job, including record keeping and inspection techniques. Lab fee: \$3.00. Prerequisites: 5234 and 5222

5261 Project Management (SP,W) 2-3-3
Tracking a project through a construction firm which includes job start, control assignments, control structures, organization, and move-out phases of the construction project. Computer simulation of project activities and management processes. Lab fee: \$5.00. Prerequisite: 5251

5262 Construction Productivity Analysis (SP,W) 2-3-3
Developing and testing methods of productivity from analysis of project histories, equipment analysis, and manpower utilization studies. Timelapse photography will be utilized for data documentation of various methods of analysis. Lab fee: \$7.00 Prerequisites: 5234 and 5222

5263 Construction Disputes/Claims (SP,W) 2-3-3
A study of the techniques of identification, negotiation and resolving contract disputes, along with formal methods of resolving construction claims. Lab fee: \$2.00. Prerequisite: 5252

5274 Residential Construction (A,SU) 2-3-3
The basic construction of a single family residence from the ground up, emphasizing construction methods, equipment used, structural design theory, materials and terminology. Lab fee: \$3.00.

Dental Laboratory Technology

8108 Dental Materials I (A)	3-0-3
This course involves a comprehensive study of the chemical and physical properties of materials used by the dental technician.	
8109 Dental Materials II (W)	2-0-2
This course is a continuation of the study of materials introduced in 8108. Prerequisite: 8108 or permission of instructor.	
8121 Complete Dentures I (A)	1-6-3
This course involves an introduction to complete dentures and includes a study of the procedures from preliminary impressions through wax contouring, with special emphasis upon artificial tooth arrangement.	
8122 Complete Dentures II (W)	1-3-2
This course is a continuation of the study of complete dentures and includes procedural material from flasking through patient remount and occlusal adjustments. Prerequisite: 8121 or permission of instructor. Lab fee: \$50.00.	
8123 Complete Dentures III (SP)	1-6-3
This course involves a study of procedures required to solve specific postinsertion problems, e.g. repair, rebase, and reline. In addition, the student is introduced to the immediate denture technique. Lab fee: \$50.00. Prerequisite: 8122 or permission of instructor.	
8124 Complete Dentures IV (SU)	1-3-2
In this course, the student will fabricate an overdenture and will concentrate upon characterization of complete dentures. Lab fee: \$50.00. Prerequisite: 8123 or permission of instructor.	
8125 Dental Morphology and Anatomy (A)	2-3-3
This course provides the student with an introduction to the masticatory system. The student will be exposed to the significant structures and landmarks of the oral cavity, with extensive study of the permanent dentition. Lab fee: \$50.00.	
8132 Occlusion (W)	1-6-3
This course will entail a study of occlusal morphology, the temporomandibular joint and mandibular movements. Prerequisite: 8125 or permission of instructor.	
8142 Removable Partial Dentures I (W)	1-6-3
This course is a basic study of removable partial dentures, and presents principles such as survey, design, and fabrication. Prerequisite: 8121 or permission of instructor.	
8143 Removable Partial Dentures II (SP)	1-3-2
This course will involve an intensification of the study of survey, design and fabrication of removable partial dentures. Prerequisite: 8142 or permission of instructor.	
8144 Removable Partial Dentures III (SU)	1-6-3
During this course, the student will apply acquired knowledge and skills by fabrication of removable partial dentures. The didactic portion will encompass the specialized designs such as stressbreakers, precision attachments and the RPI technique. Prerequisite: 8143 or permission of instructor.	
8153 Fixed Partial Dentures I (SP)	1-6-3
This course will introduce the student to the fixed appliance. The content will be limited to the single unit crown. Prerequisite: 8132 or permission of instructor.	
8154 Fixed Partial Dentures II (SU)	1-6-3
This course is designed to extend the students' experiences in construction of fixed appliances and will contain material related to fixed partial denture assembly for soldering. Prerequisite: 8153 or permission of instructor.	
8155 Fixed Partial Dentures III (A)	1-6-3
This course will extend the students' experiences in fixed partial dentures construction by introducing the acrylic veneer, resin crown, and soldering techniques. Lab fee: \$50.00. Prerequisite: 8154 or permission of instructor.	
8156 Fixed Partial Dentures IV (W)	2-6-4
This course will involve a study of fixed partial denture cases and procedures not covered previously. The student will study precision attachments, temporary appliances, and die-lok trays. In addition, the student will fabricate a crown for an abutment tooth of an existing removable partial denture. Lab fee: \$50.00. Prerequisite: 8155 or permission of instructor.	
8164 History and Ethics (SU)	2-0-2
This course deals with the history of dental technology and its effect upon dentistry. In addition, the course will explore current problems and situations a dental technician must cope with. Prerequisite: 8123 or permission of instructor.	
8175 Dental Ceramics I (A)	1-6-3
This course is an introduction to dental ceramics and will involve a study and construction of porcelain fused to metal restorations. Prerequisite: 8154 or permission of instructor.	
8176 Dental Ceramics II (W)	2-6-4
This course will entail a continuation of the study of porcelain fused to metal restorations and will introduce the porcelain jacket crown for study. Prerequisite: 8175 or permission of instructor.	
8185 Othodontics and Pedodontics (SU)	1-3-2
This course will entail a basic introduction to the laboratory skills necessary to provide services in the areas of orthodontics and pedodontics. Prerequisite: 8143 or permission of instructor.	

8196 Applied Laboratory I (W)	0-8-3
This course consists of laboratory and is intended to stimulate a working laboratory. The student will fabricate fixed and removable appliances. Prerequisites: 8124 and 8155 or permission of instructor.	
8197 Applied Laboratory II (SP)	0-20-7
This course consists entirely of laboratory and is intended to stimulate a working laboratory situation with regard to work schedules, case flow, and coping with real problems. Lab fee: \$50.00. Prerequisite: 8196 or permission of instructor.	

Developmental Education Department

1811 Reading Improvement (S,A,W,SP)	4-0-4
A course designed for students to improve reading comprehension and develop word recognition skills. 1811 is not open to students with credit for 1812. Lab fee: \$5.00.	
1812 Reading and Study Skills (S,A,W,SP)	3-0-3
For development of reading speed, comprehension and study skills to become more effective students. Skills such as taking tests, skimming, concentration, time management, and notetaking are included in the course. Lab fee: \$6.00.	
1813 Critical Analysis in Reading	3-0-3
A continuation in reading of such skill areas as forming concepts, asking questions, identifying issues and conclusions, identifying the reasoning process and errors in reasoning, locating ambiguous words and phrases, identifying value conflicts and assumptions, judging the worth of opinions, reading journal articles, and writing a summary. Lab fee: \$5.00.	
1823 Spelling and Vocabulary (S,A,W,SP)	2-0-2
For development of spelling skills through the use of phonics, personal word lists and basic spelling rules. Lab fee: \$4.00.	
1831 Writing Skills (S,A,W,SP)	4-2-5
For development of basic writing skills to include grammar review and sentence structure procedures. A variety of individualized approaches will be used. 1831 is not open to students with credit for 1001. Lab fee: \$6.00.	
1841 Arithmetic Skills (SP,A,W,S)	4-0-4
For development of basic arithmetic skills which includes addition, subtraction, multiplication, and division of whole numbers, fractions and decimals. It will also include ratios, proportions, and percentages. A modular approach will be used for each topic. 1841 is not open to students with credit for 1105 or 1131. Lab fee: \$6.00.	
1842 Pre-algebra (A,W,SP,SU)	4-0-4
This course will give a review of fractions and decimals and the basic pre-algebra skills to students who have not had algebra before. 1842 is not open to students with credit for 1105. May not be taken with 1841. Lab fee: \$6.00.	
1881 Career Life Planning (A,W,SP)	3-0-3
A course designed to help the individual student to identify and examine his/her abilities, interests, values, personality and financial means relative to education and career choices. Lab fee: \$10.00.	
1883 College Success Skills (A,W,SP)	2-0-2
An orientation to the college emphasizing its purpose, programs and services. Basic "survival" skill such as "how to study", test taking, note-taking, library skills, and time management will be detailed towards the development of skills for academic success. Lab fee: \$5.00.	

Early Childhood Development Technology

7441 Overview and Portfolio Building (A,W,SP,SU)	3-0-3
The main focus of this course is the development of a portfolio that satisfies one of the requirements for the National Child Development Associate Credential (CDA). Preparatory to portfolio development the student is familiarized with the Early Childhood program at Columbus State and CDA credentialing process. The CDA approach to child development provides the philosophical base for portfolio development. Prerequisites: Minimum of one year working directly with a group of children/currently employed in an early childhood program/permission of instructor. Lab fee: \$20.00. Concurrents: 7461 and 7471	
7442 Cognitive Curriculum (SP)	3-0-3
Theoretical foundations for the child's cognitive development. Techniques for promoting concept development as well as focus on science, math and readiness skills in both indoor and outdoor program. Emphasis on planning activities which encourage questioning, probing, and problem-solving skills appropriate to individual developmental level and learning style. Also includes effects and use of T.V., microcomputers and audio-visual equipment in settings for young children. Lab fee: \$20.00. Prerequisite: 1534. Concurrents: 7463 and 7473	
7443 Creative Curriculum (A)	3-0-3
Course deals with the principles of creativity and its importance in the life of the young child. Focus is on the sequence of development in child's use of creative materials. Techniques for	

creative arts and music will be explored, demonstrated and implemented. Students will develop materials, objectives and activities in these areas. Lab fee: \$20.00. Concurrents: 7464 and 7474

7444 Self-Concept (A) 3-0-3
Focuses on individualizing an early childhood program to meet the needs of children in a manner which develops a positive self-image and individual strength. Explores impact of teacher's self-image, values and attitudes on preschool classroom. Includes dimensions of self, antecedents of self-concept, relationship of feelings to self-concept, and teaching to foster self-esteem. Includes observation and recording of behavior. Examines variety of crises in lives of children and offers suggestions that teachers/families might use to cope in given situations. Lab fee: \$20.00. Concurrents: 7461 and 7471

7445 Managing Children in Groups (W) 3-0-3
Focuses on basic guidance techniques to facilitate classroom management and limit-setting. Emphasizes developing goals and objectives as basis for program. Includes preschool curriculum planning and appropriate child care experiences for infants and toddlers. Deals with the organization of time and space as it impacts on group living. Lab fee: \$20.00. Prerequisite: 7444. Concurrents: 7462 and 7472

7446 Parent Involvement - Early Childhood Programs (W) 3-0-3
Instruction, training and experience in working effectively with parents of young children. Proficiency in involving parents in the child care center according to how they view their parenting role, their cultural heritage and skills they have from their workplace. Emphasis is on active participation of parent in the early childhood program. Lab fee: \$20.00. Prerequisites: 7445, minimum one year working directly with children or permission of instructor. Concurrents: 7465 and 7475

7447 Child Care Administration (W,SU) 3-0-3
This course deals with the supervisory roles required to administer a program for young children. Focus is on planning for the child, the program, the staff, the parents and community involvement. Establishing and maintaining sound fiscal practices are given special emphasis. Includes legal requirements and responsibilities of Ohio licensing procedures. Lab fee: \$20.00. Prerequisites: Minimum of one year working in ECD setting/permission of instructor. Concurrents: 7465 and 7475

7448 Physical Development Curriculum (SP) 3-0-3
Theoretical foundations for the child's physical and motor development. Includes assessing individual child's motor skills, sequence for the development of motor skills, perceptual-motor development, as well as implementing small and large motor activities in both the indoor and the outdoor setting. Health and safety education activities are also included. Lab fee: \$20.00. Concurrents: 7463 and 7473

7449 Health and Safety (A,W,SP,SU) 3-0-3
Course gives training and practice in first aid, in the recognition and management of communicable diseases, and in child abuse recognition and prevention. Meets requirements of Ohio Child Day Care Licensing Rules and Regulations for staffs in early childhood settings. Lab fee: \$20.00

7451 Language Experiences in Early Childhood Programs (W,SU) 3-0-3
Theories and sequence of speech/language development; differentiating between normal and atypical language. Focus is on teacher as facilitator of communication skill development; planning and implementing language arts activities; selecting and using literature to enhance language development, providing emotional support and stimulating interest in books. Includes reading readiness in terms of the play curriculum. Lab fee: \$20.00. Concurrents: 7462 and 7472

7452 Social Development Curriculum (A) 3-0-3
Emphasis is placed on social development, encouraging children to work together, sharing both experiences and responsibilities in a social atmosphere where children may express both positive and negative feelings. Key issues include sex stereotyping, prejudice, importance of family patterns and backgrounds and the implications of play theory in programming for social development. Lab fee: \$20.00. Prerequisite: 7444. Concurrents: 7464 and 7474

7453 Guidance and Discipline in Early Childhood Programs (SP) 3-0-3
In-depth study of guidance and social learning theories. Focus is on resolving problem situations, changing behavior and development of moral reasoning. Includes helping children cope with stress and adapting play therapy techniques for preschool living. Teaching strategies for working with special needs children in the preschool program are also covered. Lab fee: \$20.00. Prerequisites: 7444 and 7445. Concurrents: 7467 and 7477 or 7466 and 7476.

7454 Early Childhood Staff (W) 3-0-3
In-depth study of the dynamics of staff interaction in a setting for young children. Focus includes personnel rights and responsibilities, ethical implications of teaching, team-functioning, problem-solving, communication skills, professional growth and development, the evaluation process, as well as traditions and trends in the field. Lab fee: \$20.00. Prerequisites: 7444, 7445 and minimum of one year working in an ECD program or currently employed in the field or permission of instructor. Concurrents: 7465 and 7475

7461-7466 ECD Seminars I-VI (A,W,SP,SU) 1-0-1
Group discussion of experience arising during ECD field placement; integration of theory and practice. These run concurrently with specific courses as noted in course descriptions. Seminars focus on observing and recording, the basic principles of guidance, and application of classroom studies in field.

7467 Student Teaching Seminar (SP,SU) 2-0-2
Students have opportunity to discuss their interaction with young children, staff, and parents in early childhood setting. Analyze the components in the learning environment, and their inter-relationships in programs for young children and families. Learn to promote the integration of theory and practice as it relates to topics such as quality programming, guidance,

nutrition, health and safety. Lab fee: \$25.00. Prerequisites: 7442, 7443, 7444, 7445, 7446, 7448, 7449, 7451, 7452, 74XX, 7461-65 and 7471-75. Concurrent: 7477

7471-7476 ECD Field Experiences I-VI (A,W,SP,SU) 0-7-1
These courses are a vital part of the ECD program, providing students with the opportunity to apply theory and practice under the guidance of early childhood professionals. These professionals guide and assist in the evaluation of student performance. Lab fee: \$15.00.

7477 Student Teaching Practicum (SP,SU) 0-21-3
Provide students with opportunities to develop skills in working with young children (individually and in groups), and to integrate theories of child development with teaching practice. Students will work in assigned classrooms five days a week for a total of 21 hours weekly. Lab fee: \$30.00. Prerequisites: 7442, 7443, 7444, 7445, 7446, 7448, 7449, 7451, 7452, 74xx, 7461-65 and 7471-75.

Economics

See Social and Behavioral Sciences

Electro-Mechanical Engineering Technology

For other related course descriptions, see Electronic Engineering Technology and Mechanical Engineering Technology.

4907 Motors and Controls (W) 2-3-3
A study of the basic elements of AC and DC motors, how they are used in industry, and how to select them for different purposes. Students learn about speed and torque requirements, and how to calculate a motor's horsepower and efficiency. Students construct power and control circuits, and analyze and diagnose them for problems. Lab fee: \$12.00. Prerequisite: 4221 or permission of instructor.

4908 Electro-Mechanical Controls I (W) 3-3-4
An introduction to the basic interface circuitry used in electro-mechanical controls. Students learn how to use semiconductors in control devices, transducers, stepper motors, servo mechanisms, analog-to-digital converters, digital-to-analog converters, and programmable controllers. Lab fee: \$12.00. Prerequisite: 4222 or permission of instructor.

4909 Electro-Mechanical Controls II (SP) 3-3-4
The course presents an integrative approach to the use of electro-mechanical controls and how they apply to typical industrial situations. Students learn ways to analyze what controls are needed and how to fit them to the technical requirements of the situation. Lab fee: \$10.00. Prerequisite: 4908

Electronic Engineering Technology

4201 Electronic Drafting (A,W,SP,SU) 1-2-2
An introductory drawing course incorporating the use of instruments, instructions, and practice to produce quality schematics and pictorial diagrams using lettering, electronic, and electrical symbols. The student will be given an introduction to computer-aided drafting (CAD).

4211 Direct Current Fundamentals (A,W,SP,SU) 4-0-4
An introduction to direct current fundamentals, electron physics, current and voltage, work, power, series and parallel resistances, network theorems, electrical measurement devices, circuit analysis. Microcomputers are introduced and used for problem-solving. Prerequisites: 1106 or placement into 1111. Concurrents: 4261 and 1111

4212 Alternating Current Fundamentals (A,W,SP,SU) 4-0-4
A detailed study of the principles of time varying electrical current and voltage relationships. The course includes an intensive application of vector analysis as applied to AC circuits, power applications, and the resonance phenomenon. Computer solutions are stressed when appropriate. Prerequisites: 4211 and 4261. Concurrents: 4262 and 1112

4213 Electronic Devices (A,W,SP,SU) 4-0-4
An in-depth investigation of the operating characteristics of basic active devices. The course is designed to explain the approximate electrical equivalence and circuit analysis of all simple devices to the basic AC, DC models, with sample applications of the most frequently used circuits. Prerequisites: 4262 and 4212. Concurrents: 4263 and 1113

4214 Electronic Devices Circuit Analysis (A,W,SP,SU) 4-0-4
This course covers the concepts of large signal power amplification, small signal voltage amplification of both low and high frequencies, the concepts of negative and positive feedback, integrated circuit (IC) differential and operational amplifiers, and IC voltage regulation with emphasis on circuit analysis techniques. Computer solution of problems is stressed where practical. Prerequisites: 4213 and 4263. Concurrent: 4264

4215 Electronic Communications I (A,W,SP,SU) 4-0-4
The electronics communication course is an introductory systems course utilizing conventional modulation and demodulation theories. Particular emphasis is made on AM, FM, video

circuits. A survey of current trends in digital communication concepts, microwave principles, and fiber optics will be presented. Prerequisites: 4214 and 4264. Concurrent: 4265

4221 Digital Fundamentals (A,W,SP,SU) 2-3-3
An introductory course in digital electronic fundamentals covering number systems, Boolean Algebra, truth tables, Karnaugh maps, basic gates, adders, (latches, flip-flops, and counters). Prerequisite: 4212 or approval of instructor

4222 Digital Devices (A,W,SP,SU) 4-0-4
A continuation of the study of digital electronics covering waveforms, the generation of pulses and study of the related circuitry such as multivibrators, and one shots. More complex and widely used digital devices such as counters, shift registers, memories, and multiplexers are also presented. The basic units of a computer (bus, ALU) are studied. Prerequisite: 4221. Concurrent: 4272

4223 Microprocessors (A,W,SP,SU) 4-0-4
Different building blocks of a microprocessor and their functions are introduced. Methods of data storage and programming of a microprocessor are studied. Use of a microprocessor as a controller and interfacing it to other devices are also studied. A Motorola 6808 microprocessor is used throughout the course. Prerequisite: 4222. Concurrent: 4273

4226 Industrial Electronics (A,W,SP,SU) 4-0-4
A study of measurement and control circuits used in industry. A capstone course which explores the use of microprocessors and programmable logic controllers (PLCs) in control and measurement functions. Prerequisite: 4223. Concurrent: 4276

4231 Electronic Fabrication (A,W,SP,SU) 0-3-1
An introduction to the fabrication of electronic circuits from assembly through testing, to include soldering/desoldering, use of heat sinks, surface mount device technology testing, documentation and repair/replacement of parts. Credit can be earned by taking the course, life experience or proficiency testing. See your advisor for details. Prerequisite: 4222

4232 Digital Communications and Telecommunications (SP,SU) 2-3-3
A study of the techniques, theory and devices used for communication in computer systems, networks and telecommunications. Modulation methods including PCM, MFM, NRZ, NRZI, and synchronous and asynchronous protocols are presented. Network standards such as token ring, ALOHA, Ethernet and LAN protocols are examined. This course also includes study of devices such as UARTS, MODEMS and CODECS as applied to the subject. Prerequisites: 4215 and 4223

4233 Electronic Work Experience (SU) 0-40-2
Off-campus work experience in the field of Electronic Engineering Technology. This experience may be in electronic service, manufacturing, or other facet of the electronic industry, except sales. The experience must be as a paid employee. "N" credit for past experience will not be granted for this course. Prerequisites: 4212 and 5236 and/or permission of instructor.

4236 Microwave and Radar (W,SP) 3-2-3
An introduction to microwave electronics and the application of microwaves to radar components and systems. Prerequisite: 4215

4245 Calculus for Electronics (A,W,SP,SU) 5-0-5
Practical application of differential calculus to electronics. Rates, limits, derivatives, differentials and differentiators, higher derivatives, maxima/minima, integrals and integrators, definite integrals, trigonometric and logarithmic functions, series and an introduction to differential equations. Personal computers and graphical methods will be used for problem solutions where appropriate. Prerequisite: 1113 or 1114

4246 Automatic Control (SP,SU) 1-2-2
This course gives an introduction to using automatic controls in the solution of engineering type electrical and mechanical problems. Analog computers are used to provide an introduction to differential equations in the solution of transient response problems. Prerequisite: 4245

4261 DC Laboratory (A,W,SP,SU) 0-6-2
This is an introductory course in the use of power supplies and measurement equipment commonly found in laboratories and industrial situations. The student will gain hands-on experience in the use of these equipments. A lab manual is used by the students as an aid to standardization of notation, reference data, and student reporting throughout the course. Concurrent: 4211

4262 Alternating Current Laboratory (A,W,SP,SU) 0-6-2
Laboratory study of signal sources, oscilloscopes, reactance, inductance, AC networks, transformers and filter circuits. Prerequisites: 4211 and 4261. Concurrent: 4262

4263 Electronic Devices Laboratory (A,W,SP,SU) 0-6-2
The lab exercises in this course closely follow the 4213 lecture theory for reinforcement of his/her learning through experimentation and theoretical verification of results. All lab exercises use modern devices, planned experiments and industrial standard equipment. Prerequisites: 4212 and 4262. Concurrent: 4213

4264 Electronic Devices Circuit Analysis Lab (A,W,SP,SU) 0-6-2
This course is designed to compliment 4214 by providing physical involvement with the various circuits studied therein. The student will construct the circuits presented in lecture, measure their parameters and compare experimental results with those computed from theory. Prerequisites: 4213 and 4263. Concurrent: 4214

4265 Communications I Laboratory (A,W,SP,SU) 0-6-2
Laboratory study of modern discrete, integrated circuit and modular circuit configurations to fabricate systems in AM, SSB, FM, video circuits and phase lock loop and pulse modulation. Prerequisite: 4264. Concurrent: 4215

4272 Digital Devices Laboratory (A,W,SP,SU) 0-6-2
This lab course, concurrent with the lecture course 4222, gives the student an opportunity to learn and design complex and widely used digital devices. Switching and wave shaping circuits are built using IC chips. Different devices which are used in building blocks of a computer are introduced and used in experiments. Prerequisite: 4221. Concurrent: 4222

4273 Microprocessor Lab (A,W,SP,SU) 0-6-2
This lab course is the practical version of the concurrent lecture course 4223. Different blocks of a microprocessor studied in lecture are used and experimented on in the lab course. Along with each lab, programming methods for different blocks of the microprocessor are introduced. The practical aspects of using the microprocessor as a controller for other devices are also explored. A 6808 microprocessor is used. Prerequisite: 4222. Concurrent: 4223

4276 Industrial Laboratory (A,W,SP,SU) 0-6-2
Paralleling the development of topics in 4226, this course permits student evaluation of theoretical predictions pertaining to industrial systems and their control. Prerequisite: 4273. Concurrent: 4226

4281 Basic Electricity (A,W,SP) 2-3-3
An introductory electrical applications course covering basic direct and alternating current concepts, measurements, circuit analysis, magnetism, electrical energy sources, and electrical energy conversion. This course is not required for students in the Electronic Engineering Technology. Prerequisite: 1106 or 1146

4282 Electronics and Digital Fundamentals (W,SP,SU) 2-3-3
An introductory electronics and digital fundamentals course. Course content covers electronic basics, diodes, transistors, electronic power supplies, amplification, power control, and basic digital logic devices and systems. Circuit applications of electronic and digital devices are stressed. This course is not required for students in the Electronic Engineering Technology. Prerequisite: 4281

4284 CAD/Electronics (W,SP,SU) 1-2-2
A follow-up to 4201, this technical elective course will familiarize the student with the concept of computer aided drafting (CAD) systems as used by drafters in the electronics industry. Emphasis will be placed on the OrCAD TM system. A limited number of seats are available to students from outside the technology. Prerequisite: 4201 or permission of the instructor

4286 Computer Maintenance (A,W,SP,SU) 0-6-2
A hands-on laboratory course where students troubleshoot the printer, monitor, disk drive, and CPU of an IBM-PC by means of troubleshooting flowcharts. Recommended for students planning to go into field service positions. A limited number of seats are available to students from outside the technology. Prerequisite: 4213 or permission of the instructor

4287 Fiber Optic Communications (SP,SU) 2-3-3
This is an introductory course on fiber optics. In it, various types of light sources, connectors, optics, fiber wave guides, detectors and distribution systems will be investigated, and the student will learn by laboratory experiment of the problems created by misalignment, attenuation, and lossy connectorization. Practical testing of fiber optic links using light sources and power meters will also be emphasized. Eye safety when working with dangerous power levels will be stressed. Prerequisites: 4221 and 4215

4288 Electric Power Technology (A,W) 3-0-3
An introductory course covering three phase circuits, transformers, induction and synchronous machines, power generation, transmission lines, distribution networks and substations. Prerequisite: 4212 or permission of the instructor.

4291 Special Subject in Electronics I (On Demand) 0-0-1

4292 Special Subject in Electronics II (On Demand) 0-0-2
Special subjects in electronics are courses designed to meet the needs of the constantly changing electronics industry. Typical subject areas may include instrumentation, lasers, avionics, biomedical equipment, and electromechanical.

4293 National Electrical Code (A,W) 3-3-4
This course gives a brief description of each National Electrical Code article and discuss how to reference information in the code. Changes from the previous code and sample calculations are also covered. Not required for students in the Electronic Engineering Technology.

Emergency Medical Services

8301 Emergency Victim Care (A,W,SP,SU) 4-6-6
This course provides a first phase of training in the career structure of the Emergency Medical Technician (EMT); the course covers all the knowledge and skills required for the state certification examination. Lab fee: \$20.00.

8305 EMT-Paramedic I (W,SU) 4-2-5
This course encompasses the training of the paramedic in the areas of their role, triage and assessment of victims, care of the victim in the areas of shock, respiratory system, intravenous therapy, as well as principles of communications and telemetry. Lab fee: \$60.00. Prerequisites: 8301 and program acceptance. Concurrents: 8313 and 8361

8306 EMT-Paramedic II (A,SP) 4-2-5
This course encompasses the training of the paramedic in the areas of: the evaluation and care of the cardiovascular system, specific medical situations, and emotional emergencies. Lab fee: \$30.00. Prerequisite: 8305. Concurrents: 8314 and 8362

8307 EMT-P III (W,SU) 4-2-5
This course encompasses the training of the paramedic in the areas of: central nervous system, musculoskeletal system, soft tissue injuries, obstetric and gynecologic emergencies, neonatal and pediatric emergencies, and rescue. Lab fee: \$30.00. Prerequisite: 8306. Concurrents: 8315 and 8363

8308 EMT-P IV (SP,A) 4-2-5
This course encompasses the training of the paramedic in the areas of: trauma life support and major incident response, and the continuation of training in ob/gyn/neonatal, behavioral emergencies and rescue. Lab fee: \$30.00. Prerequisite: 8307. Concurrents: 8316 and 8364

8309 Crash Injury Management, First Responder (A) 1-3-2
This course is designed to teach the person (public safety officer or other), who arrives first at the scene of an accident, proper life saving procedures, in terms of emergency victim care, the first responder will provide what is needed until qualified emergency medical technicians arrive. Lab fee: \$5.00.

8311 Advanced EMT-A (A,W,SP,SU) 3-3-4
In depth study of patient assessment, shock physiology, fluid and intravenous therapy is the direction of this course, and covers the knowledge and skills required to take the state certification exam. Lab fee: \$43.00. Prerequisite: State Certified EMT-A

8313 Hospital Clinical I (W,SU) 0-6-2
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8305. Concurrents: 8305 and 8361

8314 Hospital Clinical II (A,SP) 0-6-2
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8306. Prerequisite: 8313. Concurrents: 8306 and 8362

8315 Hospital Clinical III (W,SU) 0-6-2
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8307. Prerequisite: 8314. Concurrents: 8307 and 8363

8316 Hospital Clinical IV (A,SP) 0-6-2
Hospital clinical, observation and supervised experience, encompassing the didactic areas covered in 8308. Prerequisite: 8315. Concurrents: 8308 and 8364

8324 River Rescue (SU 1st Term) 2-2-3
This course deals with rescuing victims from the water. It will include, but not be limited to, self-rescue, rescue from shore, boat assisted rescues, rescue from boats and repelling. Lab fee: \$5.00. Prerequisite: Intermediate swimmer

8325 Advanced Rescue (SU 2nd Term) 3-2-4
This course deals with getting the EMT to an entrapped victim and removing the victim from the entrapment. Special rescue techniques will be covered in the areas of: vehicle, fire, building, farm, water, wilderness and electrical. Lab fee: \$15.00.

8326 E.M.S. Systems (A) 3-0-3
This course deals with the history, development, organization, funding, and control of EMS. It will involve the student in planning and coordination of an EMS system.

8334 Legal Principles for E.M.T. (A) 2-0-2
This course encompasses the laws and regulations which govern EMTs and their actions. The course also deals with the rights of the patient and professionalism of the EMT.

8344 Emergency Psychiatric Intervention (W) 2-2-3
This course deals with the EMT's approach to victims exhibiting abnormal behavior and provides an in-depth look into methods of evaluation and management of these people.

8351 Special Topics for Paramedics (SU) 0-0-3
In this course, the paramedic will be required to develop and present an in-depth study in an area of their individual interest.

8354 Disaster Aid (SP) 3-0-3
This course will familiarize the EMT with disaster planning, community needs assessment, organization and control of a community disaster plan, and in developing testing procedures for this plan.

8355 Public Health Education (W) 3-0-3
This course will involve the paramedic in the role of public health educator from needs assessment, organizations involved to implementation; the student will be required to do some practical public health education.

8356 Handling Hazardous Materials Situations (SU) 3-2-4
This course encompasses the safety factors and care the paramedic must consider when dealing with victims exposed to hazardous materials, (i.e., toxic fumes, radioactive materials, electrical, explosive and flammable materials).

8357 Pediatrics for the Paramedic (W) 2-0-2
This course involves the paramedic in detailed evaluation and treatments specific to the pediatric patient. Included in the course format are the differences in approach, assessment, physical and psychological activities as compared with the adult. Prerequisite: 8305

8358 Emergency Medical Services Dispatcher (SP) 2-1-2
The EMS dispatcher course is designed to prepare EMS dispatcher personnel to operate a telecommunication base station for the purpose of receiving requests for emergency medical services and allocating community resources in response to such request. Lab fee: \$3.00.

8361 Vehicle Clinical I (W,SU) 0-5-1
Vehicle clinical, observation and experience. Concurrents: 8305 and 8313

8362 Vehicle Clinical II (A,SP) 0-5-1
Vehicle clinical, observation and experience. Prerequisites: 8305, 8313 and 8361. Concurrents: 8306 and 8314

8363 Vehicle Clinical III (W,SU) 0-5-1
Vehicle clinical, observation and experience. Prerequisites: 8306, 8314, and 8362. Concurrents: 8307 and 8315

8364 Vehicle Clinical IV (A,SP) 0-5-1
Vehicle clinical, observation and experience. Prerequisites: 8307, 8315 and 8363. Concurrents: 8308 and 8316

Financial Management Technology

2802 Personal Finance (A,W,SP,SU) 4-0-4
This course presents a lifetime program of money management for the individual. Such topics as: budgets, savings, job search, buying a house, insurance, mutual funds, stock market, real estate investments, taxes, and estate planning, are covered. Students will develop and write a basic personal financial plan. Lab fee: \$3.00. Prerequisite: 1131

2803 Money and Banking (A,SP) 5-0-5
A study of the operation, organization, and economics of U.S. monetary and banking systems. Current trends and problems are also covered. Lab fee: \$2.00.

2806 Principles of Banking (+) 4-0-4
Presents the fundamentals of bank functions in a descriptive fashion so that the beginning banker may acquire a broad and operational perspective. Banking is increasingly dependent upon personnel who have the broad perspective so necessary for career advancement.

2809 Bank Investments (+) 4-0-4
The bank's need for primary reserves and loanable funds limit the funds available for investment. This course describes the nature of such funds and how their uses are determined. It also analyzes the primary and secondary reserve needs of commercial banks, the sources of reserves, their fluctuations, and shows the influence of these factors on investment policy. This analysis is followed by a study of yield changes as they affect a bank's long-term holdings.

2812 Introduction to Commercial Credit 3-0-3
A basic course in commercial credit and collections. Studies will be centered on the establishing of the credit department, nature and function of credit, various types of credit, sources of credit, sources of credit information, analysis of information, factors of risk. This course is offered by the National Association of Credit Management.

2813 Credit Administration (W) 5-0-5
Analytical study of credit control, and management of collections. Topics include; management and analysis of consumer credit, business credit, government credit, and foreign credit.

2816 Advanced Credit Analysis (+) 3-0-3
This course is offered by the National Association of Credit Management and covers both commercial as well as consumer credit administration.

2817 Insurance Principles (A,W) 3-0-3
This course covers the evaluation of the financial impact of risk exposure and how to manage the risk exposure through the intelligent use of insurance products. Topics presented include: nature of risk, insurance contracts, life and health insurance, annuities, property and liability insurance, and government regulation of insurance. Lab fee: \$2.00. Prerequisite: 2802

2819 Finance Research (A,W,SP) 2-0-2
The student receives exposure to current developments in finance and economics through projects and research papers. Lab fee: \$1.00.

2821 Investments (W,SP) 3-0-3
This course examines the investments for the individual with emphasis on stock market. Topics presented include: risk and return trade-offs, sources of investment information, stocks, bonds, mutual funds, options, and tax considerations. Lab fee: \$2.00. Prerequisite: 2802.

2823 Business Finance (A,W,SP,SU) 5-0-5
An introduction to the principles of financial management of private business firms. Topics covered include: financial analysis, financial planning, working capital management, financial leverage, sources of financing, capital budgeting and capital markets. Lab fee: \$3.00. Prerequisites: 3762 and 3763.

2826 Estate Planning (W) 3-0-3
This course covers the procedures to transfer assets at death with the fewest complications, with the fewest taxes, and at the least cost to all parties. Topics presented include: estate taxes, avoiding probate, revocable living trust, gifts, life insurance, annuities, short term trusts, and totten trust. Lab fee: \$2.00. Prerequisite: 2802.

2827 Trust Functions and Services (+) 4-0-4
Presents a complete picture of the services rendered by institutions engaged in trust business as well as providing an introduction to the services and duties involved in trust operations.

2831 Savings and Time Deposits (+) 4-0-4
This course covers the development and current operational methods of saving institutions and/or as well as the administration of savings and time deposits.

2836 International Banking (on Demand) (+) 4-0-4
The course is an introduction for those working in international departments. The objective of this course is to present the basic framework and fundamentals of international banking: how money is transferred from one country to another, how trade is financed, what the international agencies are and how they supplement the work of commercial banks, and how money is changed from one currency to another.

2838 Law and Banking (+) 4-0-4
This course is an introduction to basic U.S. law, presenting the rules of law which impact banking. Topics include jurisprudence, the court system, civil procedure, contracts, quasi-contracts, property, torts, crimes, agencies, partnerships, corporations, sales of personal property, commercial paper, bank deposits, collections documents of title, and secured transactions. The uniform commercial code is also covered.

+These courses are offered by the American Institute of Banking and are open to Columbus State students for credit.

Foreign Languages

See Humanities

French

See Humanities

Geography

See Social and Behavioral Sciences

German

See Humanities

Gerontology Technology

8711 Social Gerontology (A) 3-0-3
This course offers the student an overview of the social, psychological and physical aspects of aging. Visits with a senior friend provide an opportunity to establish a relationship with an older adult. Lab fee: \$2.00. Concurrent or prerequisite: 1002.

8712 Human Services for the Elderly (W) 3-0-3
This course provides the student with an in-depth knowledge of the informal and formal community resource systems. Issues of confidentiality, practice values and ethics, and case management principles will be taught. Lab fee: \$2.00. Prerequisite: 8711

8713 Social Work with the Elderly (SP) 3-0-3
This course integrates material presented in Interview Techniques with the process-action model. The history of social work with the elderly is reviewed. Values and ethical dilemmas concerning the aged are explored. Principles of casework are presented and applied to the aging individual. Aging minorities are studied. Lab fee: \$2.00. Prerequisite: 8711

8714 Social Policy and Aging (A) 3-0-3
This course provides the student with an understanding of the origins of public policy and the legislative process. Major topics covered include available housing alternatives, legal issues, and the financing issues of long term care. Lab fee: \$2.00. Prerequisite: 8711

8715 Activities Programming for the Elderly (W) 4-0-4
The focus of this course is the design and development of activity based therapeutic recreation programs for the elderly. Included are: assessment, documentation, activity development and modification. Lab fee: \$2.00. Prerequisite: 8711

8716 Aging and Mental Health (SP) 3-0-3
This course provides an overview of mental health practice with the elderly. Successful aging is reviewed. The theories as well as the levels and goals of intervention are presented in relationship to functional and organic brain disorders. This course concludes with units exploring death, dying, bereavement, and suicide within the elderly population. Lab fee: \$2.00. Prerequisites: 7523 and 8711

8717 Aging and Physical Health (W) 3-0-3
This course provides the student with an understanding of the interactive effects of biological and psychological aging as they occur simultaneously in the human organism. Also included are the common disease processes associated with aging, and their social and emotional ramifications. General decline in functioning, as well as prevention and wellness issues are addressed. Lab fee: \$2.00. Prerequisites: 1344 and 8711

8721 - 8724 Seminar I, II, III, IV (A,W,SP,SU) 1-0-1
Seminar provides students a forum for discussion of practicum experiences, integration of theory and practice, and discussion of current issues related to the elderly. Lab fee: \$2.00. All Seminars are concurrent with Practicums.

8731 - 8734 Practicum I, II, III, IV (A,W,SP,SU) 0-14-2
Practicum offers the student opportunities to both observe and work with the elderly in supervised agency setting. Lab fee: \$20.00. All Practicums are concurrent with Seminars.

Graphic Communications Technology

2402 Survey Photo Offset (A,W) 2-5-4
A basic study of the technique of the various operations and processes of printing and duplication and their application and impact in the graphic communication industry. Lab fee: \$10.00.

2403 Offset Press Operations (SP,SU) 2-5-4
Techniques of offset press operation, press design, register systems, dampening systems, cylinder preparation and operational procedures. Lab fee: \$10.00.

2404 Printing Production Management (A) 4-0-4
A comprehensive study of printing management, practices and procedures. An analysis of job components, from layout to bindery and shipping department. Lab fee: \$5.00.

2407 Estimating (A) 2-5-4
Principles of estimating and pricing printing. Analysis of specifications, determination of material and use of production data for assigning time to personnel and machines. Theory and practice of cost, determination in the graphic arts industry. Lab fee: \$5.00. Prerequisite: 1131

2408 Photography I (A,W,SP,SU) 2-5-4
An introduction to the principles of continuous tone photography emphasizing the manipulative functions, operative settings, shutter speed and focus control of cameras and enlargers, elements of composition and lighting and applied practice of film development and print processing. Lab fee: \$25.00.

2409 Photography II (W,SU) 2-5-4
Advanced applied still photography of small format (35mm) black and white, with emphasis on problem solving and visual communications. This course exposes the student to more extensive use of lighting, filter, films and printing papers. It is required that each student have a 35mm camera with variable shutter speeds, aperture and light meter. Lab fee: \$25.00. Prerequisite: 2408

2411 Photography III (A,SP) 2-5-4
Advanced and applied techniques in professional photography under studio and location conditions. Main emphasis is placed on lighting, subject treatment and camera manipulation. The student will experience black and white continuous tone photography with medium format cameras. Lab fee: \$25.00. Prerequisite: 2409

2412 Copy Preparation I (W) 2-5-4
An introduction to the function of generating camera-ready art or mechanicals. Lab work will involve single and two-color mechanicals. Lab fee: \$15.00.

2413 Design and Typography (SP) 2-5-4
A study of the theory and practice of design for production of the printed message. The development of efficient procedures in the preparation of roughs and layouts are prepared in the laboratory. Lab fee: \$10.00.

2417 Lithographic Stripping I (W,SU) 2-5-4
A study of stripping operations. The assembly of photographic film for sequence and position. Preparation of masks, screens, surprints and reverses. Proofing system, contacting and duplicating film. Lab fee: \$25.00.

2423 Printing Papers (SP) 3-0-3
A study of the manufacture and selection of paper used in printing operations; sizes, colors, characteristics, limitations and purchase of printing papers are covered.

2432 Copy Preparation II (SU) 2-4-4
An intensive study of techniques and procedures used in the preparation of mechanicals involving art assembly, close register, multiple colors, reverses, screens, spreads, chokes, newsletters and keyline work. Lab fee: \$10.00. Prerequisite: 2412 or permission of instructor

2433 Design II (SU) 2-5-4
Designed as a sequential follow-up to 2413. This elective course will build upon basic principles of design and place emphasis on synthesizing solutions drawn from these principles. Lab fee: \$10.00. Prerequisite: 2413 or permission of instructor

2434 Lithographic Stripping II (SU) 2-4-4
Advanced and applied techniques and procedures of lithographic stripping, introducing to the student chokes and spreads, various contact methods, multiple page stripping and emphasizing four color stripping. Lab fee: \$25.00. Prerequisite: 2417 or permission of instructor

2435 Lithographic Cameras (A,W) 2-5-4
A study of film, film development, camera optical systems, camera calibration and exposure determination for line and halftone. Litho darkroom procedures. Lab fee: \$25.00.

2436 Photo Typesetting Systems I (A,W) 2-5-4
A study and application of photo typesetting equipment, autotape keyboards, video display terminals for editing, corrections and storing of formats, and programs. Output and processing procedures. Lab fee: \$18.00.

2437 Introduction to Color Separation (SP) 2-4-4
An introduction to the basic principles of color separation photography for the graphic arts industry. The techniques of dealing with reflection and transmission copy, masking, and the direct and indirect methods of separating colors. Lab fee: \$20.00. Prerequisite: 2435

2438 Screen Printing (A,W,SP,SU) 2-4-4
Theory and practice of the screen printing process. Frame construction, stencil making, hand and film, screen fabric materials. Screening on paper, fabrics and metal. Decal printing, electronic circuit and metal decorating. Lab fee: \$25.00.

2439 Photo Typesetting II (SP) 2-5-4
A continuation of increasingly difficult lab projects for direct preparation of job placement in the photocomposition industry. Techniques in the following areas are covered: total composer manipulation, tabulation, floppy disk memory, programming of typesetter, trouble shooting and machine maintenance. Lab fee: \$20.00. Prerequisite: 2436

2457 Estimating II (SU) 2-5-4
A continuation of the study of estimating for lithographic printing with areas including multi-color presses, signature work, prepress operations, and color separation. Provides an understanding of accurate estimating procedures and the opportunity to apply these procedures in a laboratory situation. The use of computer-assisted software is stressed.

Heating and Air Conditioning

4511 HAC Graphics I (A,W) 1-5-3
A course designed for the student with no previous experience in reading or drafting HAC blueprints. The course is structured toward drafting HAC residential systems and symbols, and leads to understanding the heat loss/gain calculations performed in 4522. Some exercises are scheduled CAD. Lab fee: \$10.00.

4512 Basic Piping (A,W,SP) 2-4-4
Selection of the proper material and valves, along with consideration of the joining method will be studied. Sizing exercises will be combined with the study of symbology used in piping diagrams, steam lines, hot and chilled water lines and refrigeration piping systems. Lab fee: \$10.00.

4513 Survey of HAC Field (A,W,SP) 2-4-4
A course designed to introduce students to the various people and jobs within the HAC engineering, sales, contracting and service community. The course also deals with various business aspects including: bidding, contracting, bonding, purchasing, designing, and in-plant operating procedures. Students new to the HAC field should be able to visualize a career for themselves from these experiences. Lab fee: \$10.00.

4514 HAC CAD Drafting (A,SP,SU) 1-5-3
This course is designed to allow HAC students who have completed 4511, 4521 and 4532 to gain additional skills in computer aided design of mechanical environmental systems. Lab fee: \$12.00. Prerequisites: 4521 and 4532

4521 HAC Graphics II (A,W) 1-5-3
A follow-up course to 4511, this course concentrates on commercial equipment, ductwork and systems. Projects in piping layout, diffuser schedules and typical notes used on large job blueprints will be assigned. Isometric principles will be explained and used in drafting exercises. Some exercises will be on the CAD system. Lab fee: \$12.00. Prerequisite: 4511 or equivalent

4522 HAC Residential Load Calculations (W,SP) 2-4-4
A course covering residential heat loss/gain calculations, design of systems, and selection of equipment. ACCA design manuals will be used and subjects such as heat transmission factors, external static pressure, infiltration, enthalpy and ductwork sizing will be included. Lab fee: \$12.00. Prerequisite: 1105

4531 HAC Commercial Load Calculations (A,SP) 2-4-4
A course covering commercial heat gain/loss calculations, design of systems, and selection of equipment. The systems used in commercial applications will be discussed and compared, along with correct balancing procedures. The factor of sound as it applies to these types of systems will also be included. This course is one of six that prepares the student to take the HAC Contractor's License Exam. Lab fee: \$12.00. Prerequisite: 4522

4532 HAC Equipment (A,SP) 3-2-4
A course discussing the components used to make up environmental conditioning systems in residential and commercial buildings. Chillers, unit heaters, furnaces, fans, air handlers, coils, boilers, and auxiliary equipment will have their cycle of operation explained, application and selection parameters detailed, along with their historical development. Lab fee: \$10.00. Prerequisites: 4512 and 4541

4533 HAC Mechanical Estimating (W,SU) 2-3-3
This course will study the manual and computer methods of estimating HVAC Mechanical Systems. Development of topics such as material price extensions, equipment requirements and labor/time requirements will be covered. Lab fee: \$12.00. Prerequisites: 4532 and 5076

4535 Field Co-Op Experience (SU) 0-40-4
Off-campus work experience in construction, consulting engineering or construction related paid employment, that augments formal education received in the technology with actual work conditions and job experience. "N" credit will not be allowed for this course. Lab fee: \$25.00. Prerequisites: 5236 and permission of instructor

4541 Principles of Refrigeration (A,SP,W) 2-3-3
A basic refrigeration cycle theory course covering heat thermodynamics, temperature - pressure relationships, mechanical operations of refrigeration equipment and representative application and selection data for class I refrigerants. Lab fee: \$10.00.

4542 HAC Mechanical Standards/Safety (W,SP) 3-2-3
A basic introduction to HAC safety considerations, first aid, and CPR as well as emergency

procedures for on-the-job accidents. An introduction to the various codes that effect the workplace and jobsite, such as OSHA, NFPA, state and local building codes. NEC, energy codes and ASHRAE standards will also be covered. Lab fee: \$12.00. Prerequisites: 4512 and 4541

4543 Air Conditioning Systems (SP,W) 2-6-4
A course designed for the student with a fundamental knowledge of the refrigeration cycle. Previous training in refrigeration theory, wiring diagrams, control circuits, and tools used in the trade are necessary to enroll in this course. The course is structured around hands-on training and testing of the various component parts of a vapor compression split system. Lab fee: \$20.00. Prerequisites: 4541, 4561, 4512 and 4583

4544 Heat Pump Systems (SP,SU) 2-6-4
A course designed for the student with a fundamental knowledge of the air conditioning and heating processes. Previous training in refrigeration cycle, wiring diagrams, control circuits, and tools used in the trade are necessary to enroll in this course. The course is structured around hands-on training on the various component parts of an air cycle heat pump system. Lab fee: \$20.00. Prerequisites: 4541, 4553, 4561, 4583 and 4512

4545 HAC Spec Writing (W,SP) 1-5-3
This course will cover manual and computer exercises in creating mechanical specifications, along with explaining the proper organization, standards and types, as related to projects, materials and methods. All specifications will be taught in accordance with the CSI standards. Lab fee: \$15.00. Prerequisite: 4542

4552 Instrumentation/Combustion Process (A,SP,SU) 2-4-4
A course about basic combustion processes using all the fossil fuels and psychometric chart work to track the thermal heat transfer. The instruments used to test these processes will also be explained along with the fan laws and psychometric chart procedures. Instruments used in energy auditing are then explained and preventative maintenance programs written. Lab fee: \$15.00.

4553 Automatic Controls I (A,W,SU) 2-3-3
A course introducing HAC residential and light commercial control systems and the components that make up the systems. Emphasis will be placed on operators, sensors, controllers and various pneumatic and electrical devices used in modern control systems along with the logic used to develop their control sequences. Lab fee: \$20.00. Prerequisites: 4541 and 4552

4554 Gas/Electric Heating Service (A,W) 2-6-4
A course designed for the student with a fundamental knowledge of heat transfer characteristics and air movement properties. The course is designed around hands-on training and testing of the various component parts and accessories that make up gas and electric heating systems, humidifiers and electronic air cleaners. Lab fee: \$20.00. Prerequisites: 4552, 4561 and 4583

4555 Fuel Oil Heating Service (A,W) 2-6-4
A course designed for the student with the fundamental knowledge of heat transfer characteristics and air movement properties, the course is designed around hands-on training and testing of the various components and accessories that make-up a fuel oil pressure gun type heating system. Lab fee: \$24.00. Prerequisites: 4552, 4561 and 4583

4556 Automatic Controls II (W,SP,SU) 1-5-3
A hands-on laboratory course designed to build practical understanding of control circuit logic and sequence of operation theory. Representative circuits from major environmental control devices employing various forms of energy will be included in the lab exercises. Lab fee: \$15.00. Prerequisite: 4553

4557 Residential Commercial Rooftop Systems (SP,SU) 2-6-4
A course designed for the student with a fundamental knowledge of the residential heating and air conditioning servicing. Previous training in refrigeration cycle, wiring diagrams, control circuits, combustion process, and tools used in this trade are necessary to enroll in this course. The course includes hands-on training and testing of the various component parts of a rooftop heating and cooling system. Lab fee: \$24.00. Prerequisites: 4543, 4554 and 4544

4558 Pneumatic Controls I (A,W) 2-4-4
This course is designed to take a senior level HAC student and teach him/her the fundamentals, installation practices and common application parameters of representative pneumatic controls systems. Lab fee: \$15.00. Prerequisites: 4556, 4541 and 4282

4559 Pneumatic Controls II (W,SP) 2-3-3
This course will provide hands-on training in troubleshooting and repair of pneumatic environmental controls. Simulation systems will be used to teach these skills. Lab fee: \$15.00. Prerequisite: 4558

4561 Hand Tools Laboratory (A,W,SU) 2-4-4
An entry-level course building elementary skills in welding, brazing, soldering, threading, cutting, swaging, and other skills that relate to service, installation and maintenance processes in the HAC field. Basic handtools and meters will be demonstrated and used in lab exercises. Lab fee: \$15.00.

4563 Energy Management (W,SP) 2-3-3
An overview of the world energy supply with both renewable and nonrenewable types being investigated. Attention will be given to building energy control systems/equipment and survey/calculation techniques. Analysis and decision making of energy policy along with computer simulations, conservation measures and systems will be utilized to conserve energy. A glossary of EM terms will be assigned. Lab fee: \$15.00. Prerequisites: 4531, 4532 and 4552

4564 Service Management (A) 2-2-3
This course will cover the basic management practices and procedures used in a residential

service contracting organization. This course will emphasize human resource development, labor management, service agreements, materials inventory and financial management. Lab fee: \$12.00. Prerequisite: Permission of instructor

4566 Advanced Problems (SP,SU) 0-8-4
A simulation that will allow the student to use their educational knowledge in a problem or problems that emphasizes the design or practical service aspects of a heating and cooling system. The instructor will need to give prior approval of the project or projects to be completed by the student. A tutorial course form must be completed by the student. Lab fee: \$8.00. Prerequisite: Permission of instructor

4571 Fluid Pumps Theory 3-2-4
This course will build on basic piping knowledge from course 4512 to teach the theory of operation, application and selection parameters and standard installation practices for major industrial and commercial fluid pumps. Lab fee: \$12.00. Prerequisites: 4512 and 4532

4573 Geothermal Systems 3-2-4
This course will teach students the operational theory, application and selection parameters and basic installation techniques of residential and commercial geothermal systems. Sixty-one percent of Ohio land has ground-water resources necessary to operate these systems. They offer great potential for saving energy and reducing environmental pollution. Lab fee: \$12.00. Prerequisites: 4531, 4544 and 4571

4582 Physical Plant Operations 3-2-4
This course will use the Plant Engineers Handbook to teach experienced HAC professional technicians how a large, commercial physical plant is operated. Site visits will be used to study various operating organizational structures. Lab fee: \$12.00. Prerequisites: 4558, 4563, 4571 and 4585

4583 HAC Wiring Circuits I (A,W,SU) 2-4-4
This course is designed to teach a new student how to read, draw, interpret and understand residential heating and cooling wiring diagram symbols, devices and wire size identification, basic circuit distribution concepts and schematic applications of same. Lab fee: \$10.00.

4584 HAC Wiring Circuits II (A,W,SP) 2-4-4
This course will concentrate on lab experiments designed to teach a student how to properly wire up typical heating and cooling devices into working circuits. Devices such as motors, controllers, contactors, compressors and safety devices will be covered. Lab fee: \$15.00. Prerequisite: 4583

4585 HAC Electronic Controls I (A,SP) 2-4-4
This course uses basic electronic knowledge from 4281 and 4282, plus electrical knowledge from 4583 and 4584 to build a basic understanding of HAC solid state computer controls. This theory course will cover controllers, sensors, relays and HAC electronic operational devices. Lab fee: \$10.00. Prerequisites: 4282 and 4584

4586 HAC Electronic Controls II (W,SU) 2-4-4
This course will use lab exercises to teach how to wire and install, along with how to test and service the primary HAC solid state computer controls. Lab fee: \$15.00. Prerequisite: 4585

4587 Boiler Systems (A,SP) 3-2-4
This course uses basic combustion knowledge from 4552 and piping system knowledge from 4512, along with codes from course 4542 to build a basic understanding of boiler types, systems, safety procedures and codes that will prepare a person to take the High Pressure Boiler License Examination. Lab fee: \$10.00. Prerequisites: 4512, 4541, 4553 and 4552

4588 Ammonia Systems (W) 3-2-4
This course uses basic piping knowledge from 4512, refrigeration cycle theory from 4541, codes from 4542 and control knowledge from 4553 to build a basic understanding of the operational theory and safe operating practices for an industrial Class II ammonia refrigeration system. Entering students should have 4561 course content or proficiency credit before enrolling in this class. Lab fee: \$10.00. Prerequisites: 4512, 4541, 4542, 4553 and 4561

4589 Stationary Engineers Examination 3-2-4
This course will prepare a student who has the resident operating experience requirements for stationary power plants, to sit for the State of Ohio 3rd Class Stationary Engineers Examination. Lab fee: \$12.00. Prerequisites: 4563 and 4582

History See Humanities

Hospitality Management Technology

2201 Survey of the Hospitality/Tourism Industry (A,SP) 2-0-2
An introduction to management of restaurants, institutional food services and lodging facilities, as well as an overview of the travel and tourism industry. Industry-related professional associations and trade publications are studied. Field trips and guest speakers provide a background of organization, operation, management and career opportunities. Lab fee: \$2.00.

2203 Bar Management and Wine Technology (A,SU) 2-2-3
Classification, history and control of beer, wines and spirits. Covers Ohio liquor and legal regulations, inventory control, liquor dispensing systems, cash control, drink merchandising and alcohol responsibility. The art of mixology. Lab fee: \$15.00.

2205 Records and Cost Control (A,W) 3-2-4
Covers the principles and procedures involved in an effective system of food, beverage, labor and sales control. Emphasizes development and use of standards and calculation of actual costs. Lab fee: \$10.00.

2208 Food Production I (W) 0-8-4
A laboratory course in which students will be introduced to the use of commercial kitchen equipment in producing marketable food products according to standardized recipes. The principles of sanitation and safety will be applied. Products will be served in a cafeteria setting. Lab fee: \$50.00. Concurrent: 2209

2209 Food Principles I (W,SP) 4-0-4
A lecture course in basic food preparation including introductory chemistry and physics of foods and the terminology and definitions used. The course includes a detailed study of the principles of food preparation and selection criteria for the protein foods and lipids used in cooking. Basic equipment required to prepare and serve food will be discussed. Lab fee: \$5.00. Concurrent: 2208

2215 Food Principles II (W,SP) 4-0-4
A lecture course in quantity food preparation including a detailed study of the principles of preparation and selection of sauces, marinades and salad dressings, soups, herbs and spices, fruits, vegetables, baked goods and desserts. The appropriate use of quantity food production equipment, standardized recipes and computer applications in food service operations will be included. Lab fee: \$5.00. Prerequisite: 2209. Concurrent: 2216

2216 Food Production II (SP) 0-8-4
A laboratory course to follow Food Production I (2208). Students will requisition raw food products and produce menu items requiring more complex preparation. They will use and maintain food production equipment, serve products in a dining room setting, and use computer software in large quantity recipe calculation, forecasting, recipe costing, and revenue analysis. Lab fee: \$50.00. Prerequisite: 2208. Concurrent: 2215

2217 Food Specialties I (Garde Manger) (SP) 1-4-3
A laboratory course including preparation of cold food items commonly produced in a garde manger station. Students will prepare garnitures, appetizers, salads, pates, terrines, galantines and cold sauces as well as be introduced to specialty work in ice carving, tallow and salt dough. Buffet presentation and culinary show guidelines are covered. Lab fee: \$40.00. Prerequisite: Registered Chef Apprentice or permission of instructor.

2218 Food Specialties II (Baking) (W) 1-4-3
Includes the fundamentals of baking and functions of ingredients with production of baked goods and dessert specialties. Proper use and care of equipment and hygienic work habits are emphasized. Lab fee: \$40.00. Prerequisite: Registered Chef Apprentice or permission of instructor.

2222 Sanitation and Safety (A,W,SU) 4-0-4
A detailed study of the control of bacteria, materials handling, and safety practices to maintain a safe and healthy environment for the consumer in the food and lodging industry. Examination of laws and regulations related to safety, fire, and sanitation. Upon the successful completion of an examination from the Educational Foundation of the National Restaurant Association, students will receive certificates from the Educational Foundation and from the Ohio Department of Health. Lab fee: \$5.00.

2223 Food Purchasing (A,SP) 2-2-3
Provides a working knowledge of procurement methods, procedures and recordkeeping when purchasing, receiving, and storing food, equipment and non-food supplies. Special emphasis is given to writing specifications, determining order quantities, evaluating product quality, and selecting suppliers. Field trips allow the student to see food processing operations, wholesale food markets, and equipment purveyors. Lab fee: \$10.00. Prerequisite: 1131

2224 Hospitality Personnel Management (A,SU) 5-0-5
Supervisory techniques applied specifically to hospitality and travel operations. A study of organizational structure, job descriptions, employee application forms, and interviewing techniques used for the selection of employees. Improving communication and job performance with the development of orientation and training programs, and employee appraisal techniques. Lab fee: \$2.00. Prerequisite: 3813

2225 Menu Planning (W,SP) 3-0-3
Principles of menu planning for a variety of foodservice operations. Includes merchandising techniques, layout and design, and pricing strategies. Consideration is given to food selection; nutritional requirements; food, labor, and other costs; and equipment utilization. Lab fee: \$2.00. Prerequisite: 2215

2232 Budgeting, Purchasing and Records (W) 4-0-4
Provides an overview of the fundamentals of budgeting, purchasing, recordkeeping and financial management. This course meets the certification requirements for National Executive Housekeepers Association for courses E85-16, E85-17 and E85-18. Lab fee: \$5.00.

2234 Housekeeping Techniques (A) 4-0-4
This course will identify responsibilities in professional environmental services management. Included are supplies and equipment for cleaning, development of cleaning procedures, safety programs, materials handling and motion economy. This course meets certification requirements for National Executive Housekeepers Association for courses E85-7, E85-8 and E85-9. Lab fee: \$5.00.

2239 Lodging Information Systems (SP)	1-5-3	Introduces the student to the fundamental concepts of computer usage within the hospitality industry utilizing property management systems. The student will receive hands-on experience in reservations, registration, guest accounting, check-out, night audit and various departmental reports. Lab fee: \$40.00. Prerequisite: 2782	maintain and select foodservice equipment, to assist in food production and service, and to maintain food quality and portion control. Lab fee: \$10.00. Prerequisite: 2261. Concurrents: 2208 and 2209
2242 Food and Beverage Management Survey (A)	2-2-3	Surveys food and beverage operations from purchasing, receiving and storage to preparation and service. The roles of nutrition, sanitation, safety, and menu planning are discussed. Designed for the non-food major. Lab fee: \$10.00.	2263 Dietetic Technician Practicum III (SP) 1-7-2 Practical application of information presented in classroom from 2215, 2216 and 2223 to related health care facilities. Skills are developed through supervised learning situations to procure and store food, supplies, and equipment, to calculate food costs, to participate in quantity food production, and to develop and/or test products. Lab fee: \$10.00. Prerequisite: 2262. Concurrents: 2215, 2216 and 2223
2243 Hospitality and Travel Law (A,W)	3-0-3	Provides a general knowledge of the law as it applies to the hospitality and travel industry. Lab fee: \$2.00.	2265 Dietetic Technician Seminar (SP) 1-0-1 An in-depth study of recent developments and areas of concern related to providing nutrition care. Each student will select a nutrition topic of current concern, write a research paper and present an oral report. A written exam to assess knowledge attained throughout the seven quarter program will be administered. Lab fee: \$2.00. Prerequisite: 2268. Concurrent: 2269
2244 Hospitality Managerial Accounting (SP)	4-0-4	Covers the accounting concerns and techniques necessary for the managerial decisions in the lodging industry. Lab fee: \$2.00. Prerequisite: 3762	2267 Dietetic Technician Practicum IV (A) 1-7-2 Practical application of information presented in the classroom from 2224, 2253 and 2205 to related health care facilities. Skills are developed through supervised learning situations to understand the organizational structure of the health care facility and to develop the ability to work within that structure; to understand the policies and procedures of the facility; to meet and deal with the client and to develop good guest relationships; and to obtain and evaluate nutritional data about individuals. Lab fee: \$20.00. Prerequisite: 2263. Concurrents: 2224, 2253 and 2205
2245 Front Office Management (A)	2-3-3	The principles required to organize, operate and manage a hotel front office. Computerized property management systems are included. Lab fee: \$20.00. Prerequisite: 2239	2268 Dietetic Technician Practicum V (W) 1-7-2 Practical application of information presented in classroom from 2275 to clients in related health care facilities. Skills are developed through supervised learning situations to interview clients, evaluate nutritional data collected, understand the rationale for dietary modification for calorie adjustments and consistency variations, understand associated medical terminology and assist in the planning, preparation and service of modified diet meals. Lab fee: \$10.00. Prerequisite: 2267. Concurrent: 2275
2246 Marketing Hospitality and Tourism (W,SP)	3-0-3	Covers the basic knowledge and skills necessary to develop, implement and evaluate strategic marketing plans for foodservice, lodging properties, and tourism services. Lab fee: \$2.00.	2269 Dietetic Technician Practicum VI (SP) 1-10-3 Practical application of information presented in the classroom from 2225 and 2276 to clients in related health care facilities. Skills are developed through supervised learning situations to acquire proficiency in client interviewing, evaluating nutritional data collected and understanding associated medical terminology; to understand the rationale for dietary modification for fat and electrolyte controlled menus and assist in the planning, preparation and service of these modified diet meals. Lab fee: \$10.00. Prerequisite: 2268. Concurrents: 2225 and 2276
2248 Hospitality Security and Maintenance (W)	4-0-4	This course covers the security and maintenance of a property. Risk management planning emphasizes losses due to thefts, injuries, and disasters. Also included are personnel safety, OSHA rules and disaster preparedness. Plant maintenance and preventive maintenance are also covered. This course meets certification requirements of National Executive Housekeepers Association for courses E85-26 and E85-27 and includes the content of course #386 of the Educational Institute of the American Hotel and Motel Association. Lab fee: \$5.00.	2271 Dining Room Management and Catering (A,SP) 2-3-3 Principles of and practice experiences in dining room management and service for both in-house and off-premise functions. Students will organize, coordinate and execute various catered functions to practice the managerial skills that a dining room or catering manager uses on a daily basis; i.e., customer contacts, menu planning, contracts, training, service, sanitation, safety of employees and guests, billing/accounting. Lab fee: \$10.00. Prerequisite: 2216 or permission of instructor
2249 Meeting and Convention Planning and Service (A)	3-0-3	Includes planning necessary to meet individuals' needs for meetings and conventions, as well as the methods and techniques that lead to quality service. Lab fee: \$2.00.	2275 Diet Therapy I (W) 4-2-5 An introduction to the study of diet modification. The rationale for nutritional intervention and related medical terminology is presented. Calorie controlled and consistency modified diets for a variety of pathological conditions are studied. The student will prepare meals related to these modifications. Lab fee: \$15.00. Prerequisites: 2253 and 1332
2253 Nutrition (A,SU)	5-0-5	A study of the role of nutrition in establishing, promoting and maintaining good health. The composition and functions of foods, nutrition needs throughout the life cycle and contemporary nutrition concerns are included in the course. Lab fee: \$5.00.	2276 Diet Therapy II (SP) 4-2-5 A continuation of the study of diet modification. Fat and electrolyte control of diets for a variety of pathological conditions are studied as well as diet modification needed for various periods during the life cycle. The student will prepare meals related to those modifications. Lab fee: \$15.00. Prerequisite: 2275
2255 Travel Agency Operations (W)	4-0-4	This course provides students with a basic understanding of the demands of operating a retail travel agency. It covers managerial and financial aspects of the operation with an emphasis on quality customer service and effective oral and written communication skills. Students are introduced to industry terms in worldwide use, travel associations and publications, the role of regulatory agencies, and interrelationships of the agency and travel suppliers. Lab fee: \$2.00.	2283 Hospitality Cooperative Work Experience I (A,W,SU) 1-20-3 Work experience in the hospitality/tourism industry. A minimum of 200 hours will be spent in cooperative work experience, with the equivalent of one classroom hour per week in an on-campus seminar.
2256 Principles of Transportation (SP)	5-0-5	This course covers the principles of air, land and sea transportation. It includes use of manuals, guides, timetables, tariffs and other references used in the travel industry serving domestic and international travelers. Emphasis is on itinerary construction, fare calculation, reservation and ticketing procedures, travelers insurance, foreign currencies, and customs and immigration. Lab fee: \$20.00. Prerequisite: 2255	2284 Hospitality Cooperative Work Experience II (A,SP,SU) 1-20-3 A continuation of 2283. Work experience in the hospitality/tourism industry. A minimum of 200 hours will be spent in cooperative work experience, with the equivalent of one classroom hour per week in an on-campus seminar. Prerequisite: 2283
2257 Computer Reservations Systems (A)	1-5-3	This course is designed to allow the student to develop capabilities in the use and operation of computer reservations systems including searching for travel information, making reservations, and ticketing for simulated customers. Students receive instruction on-site in a reservations office. Lab fee: \$50.00. Prerequisites: 2256 and 1547	2285 Hospitality Cooperative Work Experience III (A) 1-20-3 Work experience in the foodservice industry for chef apprentices. The equivalent of one classroom hour per week will be spent in an on-campus seminar. Prerequisite: 2284
2258 Tourism Planning and Development (W)	3-0-3	This course provides students with a framework for the development of tourism in the community or region. It includes appraisal of the tourism potential, planning for and marketing tourism, visitor services, and sources for assistance in the development process. Lab fee: \$2.00. Prerequisite: 3901	2286 Apprenticeship Final Project (SU) 1-0-1 Preparation for and completion of a final practical examination, summative evaluation of 6,000 hours on-the-job training, and documentation of all training objectives required for students registered in the three year American Culinary Federation Educational Institute National Apprenticeship Training Program. Prerequisite: 2285
2259 Tour Planning and Travel Counseling (SP)	2-2-3	Development of a systematic and structured process for special interest group travel, corporate travel, and package tour operation. Students will research, plan, promote and sell a simulated or actual tour or cruise package utilizing their knowledge of destinations, sales and marketing, car/hotel/transportation reservations, ticketing, accounting and related travel services. Lab fee: \$20.00. Prerequisite: 2256	2291 Dietary Manager Seminar I (A) 4-0-4 A study of the types of health care facilities, typical health care organizational structures, and roles of the dietary team members. Regulations and how they affect food service in health care facilities are examined. Foodservice safety and sanitation principles, utilization and care of equipment, and food preparation and purchasing are studied. Concurrents: 2294 and employment in a health care facility with a qualified dietician on the staff.
2261 Dietetic Technician Practicum I (A)	1-3-1	Practical application of information presented in the classroom from 2201 and 2222 to related health care facilities. Skills are developed through supervised learning situations to understand the organizational structure of health care facilities and the regulations that pertain, to define the roles of the dietetic practitioners, to maintain and evaluate standards of sanitation and safety, and to teach others how to follow sanitation and safety guidelines. Lab fee: \$20.00. Concurrents: 2201 and 2222	
2262 Dietetic Technician Practicum II (W)	1-7-2	Practical application of information presented in the classroom from 2208 and 2209 to related health care facilities. Skills are developed through supervised learning situations to operate,	

2292 Dietary Manager Seminar II (W) 4-0-4

A study of the principles for planning menus to meet the nutritional needs of people in health care facilities. Nutrient requirements, functions and sources of nutrients and the digestion and absorption of food are studied. An explanation of methods and records used in procurement, receiving, and storage of food and related items. Control measures for maintaining quality, quantity, and cost of food production are discussed. Prerequisite: 2291. Concurrents: 2295 and employment in a health care facility with a qualified dietitian on the staff.

2293 Dietary Manager Seminar III (SP) 4-0-4

Diet modification for a variety of health conditions is studied. Methods and records used to gather data, to determine food needs and preferences, to establish care plans and to do charting are presented. Supervisory characteristics and staff planning and development are discussed. Facility evaluation and planning for improvements is presented. Prerequisite: 2292. Concurrents: 2296 and employment in a health care facility with a qualified dietitian on the staff

2294 Dietary Manager Cooperative Work Experience I (A) 0-20-2

Supervised work related learning experiences to be performed on the job following material presented in the classroom from 2291. Lab fee: \$15.00. Prerequisite: Employment in a health care facility with a qualified dietitian on the staff. Concurrent: 2291

2295 Dietary Manager Cooperative Work Experience II (W) 0-20-2

Supervised work related learning experiences to be performed on the job following materials presented in the classroom from 2292. Lab fee: \$15.00. Prerequisite: 2295 and employment in a health care facility with a qualified dietitian on the staff. Concurrent: 2292

2296 Dietary Manager Cooperative Work Experience III (SP) 0-20-2

Supervised work related learning experiences to be performed on the job following materials presented in the classroom from 2293. Lab fee: \$15.00. Prerequisites: 2295 and employment in a health care facility with a qualified dietitian on the staff. Concurrent: 2293

Humanities Courses

STUDENTS WHO ENROLL IN HUMANITIES COURSES MUST HAVE PLACED IN COMMUNICATION SKILLS 1002 AND ARE ENCOURAGED TO EITHER HAVE COMPLETED 1002 OR BE ENROLLED IN THAT COURSE WHEN SCHEDULING A HUMANITIES COURSE.

1911-1915 Special Topics in Humanities (On Demand) 1-5

Special topics from the Humanities discipline designed to meet specific needs.

1931 Civilization I (A,W,SP,SU) 5-0-5

A survey of the culture, ideas, and values of human civilization from their origins in the Ancient World through the 15th Century. Emphasis is on the intellectual and artistic achievements of the ancient Middle East, Classical Greece and Rome, the Christian and Arab/Islamic Middle Ages, and Renaissance Italy showing how culture reflects and influences economic, social and political development. Students are exposed to the creative process by reading from primary works of literature and philosophy and critically reviewing works of art, music, theater and dance, both in and out of class. Classes meet three hours per week in small groups for lecture and discussion and in combined sections for two hours per week for group cultural experiences. Lab fee: \$10.00. Prerequisite: Placement into 1002

1932 Civilization II (A,W,SP,SU) 5-0-5

A study of the development of the culture, ideas, and values of the early modern Western World. Emphasis is on the Protestant Reformation, the rise of modern science, the Enlightenment, the American and French Revolutions, the Industrial Revolution, Baroque, Classical, and Romantic styles in art, music and literature and the revolutionary theories of Karl Marx. Students are exposed to the creative process by reading from primary works of literature and philosophy and critically reviewing works of art, music, theater and dance, both in and out of class. Classes meet three hours per week in small groups for lecture and discussion and in combined sections for two hours per week for group cultural experiences. Lab fee: \$10.00. Prerequisite: Placement into 1002

1933 Civilization III (A,W,SP,SU) 5-0-5

A survey of the triumphs and failures of modern culture, ideas, and values from 1850 to the present. Emphasis is on the conflicts and contradictions between the prevailing spirit of Liberalism, Capitalism, Nationalism and Imperialism from the perspective of the European and non-European worlds, the crises of Western capitalism and democracy and the Fascist and Communist responses, and the major issues confronting world civilization at the turn of the 21st Century. Students are exposed to the creative process by reading from primary works of literature and philosophy and critically reviewing works of art, music, theater and dance, both in and out of class. Classes meet three hours per week in small groups for lecture and discussion and in combined sections for two hours per week for group cultural experiences. Lab fee: \$10.00. Prerequisite: Placement into 1002

1941 American Civilization to 1877 (A,W,SP,SU) 5-0-5

A survey of American History from settlement through the Civil War and Reconstruction. The course places major emphasis on the relationship between historical events and the literature, art, music, major ideas and popular culture which made up the American intellectual tradition. Students are exposed to the creative process by reading from primary works of literature and philosophy and critically reviewing works of art, music, theater and dance, both in and out of class. Lab fee: \$10.00. Prerequisite: Placement into 1002

1942 American Civilization Since 1877 (A,W,SP,SU) 5-0-5

A survey of the development of the United States from a frontier society to an industrial world power in the 20th century. The course places major emphasis on the relationship between

historical events and the literature, art, music, major ideas and popular culture which have made up the American intellectual tradition. Students are exposed to the creative process by reading from primary works of literature and philosophy and critically reviewing works of art, music, theater and dance, both in and out of class. Lab fee: \$10.00. Prerequisite: Placement into 1002

1951 History of Science and Technology (On Demand) 5-0-5

A survey of the history and impact of science and technology upon world civilization from the ancient world through the 20th century. The course traces the development of the theories and practices of the pure sciences (mathematics, physics, chemistry, biology, and geology) and the impact of applied science and technology upon the social, cultural, and physical environment of human kind. Meets elective requirements in Associate of Arts and Associate of Science Degree programs and distributive transfer requirements in history. Recommended for technology and Associate of Science students. Lab fee: \$2.00. Prerequisite: Placement into 1002

1952 Medicine and the Humanities (On Demand) 5-0-5

A survey of the treatment of medical themes in history, literature, philosophy, the fine arts and popular culture. The course covers works ranging from the drawings of Leonardo DaVinci, to the novel and film MASH. Of particular importance will be the role of the humanities in the assessment and understanding of modern health care. Meets elective requirements in Associate of Arts and Associate of Science Degree programs and distributive transfer requirements in History and Humanities. Lab fee: \$2.00. Prerequisite: Placement into 1002

1953 History of Western Art (On Demand) 5-0-5

A survey of artistic expression in the Western world from the earliest times to the present including the types of media used and their limitations, the role of patronage in artistic development, the relationship of art and the artist to developments in society, and a consideration of the attributes of "great" art in any time or age. Meets elective requirements in the Associate of Arts and Associate of Science Degree programs and distributive transfer requirements in History, Humanities, and the Arts. Lab fee: \$5.00. Prerequisites: Placement into 1002

1956 History of Western Music (On Demand) 5-0-5

A survey of Western music from earliest times to the present including the development of notation in music, the development and limitations of standard instruments, the role of patronage in musical developments, the relationship of changes in music to changes in society, and a consideration of the attributes of "great" music in any time or age. Meets elective requirements in the Associate of Arts and Associate of Science Degree programs and distributive transfer requirements in History, Humanities and the Arts. Lab fee: \$10.00. Prerequisite: Placement into 1002

1958 Comparative Religions (On Demand) 5-0-5

Introduction to the study of religion through a historical overview and comparison of the major world religions of Judaism, Christianity, Islam, Buddhism, and Hinduism through readings in their sacred texts in translation. Attention will be focused on the concepts, categories, theories, and methods used by the various religious disciplines and how each of them addresses basic issues of the human condition. Also included will be an examination of Sectarianism and contemporary sects in America and the World. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in comparative studies, religion, and philosophy. Lab fee: \$2.00. Prerequisite: Placement into 1002

1961 The Third World (On Demand) 5-0-5

A survey of the historical development and contemporary problems confronting the so-called Third World of Asia, Africa, Central and South America, the Middle East, etc. Issues covered include problems of world hunger and over-population, the effect of the Great Power confrontation on the non-aligned nations, the social and environmental impact of Western technology, science and economics. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in history, social science and non-western studies. Lab fee: \$2.00. Prerequisite: Placement into 1002

1963 History of China and Japan (On Demand) 5-0-5

A survey of the economic, social, political, and cultural development of China and Japan from earliest times to present. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in history, social sciences, and non-western studies. Lab fee: \$2.00. Prerequisite: Placement into 1002

1965 The Islamic World and the Middle East (On Demand) 5-0-5

A survey of Islamic civilization from the birth of Muhammad to the destruction of the Ottoman Empire in the 20th century. Emphasis is placed on developing an understanding of the nature and diversity of the Islamic religion, an appreciation of the great cultural achievements of medieval Islam, and an awareness of the complexities of the problems of the contemporary Middle East. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in history, social sciences, and non-western studies. Lab fee: \$2.00. Prerequisite: Placement into 1002

1967 History of Latin America (On Demand) 5-0-5

A survey of the development of modern Latin America from the Spanish conquests to the present. Emphasis is placed on the revolutionary eras of the 19th and 20th centuries, the influence of the Roman Church on Latin American society, and the influence of the United States on Latin American economic and political development. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in history, social sciences, and non-western studies. Lab fee: \$2.00. Prerequisite: Placement into 1002

1971 Introduction to Philosophy (A,W,SP,SU) 5-0-5

An introduction to the problems, methods, and terminology of philosophy, the types of questions addressed by philosophers, and the pivotal thinkers and systems of Western civilization from the Greeks to the 20th century. Meets elective requirements in the Associate

of Arts and Associate of Science degree programs and distributive transfer requirements in philosophy and humanities. Lab fee: \$2.00. Prerequisite: Placement into 1002

1972 Ethics (W,SU) 5-0-5
An introduction to moral reasoning, examining theories of right and wrong, good and bad, justice and injustice as they have been viewed in the past and as they shed light on contemporary ethical issues. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in philosophy and humanities. Lab fee: \$2.00. Prerequisite: Placement into 1002

1973 Introduction to Logic (A,W,SP) 5-0-5
An introduction to formal critical thinking and the methods of inductive, deductive and symbolic logic. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in philosophy, humanities, and, in some instances, mathematics and science. Check with your academic advisor. Lab fee: \$2.00. Prerequisite: Placement into 1002

1974 Symbolic Logic (On Demand) 5-0-5
A presentation of deductive logic focused on propositional logic, natural deduction and predicate logic. This course develops in greater detail principles of deductive logic covered in 1973. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in philosophy, humanities, and in some cases, mathematics and sciences. Check with your academic advisor. Lab fee: \$2.00. Prerequisite: 1973 with a grade of 'C' or better. And placement into 1002

FOREIGN LANGUAGES AND LITERATURE
ALTHOUGH NOT A DEGREE REQUIREMENT AT COLUMBUS STATE COMMUNITY COLLEGE, STUDENTS IN THE TRANSFER PROGRAM SHOULD DISCUSS WITH THEIR ACADEMIC ADVISORS THE FOREIGN LANGUAGE REQUIREMENTS AT INSTITUTIONS TO WHICH THEY ARE CONSIDERING TRANSFER. FOR STUDENTS NEEDING TO MEET FOREIGN LANGUAGE REQUIREMENTS, ARRANGEMENTS HAVE BEEN MADE FOR THE FOLLOWING COURSES. STUDENTS WITH PREVIOUS LANGUAGE TRAINING MAY TAKE A PLACEMENT EXAM IN THE LANGUAGE. COURSE CREDIT IS NOT GIVEN FOR SUCH EXAMS.

1981 Elementary French I (A,W,SP,SU) 5-0-5
Introduction to the fundamentals of the French language with practice in listening, reading, speaking, and writing. Includes selected studies in French culture. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: Placement into 1002.

1982 Elementary French II (A,W,SP,SU) 5-0-5
Continuation of 1981, with further development of listening, reading, speaking, and writing skills and further study of French culture. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisites: 1981 with a grade of "C" or better. And placement into 1002

1983 Intermediate French I (On Demand) 5-0-5
Continued study of the French language and development of listening, reading, speaking, and writing skills. Readings from contemporary French culture and literature. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: 1982 with a grade of "C" or better.

1984 Intermediate French II (On Demand) 5-0-5
Reading and discussion of French short stories, novels, plays, newspapers, and magazines, emphasizing literary appreciation and the development of French culture. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: 1983 with a grade of "C" or better.

1986 Elementary Spanish I (A,W,SP,SU) 5-0-5
Introduction to the fundamentals of the Spanish language with practice in listening, reading, speaking, and writing. Includes selected studies in Hispanic culture. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: Placement into 1002.

1987 Elementary Spanish II (A,W,SP,SU) 5-0-5
Continuation of 1986 with further development of listening, reading, speaking, and writing skills and further study of Hispanic culture. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: 1986 with a grade of "C" or better. Placement into 1002

1988 Intermediate Spanish I (On Demand) 5-0-5
Continued study of the Spanish language and development of listening, reading, speaking, and writing skills. Readings from contemporary Hispanic culture and literature. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: 1987 with a grade of "C" or better.

1989 Intermediate Spanish II (On Demand) 5-0-5
Reading and discussion of Spanish and Latin American short stories, novels, plays, newspapers, and magazines, emphasizing literary appreciation and the development of Hispanic culture. Meets elective requirements in the Associate of Arts and Associate of Science degree

programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: 1988 with a grade of "C" or better.

1991 Elementary German I (On Demand) 5-0-5
Introduction to the fundamentals of the German language with practice in listening, reading, speaking and writing. Includes selected studies in German culture. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: Placement into 1002.

1992 Elementary German II (On Demand) 5-0-5
Continuation of 1991 with further development of listening, reading, speaking, and writing skills and further study of German culture. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: 1991 with a grade of "C" or better. Placement into 1002

1993 Intermediate German I (On Demand) 5-0-5
Continued study of the German language and development of listening, reading, speaking, and writing skills. Readings from contemporary Germanic culture and literature. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: 1992 with a grade of "C" or better.

1994 Intermediate German II (On Demand) 5-0-5
Reading and discussion of German short stories, novels, plays, newspapers, and magazines, emphasizing literary appreciation and the development of Germanic culture. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: 1993 with a grade of "C" or better.

1995 Elementary Italian I (On Demand) 5-0-5
Italian language instruction through the use of texts, audio/visual, and other selected materials to actively and proficiently communicate in the targeted language. This course also operates on developing student's historical, and cultural consciousness through the use of film, art, music and a wide range of cultural activities particular to the Italian culture. Encourages analytical thinking, individual and group participation and strengthens writing, reading and comprehension skills. Lab fee: \$2.00. Prerequisite: Placement into 1002.

1996 Elementary Italian II (On Demand) 5-0-5
Continuation of 1995, with further development of listening, reading, speaking, and writing skills and further study of Italian culture. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: 1995 with a grade of "C" or better.

1997 Intermediate Italian I (On Demand) 5-0-5
Continued study of the Italian language and development of listening, reading, speaking and writing skills. Readings from contemporary Italian culture and literature. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$2.00. Prerequisite: 1987 with a grade of "C" or better.

1998 Intermediate Italian II (On Demand) 5-0-5
Reading and discussion of Italian short stories, novels, plays, newspapers, and magazines, emphasizing literary appreciation and the development of Italian culture. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature programs. Lab fee: \$2.00. Prerequisite: 1997 with a grade of "C" or better.

Interpreting/Transliterating Technology

7701 Introduction to Interpreting/Transliterating (A) 3-0-3
This course is designed to provide students with an overview of the field of interpreting. Topics of study include a historical overview, terminology, interpreter's role, ethics, and career options.

7702 English for the Interpreter (SP) 3-0-3
This course focuses on the grammar errors made during the voicing process and ways to remedy these errors. It also focuses on English vocabulary expansion and sign vocabulary expansion. Prerequisite: 7701

7703 Physical Aspects of Interpreting/Transliterating (SU) 2-0-2
This course takes a look at the physical characteristics of the interpreting situation. Discussion and analysis of the following are included: lighting, visual background, distance and placement of the interpreter and consumers, and conference interpreting coordination. Prerequisite: 7701

7704 Special Problems in Interpreting/Transliterating (SP) 3-0-3
This course utilizes various techniques to help the interpreter develop the skills and poise needed to handle the frustrations and problems that arise in interpreting situations; works on dealing with the non-human entity of interpreting and application of the "gray areas" of the code of ethics. Prerequisite: 7701

- 7705 Legal and Ethical Aspects of Interpreting/Transliterating (SP)** 3-0-3
This course looks at applying the RID Code of Ethics to the interpreting situation. Analysis of professional ethics, confidentiality vs. privilege, legal liability, and the role of the interpreter are all covered. Lab fee: \$5.00. Prerequisite: 7701
- 7706 Signs Systems Vocabulary (W)** 3-0-3
This course compares signs used in Signed English and SEE II to ASL; analyzes signs from both conceptual and philosophical viewpoints and applies them to the interpreting situation. Prerequisite: 7781
- 7707 Specialized Interpreting/Transliterating (A)** 3-2-4
This course introduces the student to special vocabulary, skills, and knowledge needed to interpret in special situations. It looks at ethical considerations of these settings as well. Some of these situations include atristic interpreting, interpreting for deaf/blind persons, interpreting in medical settings, and oral interpreting. Lab fee: \$5.00. Prerequisite: 7701
- 7715 Linguistics of American Sign Language (ASL) (SP)** 2-2-3
This course begins with a basic foundation in general linguistics. The major grammatical systems of ASL, its structure and diachronic evaluation are studied via a comparative analysis with English. Lab fee: \$5.00. Concurrent: 7753
- 7721 Orientation to Deafness (A)** 5-0-5
This course is designed to acquaint students with the causes of deafness, the adaptive devices available such as hearing aids and TTY phones, the different types of hearing losses, the Deaf Community, educational issues, employment issues, the psychology of deafness, and misconceptions about deafness. Lab fee: \$5.00.
- 7722 Patterns of Language Development (W)** 3-0-3
This course compares the normal patterns of language development of hearing children, prelingual deaf children and postlingual deaf children. Theories of language development are discussed. Influences of total communication and oral education are also discussed.
- 7741 Interpreting/Transliterating Practicum Seminar I (A,W,SP,SU)** 1-0-1
This course supplements the practicum experience by providing opportunities for sharing experiences via recordings in journals and group discussions. Concurrent: 7743
- 7742 Interpreting/Transliterating Practicum Seminar II (A,W,SP,SU)** 1-0-1
This course continues to supplement the practicum experience. Applying theory to the daily work setting, applying for jobs, and additional educational opportunities are also discussed. Prerequisite: 7741. Concurrent: 7744
- 7743 Interpreting/Transliterating Practicum I (A,W,SP,SU)** 0-20-4
Students are provided opportunities to work in interpreting situations and apply the concepts learned in the classroom to the actual setting. Students are assigned to work in a variety of settings on a part-time basis and are supervised by certified interpreters. Prerequisite: 2.0 tech. average; completion of 5 quarters of study. Concurrent: 7741
- 7744 Interpreting/Transliterating Practicum II (A,W,SP,SU)** 0-20-4
Students are provided opportunities to work in different interpreting situations and apply the concepts learned in the classroom to the actual setting. Students are assigned to work in a variety of settings on a part-time basis and are supervised by certified interpreters. Prerequisite: 7743 and 2.0 tech. average. Concurrent: 7742
- 7751 American Sign Language I (A,SP)** 2-4-4
This course begins with a series of visual readiness activities as a way of introducing the students to and preparing them for a language in a visual modality. The course utilizes a practical approach to teaching vocabulary, grammar, and the cultural aspects through "real life" conversational experiences. The student is further acclimated to the new modality of this language via classroom experiences conducted without voice. Additional information about the Deaf Community is introduced via outside readings and class discussion. Lab fee: \$5.00.
- 7752 American Sign Language II (W,SU)** 2-4-4
ASL II, as a continuation of 7751, further acclimates the students to the visual/gestural modality of this language. The course utilizes a practical approach to teaching vocabulary, grammar, and cultural aspects through "real life" conversational experiences. More attention is given to the student's production of the language than in 7751, while receptive/comprehension skills continue to be emphasized. Additional information about the Deaf Community is introduced via outside readings and class discussions. Lab fee: \$5.00 Prerequisite: 7751 with a "C" or better.
- 7753 American Sign Language III (A,SP)** 2-4-4
ASL III provides the students with additional opportunities to expand their ability to produce and comprehend the language as used in everyday conversational settings. Students continue to recognize the fact that communication is governed by culturally-bound rules as they continue to study the culture of the Deaf Community. Lab fee: \$5.00. Prerequisite: 7752 with a "C" or better.
- 7754 American Sign Language IV (W,SU)** 2-4-4
In ASL IV, students' production and comprehension skills continue to develop qualitatively and quantitatively as they are exposed to a greater variety of interaction activities. Whereas these activities are based on cultural values of the Deaf Community, the students' knowledge of this unique community is expanded. Lab fee: \$5.00. Prerequisite: 7753 with a "C" or better.
- 7755 American Sign Language V (A,SP)** 2-4-4
As the final course in this five (5) course series, 7755 provides students with opportunities to expand their production and comprehension skills with American Sign Language. Communication activities focus on advanced functions of language usage. Study of the cultural aspects of the Deaf Community is continued. Lab fee: \$5.00. Prerequisite: 7754 with a "C" or better.
- 7761 Fingerspelling (A)** 1-2-2
This course offers students the opportunity to work on expressive and receptive fingerspelling. The emphasis of this course is on using fingerspelling in context. Opportunities are provided for the students to work with videotaped materials as well as live models. Lab fee: \$5.00.
- 7765 Introduction to Sign English (On Demand)** 0-4-2
This course emphasizes the use of conceptual signs in straight English context. In addition to fingerspelling, numbers, and a sign vocabulary of 350 words, this course covers the basic principles of manual communication through nonverbal techniques and concept development. Lab fee: \$5.00.
- 7766 Sign English I (On Demand)** 0-4-2
This course emphasizes the use of conceptual signs in straight English context. The course covers an additional vocabulary of 500 words. In addition to vocabulary building, this course concentrates on signing English expressions and increasing receptive skills. Lab fee: \$5.00. Prerequisite: 7765
- 7771 Interpreting I (SP)** 2-2-3
This course is a theoretical and practical "hands-on" approach to the process of sign language interpreting. The student will be actively learning how to render a signed message in ASL into spoken English, as well as render a spoken message in English into ASL. Lab fee: \$10.00. Concurrent: 7702
- 7772 Interpreting II (SU)** 1-5-3
This course is a continuation of 7771. As such, the students continue the process of actively learning how to render a signed message in ASL into spoken English, as well as how to render a spoken message in English into ASL. This course places more emphasis on the practical "hands-on" approach to the process of sign language interpreting. Lab fee: \$10.00. Prerequisite: 7771 with a "C" or better. Concurrent: 7754
- 7773 Interpreting III (W)** 1-5-3
As the final course in the three (3) course interpreting sequence, this course continues to increase students' knowledge and skills in the sign language interpretation process. Increased focus is placed on "real life" situational experiences involving actual consumers, increasing speed, and decreasing process time. Lab fee: \$10.00. Prerequisite: 7772 with a "C" or better.
- 7781 Transliterating I (SU)** 2-2-3
This course is a theoretical and practical "hands-on" approach to the process of sign language transliterating. The student will be actively learning how to render a signed message in PSE into spoken English, as well as render a spoken message in English into PSE. Lab fee: \$10.00. Prerequisite: 7702. Concurrent: 7754
- 7782 Transliterating II (A)** 1-5-3
This course is a continuation of 7781. As such, the students continue the process of actively learning how to render a signed message in PSE into spoken English, as well as how to render a spoken message in English into PSE. This course places more emphasis on the practical "hands-on" approach to the process of sign language interpreting while increasing speed and length of the subject matter. Lab fee: \$10.00. Prerequisite: 7781 with a "C" or better.
- 7783 Transliterating III (SP)** 1-5-3
As the final course in the three (3) course transliterating sequence, this course continues to increase students' knowledge and skills in the sign language transliteration process. Increased focus is placed on the "real life" situational experiences involving actual consumers, increasing speed, and decreasing process time. Lab fee: \$10.00. Prerequisite: 7782 with a "C" or better.

Italian See Humanities

Law Enforcement Technology

- 7801 Introduction to Criminal Justice (A,W)** 3-0-3
This course examines the development of law, and the systems and procedures developed by society for dealing with law violations. Emphasis will be placed on the three major components of the system: the police, courts, and corrections.
- 7803 Traffic Administration (On Demand)** 3-0-3
An orientation to highway traffic administration. Discusses the responsibilities of agencies involved in the highway transportation system with emphasis on the police function. Included are supervision enforcement definitions and rates, accident prevention and control problems, basic principles of traffic law enforcement, and the federal standards for highway safety that have a direct bearing on police operations.
- 7804 Juvenile Procedures (A,SU)** 4-0-4
Organization, functions, and jurisdiction of juvenile agencies. Processing and detention of juveniles. Statutes and court procedures relating to juveniles. Police services for juveniles and neglected children. Rights and liabilities of minors and their parents.
- 7805 Ohio Criminal Code (A,SU)** 5-0-5
The study of the statutes of Ohio that apply to crime and criminal procedures. With emphasis on the specific elements necessary to constitute individual crimes.
- 7806 Patrol Procedures (W)** 2-2-3
This course covers the basic concepts of police patrol. The purpose of patrol and various patrol strategies will be examined. Calls for service and response tactics as well as arrest techniques, vehicle stops, and prisoner booking and handling are covered. Lab fee: \$5.00.

7807 Criminal Investigation I (A)	3-2-4	7835 Crises Intervention (W)	3-0-3
Principles and techniques of criminal investigation, including those techniques and skills used in the investigation of major crimes such as: homicide, burglary, robbery, auto theft, arson and sex offenses.		This course provides the student with intervention strategies for dealing with persons in crises. The areas of domestic disputes, suicide prevention, and the special problems of crime victims will be emphasized. Lab fee: \$5.00.	
7808 Criminal Investigation II (W)	3-2-4	7836 Juvenile Delinquency (SP)	3-0-3
A continuation of 7807. Emphasis will be placed on the scientific analysis of evidence and proper methods for collection and preservation of trace evidence. Prerequisite: 7807		A study of the nature and causes of delinquent activity by juveniles. Though the development of an understanding of causative factors, appropriate criminal justice responses to such activity can be planned.	
7809 Emergency Dispatching (A)	2-2-3	7838 Vice Squad Operations I (SP)	3-0-3
A comprehensive examination of the communication process, including interpersonal as well as technological communication. The role and function of dispatchers dealing with emergency situations will be explored.		Methods of law enforcement related to illegal traffic in liquor, gambling morals, and prostitution.	
7813 Traffic Accident Investigation (SP)	4-2-5	7839 Vice Squad Operations II (A)	3-0-3
An in-depth study of the procedure and objectives in accident investigations. Gathering facts from road, vehicle and witnesses, hit and run investigation, measurements and diagrams, utilization of skid mark evidence, proper methods of recording accident data, use of accident template and a practical application of the recommended method of submitting the Ohio state traffic crash report. Lab fee: \$5.00.		A study of narcotics and hallucinogenics, with emphasis on the addict, the drugs, controls, local, state, and federal and united nations efforts to control drugs. The illegal sale and use of drugs, and drug addiction.	
7814 Criminal Law (SP,SU)	3-0-3	7841 Major Crime I (SU,A)	3-0-3
A study of the development of criminal law in the United States. The common law theories upon which law in this country is based will be explored. Specific topics will include: parties to crime, capacity to commit crimes; and defenses, and the laws defining specific crimes.		Principles and techniques of investigation and prosecution of major crimes. Emphasis on methods involving homicide, suicide, assault and rape. Human physiology as applied to police investigation.	
7815 Criminal Procedure (SP)	3-2-4	7842 Major Crime II (W)	3-0-3
A study of the rules of procedures as they apply to criminal cases and affect the ability of the officer to have the evidence he/she collects or prepares presented in court. Prerequisite: 7825		Principles and techniques of investigation and prosecuting of major crimes. Emphasis on methods, involving auto theft, burglary, and grand larceny. "Methods of Operation" techniques.	
7818 Criminal Evidence and Trial (SP)	2-2-3	7843 Techniques of Instruction (On Demand)	3-0-3
In this course the student will study the rules of evidence as they relate to the introduction of evidence at trial. In addition to the study of rules, students will participate in a mock trial in which evidence they have collected, preserved and processed will be presented.		Methods of instruction, application of audio visual equipment, testing, evaluation, and preparation of materials are introduced. Special emphasis is placed on planning an organizational training program. Lab fee: \$3.00.	
7819 Supervision of Public Service Personnel (W)	3-0-3	7845 Penology (SP)	3-0-3
Supervision techniques applied to public service personnel. The study of the need for job descriptions and job procedures, civil service requirements, reports, oral and written directions, work evaluation, and conference leadership. Methods of instruction effective in teaching and motivating personnel.		A study of the admitting, housing, and releasing of prisoners. Emphasis on city and county systems for handling prisoners.	
7821 Local Government (A,W)	3-0-3	7846 History of Law Enforcement (On Demand)	3-0-3
The role of local government in the community; its structure, organization, and responsibility. Local government politics and the community. Urban, suburban, rural and community structure will be discussed in relationship to delivery of services.		A study of law enforcement from early civilization through the modern police department. Reference to notable crimes in history, their particulars, and results in law enforcement procedures change. Scientific advances and their role in law enforcement.	
7822 Police Community Relations (A)	2-2-3	7847 Police Records (On Demand)	3-0-3
This course examines the complex relationship between the police and the public they serve. Areas of potential problems will be discussed and programs and procedures for enhancing the relationship will be presented. Lab fee: \$5.00.		The necessity, techniques, and details of keeping records in a police department. Criminal records, filing, and cross-reference system.	
7824 Investigation and Interviewing (SP)	3-0-3	7849 Crime Laboratory Techniques (TBA)	3-0-3
An analysis of the use of interviewing as a tool in investigation. Covering preparation of an interview, types of interviews, interview techniques and their psychological application in obtaining accurate and admissible statements.		A study of special chemical and physical procedures used in the crime laboratory. The use of specialized instrumentation: microscope and microphotography, x-ray equipment, and spectrophotometers. Lab fee: \$4.00.	
7825 Constitutional Law (W)	3-2-4	7851 Correctional Internship I (TBA)	0-10-1
A study of federal and state constitutional law and the Bill of Rights with emphasis on: due process of law, equal protection of the law, jury trial, and assistance of counsel. Interpretation of the constitution by the United States Supreme Court as given in their decisions.		On-the-job training in the field of corrections. The student will work in a correctional agency. The course will include the interviewing of convicted felons, verification of the information received, and various other duties connected with probation and parole. Prerequisite: 7872. Concurrent: 7852	
7826 Police Administration (SP)	3-0-3	7852 Corrections Seminar I (TBA)	1-0-1
The contemporary local law enforcement agency, its functions, structure, and operational techniques. Principles of organization, staffing, budgeting, controlling, coordination, planning and research. The development and maintenance of liaison between agencies.		This seminar will cover the pre-sentence investigation report, the purpose and how they are compiled. Members of the internship program will be able to discuss the problems and events that they have encountered during their work at the probation office with each other and the instructor. Prerequisite: 7872. Concurrent: 7851	
7827 Criminology (W)	3-0-3	7853 Correctional Internship II (TBA)	0-10-1
An exploration of the crime problem in the United States. Theories of the causation of crime will be analyzed and critiqued.		On-the-job training in the corrections setting. The student will work in a correctional agency. The course will consist of making background investigations for parole board, checking of inmates at various halfway houses, and interviewing persons on parole. Prerequisite: 7851. Concurrent: 7854	
7831 Police Photography (On Demand)	1-4-3	7854 Corrections Seminar II (TBA)	1-0-1
Photography at specific crime scenes. Photography of criminal evidence. Micro and macro photography. Preparing the court exhibit. Darkroom techniques. Use and care of photographic equipment. Lab fee: \$4.00.		This course is a discussion of what has occurred during the student's internship and clarification of problems. Assignment of project and explanation of reason for the project. Prerequisite: 7852. Concurrent: 7853	
7832 Fingerprinting (On Demand)	3-0-3	7855 Defensive Driving	0-2-2
A study of fingerprinting recognition and classification procedures. Analysis of distinguishing features of fingerprint patterns. Instruction in photography of latent prints prior to lifting. Proper methods of lifting and preserving evidence. Lab fee: \$1.00.		Defensive driving is driving to prevent accidents from occurring in spite of the actions of others or the presence of adverse conditions. Students will learn recommended driving principles and practices through vehicle operation. Lab fee: \$10.00.	
7833 Police Department Intelligence (W)	3-0-3	7856 Civil Disorders	0-2-1
The collection and evaluation of information dealing with security and safety of the municipality. Methods of observation of criminal and subversive organizations, checking on rumors, intro-police communications, and the use of informants.		The student will learn the behavior and psychological factors which control a crowd, the role of the police in maintaining order, the crimes associated with civil disturbances, and the basic crowd control techniques and riot formations. Lab fee: \$10.00.	
7834 Police Department Organization (On Demand)	3-0-3	7857 Unarmed Self Defense	2-2-3
An introduction to the principles governing the organization and administration of law enforcement organizations. Included for study are: functions and activities, development of policy, significance of community relations in effective police work, and training and control of police forces.		The student will learn: the basic principles and tactics of unarmed self-defense, how to defend against physical attack, and control of aggressive behavior in effecting an arrest using minimum force.	

7858 Police Firearms 0-6-3
Students will learn to safely use police firearms including pistol and shotgun. Shooting decisions and alternatives to firearm use are covered. Successful completion of the course requires compliance with current Ohio Peace Officers Training Council qualification standards. Lab fee: \$10.00.

7861 Criminalistics I (SU,A) 0-4-2
An introduction to criminalistics laboratory techniques: includes the recognition, collection, and preservation of evidence and its preparation for court presentation. An introduction to fingerprint comparison. Lab fee: \$5.00. Concurrent: 7811

7862 Criminalistics II (W,SU) 0-4-2
Advanced study of criminalistics laboratory techniques: includes examination techniques for blood, hair and fiber, fire-arms identification, toolmark comparison, latent fingerprints, questioned document examination and trace evidence. Lab fee: \$5.00. Prerequisites: 7811 and 7861. Concurrent: 7812

7871 Correctional Law (A) 4-0-4
This course will cover the various supreme court rulings that deal with the care and treatment of prisoners confined in institutions. It will include the use of force, the right to have visitors, receive mail, attend religious functions, and the right to treatment. The course will also cover due process of law.

7872 Contemporary Corrections (A) 3-0-3
This course covers the history of corrections, including the various philosophies that influenced correctional behavior, the development of the penitentiary system, the effect of court rulings on the operation of the institutions, and an insight into the future of the correctional system.

7873 Community Based Corrections (W) 3-0-3
This course will investigate alternative models of corrections in place of institutionalizing the offender. Various alternatives, and the benefits that will derive from the placing of the offender back in the community rather than in an institution will be discussed.

7874 Institutional Corrections (W) 3-0-3
An exploration of the development and the purposes of correctional institutions. Emphasis will be placed on major correctional facilities at the state and federal levels. Operation of such facilities and the care and treatment of prisoners will be examined.

7875 Counseling - Probation and Parole (SP) 4-0-4
This course covers the responsibilities and duties of the correctional counselor and case worker. Emphasis is placed upon the application of professional standards of casework in the correctional setting. Emphasis is also placed on the functions of the parole and probation officers.

7876 Correctional Administration (SP) 3-0-3
This course will cover the various phases of administration as they relate to corrections. Three basic stages are covered; executive, mid-management and line operations. Each of these levels will be discussed as they relate to institutions, community-based institutions, and operation of probation and parole. The problems and possible solutions to them will be covered for each division of corrections.

7881 Introduction to Security (W) 3-0-3
This course is designed to provide a general background in security for the beginner. It covers some of the fundamental systems used for loss prevention, fire destruction, and personnel safety. This course covers the basic idea of construction for security reasons as well as beauty and functionalism. It helps to relate security to all members of a company and the responsibility each has to the prevention of loss, both material and human.

7882 Security (W) 3-0-3
This course will combine the practical with the theoretical as it examines the nature of crime, criminals, and selected criminal offenses; major security concerns; and the techniques, sophisticated hardware, and personnel utilized to reduce or eliminate security problems.

7883 Industrial Security (W) 3-0-3
A study of the various types of security available to the business community. It covers the development of a proprietary security system, internal controls and external threats and special problems. Special emphasis will be placed on the use of electronic aide in security communications, and automatic access controls.

7884 Collateral Duty and Safety (SP) 3-0-3
This course is designed to inform the student how to conduct various surveys of a corporation to determine its vulnerability to theft and other hazards. It describes the various methods of conducting these surveys by questionnaires, study of procedure manuals and survey forms and demonstrates how procedures and standards are prepared.

7886 Security Management (W) 3-0-3
Introduction of the dynamics of corporate crime prevention. An in-depth analysis of the techniques of risk management in the formulation of definitive corporate security policies and examines the impact of crime on corporate productivity and profits.

7887 Security and Guard Services (On Demand) 3-0-3
This course is divided into two sections. The first covers retail store security, particularly shoplifting, shopping services and search laws. The second part of the course covers industrial security, guard services, alarm systems and premise protection.

7888 Security Research (On Demand) 3-0-3
This course covers the writing of reports, the locations of sources of information on individuals, and the types of information needed for various investigations conducted by the private security sector.

7895 Law Enforcement Practicum I (On Demand) 1-14-
A guided work experience in a law enforcement agency. Students will observe and participate in a variety of law enforcement functions. Exact duties will be decided on by agreement of the student and the law enforcement agency. Prerequisite: Permission of the chairperson. Concurrent: 7896

7896 Law Enforcement Practicum Seminar I (On Demand) 1-0-
Seminar discussions of work experience, and development strategies to improve work performance. Prerequisite: Permission of the chairperson. Concurrent: 7895

7897 Law Enforcement Practicum II (On Demand) 1-14-
A guided work experience in a law enforcement agency. Students will observe and participate in a variety of law enforcement functions. Exact duties will be decided upon by agreement of the student and the law enforcement agency. Prerequisite: Permission of the chairperson. Concurrent: 7898

7898 Law Enforcement Practicum Seminar II (On Demand) 1-0-
Seminar discussions of work experience, and development of strategies to improve work performance. Prerequisite: Permission of the chairperson. Concurrent: 7897

Legal Assisting Technology

7301 Introduction to Legal Assisting 4-0-
The role of the legal assistant, ethical responsibilities, and legal restrictions are the main focus of this course. Students will also be introduced to the function of statutes, case law, administrative regulations and constitutions within the legal system. Prerequisite: 1002

7302 The Legal System 2-0-
This course explores the federal and state civil law systems, federal and state criminal law systems, appellate process and such concepts as jurisdiction and venue. Prerequisite: 100

7303 Law Office Procedures and Management 3-0-
This course is an introduction to the day to day operation of a law office. Emphasis will be placed on the development of accurate records keeping skills and developing an understanding of office management procedures unique to law offices, including computerized time keeping and billing programs. Prerequisite: 7301

7309 Real Estate Transactions 3-0-
A study of the law governing real property, its ownership, sale, lease or other conveyance. The instruments utilized in conveyance or lease of such property will be examined and drafted. Title searching and abstracts of title are included. Prerequisite: 7301

7311 Legal Research and Writing I 3-2-
An introduction to conducting legal research and the proper methods of preparing brief pleadings and memorandum of law. Locating, analyzing and checking of case law is emphasized. Students will learn proper citation methods, and legal writing style, as well as becoming familiar with the Ohio and Federal Rules of appellate procedure. Prerequisite: 730

7312 Legal Research and Writing II 3-2-
A continuation of 7311, developing advanced research skills with an emphasis on preparing legal documents. Students will be familiar with primary and secondary sources, computer assisted research and a variety of legal documents. The student will also participate in a brief writing competition. Prerequisite: 7311

7314 Family Law 3-0-
Domestic relations matters including: marriage, divorce, dissolution, child custody and support, visitation and adoptions. The law regulating such matters and the drafting of appropriate documents will be emphasized. Prerequisite: 7301

7321 Litigation Practice and Procedure I 2-2-
A study of the Ohio Rules of Civil Procedure, the Federal Rules of Civil Procedure, and Federal and State Rules of Evidence. The basic elements of a tort claim will be discussed and the initial phases of an action, the complaint pleadings and discovery and pre-trial phases will be examined. Prerequisite: 7301

7324 Probate Law and Practice I 3-0-
The law of wills, estates and estate administration including estate taxation. Testate and intestate estates, law of descent and distribution, estate planning and other probate processes will be discussed. Prerequisite: 7301

7325 L.A. Practicum I 0-14-2
A guided work experience in an office or agency providing legal services. Exact duties are decided upon by agreement of the student and administrators of the placement site. Prerequisite: Permission of instructor.

7326 L.A. Practicum Seminar I 1-0-1
Seminar discussion of work experiences and the development of strategies to improve work performance. Prerequisite: Permission of instructor

7327 L.A. Practicum II 0-14-2
Further work experience in an office or agency providing legal services. Exact duties will be decided upon by the student and administrators of the placement site. Prerequisite: Permission of instructor

7328 L.A. Practicum Seminar II 1-0-1
Seminar discussion of current work experiences and the development of further strategies for improvement. Prerequisite: Permission of instructor

7329 General Practice	4-0-4
This course will acquaint the student with a variety of matters that may be encountered in a law practice. The basic elements of torts and contracts will be covered as well as judgments and civil collection actions. Prerequisite: 7301	
7331 Criminal Law and Procedure	3-0-3
The Ohio Criminal Code and Rules of Criminal Procedure will be the foundation of this examination of the pre-trial and post-trial procedures in a criminal case. Students will be exposed to the criminal justice system from the elements of offenses through post-conviction remedies. The drafting of motions and other documents associated with criminal matters will be included. Prerequisite: 7301	
7332 Business Organizations	3-0-3
The fundamentals of the formation of business entities including sole proprietorships, partnerships, and corporations. Students will prepare documents regarding the formation of such organizations. Prerequisite: 7301	
7333 Administrative Law	3-0-3
Statutory law, case law, and administrative rules will be utilized to develop an understanding of the role and authority of administrative agencies. Particular attention will be paid to social security and workers compensation claims. Prerequisite: 7301	
7340 Taxation	3-0-3
Fundamentals of state, local and federal tax laws. The agencies and tribunals involved in tax matters will be examined. Specific research strategies and document preparation relative to tax issues are explored. Prerequisite: 7301	
7341 Litigation II	2-2-3
Building on the knowledge gained in Litigation I, students will examine the role of the attorney in the trial process, case preparation and organization of materials for trial. Students will prepare a hypothetical case for trial. Prerequisite: 7321	
7345 Probate Law II	3-0-3
The law of guardianships and trusts with emphasis on guardianship administration, land sales and trust accounting. Prerequisite: 7324	
7347 Insurance Law	3-0-3
An introduction to insurance law. The course will include principles of indemnity, interests protected, the transfer of risk and claims processes. Prerequisite: 7301	

Literature

See Communication Skills

Marketing Technology

3901 Marketing I (A,W,SP,SU)	5-0-5
The fundamentals of product planning, pricing, promotion and placement of goods and services are the main topics covered. Additional attention is given to consumer behavior, market research, and marketing strategies. Lab fee: \$1.00.	
3902 Marketing II (A,SU)	5-0-5
Marketing II provides marketing majors the opportunity to study marketing in more detail and in a broader perspective than Marketing I. The primary focus is on marketing strategies. Students will be required to develop a "marketing plan" based on a select marketing problem of personal choice. Additional topics include: service, non-profit, international, and industrial marketing. Lab fee: \$1.00. Prerequisite: 3901 or instructor approval.	
3906 Consumer Behavior (A,SU)	3-0-3
Consumer behavior is designed to assist the student in developing a fuller understanding of the influences, both internal and external, that determine consumer behavior. It augments and complements 3909, 3912 and 3911. Lab fee: \$1.00. Prerequisite: 3901 or instructor approval.	
3909 Promotion (A,SU)	4-0-4
A survey of the promotional efforts contributing to economic exchange in today's distributive business. Personal selling, advertising, sales promotion and publicity are presented as key elements in the promotional process. Lab fee: \$1.00. Prerequisite: 3901 or instructor approval	
3911 Advertising (A,SU)	3-0-3
An in-depth exploration of advertising as a part of the "marketing mix". Course content includes the steps necessary to produce and deliver an advertising campaign to the consuming public. Non-credit elective when 2902 is used for credit. Lab fee: \$1.00. Prerequisite: 3901 or instructor approval	
3912 Professional Salesmanship (A,SP)	4-0-4
Practical application of selling theory in a variety of personal selling situations. Techniques of all phases of the selling process from initial contact to the close will be taught using videotape playback. Lab fee: \$1.00. Prerequisite: 3901 or instructor approval	
3913 Public Relations (A,SU)	3-0-3
Public relations examines both the theoretical and practical factors that contribute to a firm's image among its many publics. The emphasis is on public relations as a function of management as well as an adjunct of promotion. Lab fee: \$1.00. Prerequisite: 3901 or instructor approval	

3914 Customer Service Principles (A,SU)	3-0-3
A study of customer service principles used in business. Concepts and key elements will be explored. Techniques will be developed for small business applications. Topics include customer service overview, key elements of customer service, trends, industry examples, business impact and legal implications. Lab fee: \$1.00. Prerequisite: 3901 or instructor approval	
3915 Telemarketing (A,SU)	3-0-3
A study of the telemarketing fundamentals in the business environment. Concepts and applications for a variety of business needs will be explored. Telephone skills, scripting, and setting-up a telemarketing program will be part of the practical experiences gained. Lab fee: \$1.00. Prerequisite: 3901 or instructor approval	
3921 Distribution (A,SU)	3-0-3
An overview of the movement of goods and services through the channels of distribution. Topics will include warehousing, transportation, inventory methods and materials handling as well as alternative channels of distribution. Lab fee: \$1.00. Prerequisite: 3901 or instructor approval	
3942 Marketing Internship I (A,W,SP,SU)	0-4-4
Supervised on-the-job application of knowledge and skills acquired in the classroom. Lab fee: \$1.00. Prerequisite: Advisor approval required the quarter before the student actually begins the internship. Concurrent: 3943	
3943 Special Problems in Marketing I (A,W,SP,SU)	0-4-2
Application of marketing knowledge to specific areas of on-the-job internship. Lab fee: \$1.00. Prerequisite: Advisor approval required. Concurrent: 3942	
3946 Marketing Internship II (A,W,SP,SU)	0-25-4
Continuation of 3942. Lab fee: \$1.00. Prerequisites: 3942 and advisor approval required the quarter before the student actually begins the internship. Concurrent: 3947	
3947 Special Problems in Marketing II (A,W,SP,SU)	0-4-2
Application of marketing knowledge to specific areas of on-the-job internship. Lab fee: \$1.00. Prerequisite: Advisor approval required. Concurrent: 3946	

Mathematics

1105 Beginning Algebra I (A,W,SP,SU)	4-0-4
A transition from arithmetic to algebra; The Real Number System; signed numbers; elementary algebraic operations; linear equations and formulas; problem-solving by equation; factoring; the rectangular coordinate system, and graphs of linear equations. Prerequisite: 1842 with a grade of "C" or higher, or placement by ASSET. Not open to students with credit for 1106 or above	
1106 Beginning Algebra II (A,W,SP,SU)	4-0-4
Systems of linear equations; operations with algebraic fractions; factoring, exponents, radicals, and radical equations; solving quadratic equations by factoring, completing the square, and by formula; inequalities and their graphs. Prerequisite: 1105 with a grade of "C" or higher, or placement by ASSET. Not open to students with credit for 1107 or above.	
1107 Intermediate Algebra (A,W,SP,SU)	5-0-5
A review of real numbers. Set notation and interval notation, linear equations and inequalities, absolute value equations and inequalities, systems of linear equations, polynomials, factoring, rational equations, exponents, radical equations, quadratic equations, complex numbers, the function concept, including notation, domain and range, graphs, and inverse functions. Prerequisite: 1106 with a grade of "C" or higher, or placement by ASSET. Not open to students with credit for 1109, 1111, or 1133.	
1109 College Algebra (A,W,SP,SU)	5-0-5
A review of basic algebraic concepts including polynomial arithmetic, factoring, exponents, and radicals; linear equations and inequalities; the function concept, the rectangular coordinate system and graphs of linear and quadratic functions: the conic sections; higher degree functions; systems of linear equations and inequalities, determinants, and Cramer's Rule. A graphing calculator will be used. Prerequisite: 1107 with a grade of "C" or higher, or placement by ASSET. Not open to students with credit for 1133. Meets general education requirement for AA degree.	
1111 Technical Mathematics I (A,W,SP,SU)	3-2-4
A brief review of scientific notation, roots and radicals, and other algebraic concepts; an introduction to computer programming in BASIC; solutions to linear equations and formulas; ratio-proportion, direct and inverse variation; algebraic functions and rectangular coordinates; solutions to 2 x 2 and 3 x 3 linear systems, including Cramer's Rule; and right triangle solutions. Lab fee: \$5.00. Prerequisite: 1106 with a grade of "C" or higher, or placement by ASSET. Meets degree requirement for Electronic Engineering Technology and Mechanical Engineering Technology.	
1112 Technical Mathematics II (A,W,SP,SU)	3-2-4
A continuation of the discussion of BASIC; periodic functions with emphasis on graphing the Sine and Cosine curves; exponential and logarithm functions; complex numbers, including DeMoivre's Theorem; vectors and oblique triangles using the Law of Sines and the Law of Cosines; and solutions to quadratic equations. Lab fee: \$2.00. Prerequisite: 1111 with a grade of "C" or higher. Not open to students with credit for 1114. Meets degree requirement for Electronic Engineering Technology and Mechanical Engineering Technology.	

1113 Technical Mathematics III (A,W,SP) 3-2-4
Higher-degree equations, synthetic division, remainder and factor theorems; linear, quadratic, and rational inequalities; trigonometric identities and equations; the straight line, circle, parabola, ellipse, hyperbola, and translation of axes; an introduction to descriptive statistics, including frequency distributions, measures of central tendency and dispersion, and the Normal Distribution; computer applications using BASIC. Lab fee: \$2.00. Prerequisite: 1112 with a grade of "C" or higher. Not open to students with credit for 1114. Meets degree requirement for Electronic Engineering Technology and Mechanical Engineering Technology.

1114 PreCalculus (A,W,SP) 5-0-5
A continuation of the study of functions, including the exponential, logarithmic, and trigonometric functions; triangle trigonometry, analytic trigonometry; and the Complex Number System, including DeMoivre's Theorem. A graphing calculator will be used. Prerequisite: 1109 with a grade of "C" or higher. Meets general education requirement for AA degree.

1115 Calculus and Analytic Geometry I (A,SP) 5-0-5
An introduction to Differential Calculus: functions; limit theory, continuity, and rules for finding derivatives; applications to related rate problems, maxima and minima problems; Mean Value Theorem; and derivatives of the trigonometric functions. Prerequisite: 1113 or 1114 with a grade of "C" or higher, or permission of Mathematics Department. Meets general education requirement for AS and AA degrees.

1116 Calculus and Analytic Geometry II (W,SU) 5-0-5
An introduction to Integral Calculus: Definite Integral, the Fundamental Theorem of Calculus, integration techniques; integration of the exponential, logarithmic, trigonometric, inverse trigonometric and hyperbolic functions. Applications in computing areas and calculating volumes of solids of revolution. Prerequisite: 1115 with a grade of "C" or higher. Meets general education requirement for AS and AA degrees.

1117 Calculus and Analytic Geometry III (A,SP) 5-0-5
Indeterminate forms and improper integrals; numerical methods, conics and polar coordinates; functions of several variables; vectors in 2 dimension; series and sequences. Prerequisite: 1116 with a grade of "C" or higher. Meets general education requirement for AS and AA degrees.

1118 Calculus and Analytic Geometry IV (W,SU) 5-0-5
The derivative in 2 and 3 dimensions: multiple integrals and applications in 2 and 3 dimensions; vector calculus (Green's, Gauss's, and Stokes' Theorems); vectors in 3 dimension. Prerequisite: 1117 with a grade of "C" or higher. Meets general education requirement for AS and AA degrees.

1119 Elementary Differential Equations (W,SP) 5-0-5
A study of the basic concepts and methods of solving ordinary differential equations, first and second order, higher order linear equations, Laplace transform methods, series solutions, and numerical solutions of differential equations. Applications to the physical sciences and engineering. Prerequisite: 1118 with a grade of "C" or higher. Meets general education requirements for AS and AA degrees.

1121 Computer Science Math I (A,W,SP,SU) 5-0-5
A study of fixed and floating-point real numbers, significant digits, scientific and normalized notations; a look at algorithm, flowchart, and pseudocode forms and decision tables; a comparison of decimal, binary, octal, and hexadecimal numeration systems, conversions, and arithmetic in those systems; definitions, symbols, and operations in set theory; a study of linear and nonlinear relations and functions; logical operators with truth tables and flowcharts: an introduction to descriptive statistics, and probability. Prerequisite: 1106 with a grade of "C" or higher, or placement by ASSET. Meets degree requirement for the Computer Programming Technology and a general education requirement for the AA degree.

1122 Statistics for Business (W,SP) 5-0-5
Numerical and graphical descriptions of sample data; measures of central tendency and dispersion; probability; the binomial, Poisson, hypergeometric, exponential, and normal distributions; Bayes' Theorem; sampling distributions, the Central Limit Theorem; and estimation.

1126 Statistics for Business (W,SP) 5-0-5
Numerical and graphical descriptions of sample data; measures of central tendency and dispersion; probability; the binomial, Poisson, hypergeometric, exponential, and normal distributions; Bayes' Theorem; sampling distributions, the Central Limit Theorem; estimation, and confidence intervals. Microcomputers will be used. Lab fee: \$2.00. Prerequisite: 1135 with a grade of "C" or higher. Meets general education requirement for AS and AA degrees.

1131 Business Mathematics (A,W,SP,SU) 5-0-5
Ratio, proportion and percents; checking accounts and gross earning; FICA and withholding; sales and property tax; discounts; mark-up and mark-down; simple and compound interest; discounting notes; present value and amortization; and depreciation schedules. An introduction to descriptive statistics: mean, median, mode, and standard deviation. Applications modules using LOTUS 1-2-3. Lab fee: \$3.00. Prerequisite: 1841 with a grade of "C" or higher, or placement by ASSET. Meets degree requirement for the AAS degree in Business Management and several other technologies.

1133 Business Algebra (A,W,SP,SU) 5-0-5
Exponents and radicals; linear equations and inequalities, quadratic, rational, and absolute value equations. An introduction to functions, including notation and operations; graphs of linear and nonlinear functions, including parabolas; exponential and logarithmic functions; algebraic solutions to linear and nonlinear systems of equations; matrix solutions to linear systems; business applications throughout. Prerequisite: 1107 with a grade of "C" or higher, or placement by ASSET. Not open to students with credit for 1109 or 1114. Meets general education requirement for the AA degree for a student planning to transfer to a business college at a four-year university.

1134 Business Calculus I (A,W,SP) 5-0-5
An introduction to differential calculus: Limits, interest compounded continuously, continuity, tangent lines, derivatives, differentiability, rules for differentiation, derivatives of logarithmic and exponential functions, graphing techniques, applications of differentiation to graphing and to business. Prerequisite: 1109 or 1133 with a grade of "C" or higher, or permission of Mathematics Department. Not open to students with credit for 1115. Meets general education requirement for the AA degree for a student planning to transfer to a business college at a four-year university.

1135 Business Calculus II (W,SP,SU) 5-0-5
An introduction to integral calculus: anti-differentiation, definite integral, integrals of logarithmic and exponential functions, techniques of integration, fundamental theorem of calculus, area, differential equations, partial derivatives, Lagrange multipliers, and applications of integral calculus to business. Prerequisite: 1134 with a grade of "C" or higher. Not open to students with credit for 1116. Meets general education requirement for the AA degree for a student planning to transfer to a business college at a four-year university.

1141 Elementary Statistics (A,W,SP,SU) 5-0-5
Descriptive statistics; percentiles and z-scores; probability; binomial and normal distributions; Central Limit Theorem; sample statistics; statistical inference, estimation; testing hypothesis; linear correlation and regression. Microcomputers will be used. Lab fee: \$2.00. Prerequisite: 1106 with a grade of "C" or higher, or placement by ASSET. Not open to students with credit for 1126. Meets degree requirement for the Accounting, Financial Management, Electro-Mechanical Engineering and Quality Assurance Technologies.

1145 Technical Algebra (A,W,SP) 4-0-4
An introduction to percents and their uses to include percent increase or decrease; a discussion of dimensional units and unit conversions, including the Metric System; equation solving and formula evaluation; powers and roots; quadratic equations and the quadratic formula; bar, line, and circle graphs of linear equations. Prerequisite: 1105 with a grade of "C" or higher, or placement by ASSET. Not open to students with credit for 1109, 1111, 1112, 1113, 1114, or 1133. Meets degree requirement for the Architecture, Automotive, Aviation, Civil Engineering and Construction Management Technologies.

1146 Technical Geometry/Trigonometry (A,W,SP) 4-0-4
Solutions to 2x2 systems of equations; geometric concepts and their applications to determining perimeters and areas of plane figures, surface areas and volumes of solid figures including prisms, cylinders, cones, and spheres; solutions to right triangles; vectors and angles greater than 90; Law of Sines; and Law of Cosines. Prerequisite: 1145 with a grade of "C" or higher. Meets degree requirement for the Architecture, Aviation, Civil Engineering, and Construction Management Technologies.

1185 Calculations and Dosages (W,SU) 2-0-2
A review of the fundamental operations of arithmetic with fractions and decimal fractions; ratio and proportion calculations; an introduction to the metric and apothecary systems of measures; metric-apothecary conversions; strengths of solutions; and calculating medication dosages. Prerequisite: 1841 with a grade of "C" or higher, or placement by ASSET. Meets degree requirement for the Nursing Technology. Should be taken in the student's second quarter of the Nursing program.

Mechanical Engineering Technology

4601 Mechanical Drafting I (W,SU) 1-5-3
This course is designed to instruct students in the principles of orthographic, isometric, and oblique projection. Instruction is provided on linework, lettering, dimensioning, sectioning, and applied descriptive geometry. Course focus is placed on making detail drawings. Lab fee: \$10.00. Prerequisite: 4608

4602 Mechanical Drafting II (A) 1-5-3
This course is a continuation of 4601, including advanced drafting practices, industrial standards, and the drawing of machine elements. Lab fee: \$10.00. Prerequisite: 4601

4603 Computer Aided Drafting I (W,SU) 1-5-3
Introduction to the basic terminology and fundamental concepts of computer aided drafting and computer graphics is presented. Student is introduced to the generation of orthographic and two-dimensional drawings using a computer aided drafting system. Lab fee: \$20.00. Prerequisites: 4601 and 4652

4604 Basic Mechanisms (SP,SU) 2-4-4
Graphical and mathematical study of displacement, acceleration, and velocity of typical mechanisms, including mechanical linkages, cams and followers, gears and gear trains. Lab fee: \$6.00. Prerequisites: 1113 and 4601

4606 Machine Design (SP,SU) 2-6-4
The course integrates the principles of design applied to projects involving tooling, jigs, and fixtures, power transmission. Theory is presented with practical applications to promote understanding of mechanical systems. Emphasis is on practical industrial applications. Lab fee: \$15.00. Prerequisites: 4602, 4645, 4626 and 4282. Concurrent: 4604

4608 Introduction to Manufacturing Technology (A,SU) 2-3-3
This course is designed to introduce the beginning student to the Engineering Technology and basic engineering practices such as drafting, engineering procedures, calculations, terminology, symbols, publications, and professional societies. Emphasis will be placed on manufacturing organizations, employment opportunities and career paths to jobs in the engineering technology professions. Prerequisites: 1105 and 1812

4609 Computer Aided Drafting II (SP) 1-5-3
This course is an extension of 4603. Course includes the study of practical applications of computer graphics with isometric and two and three dimensional drawing techniques to graphically solve mechanical related problems and to produce mechanical drawings. Lab fee: \$20.00. Prerequisites: 4603 and 4602

4611 Machine Tools (A,SU) 2-6-4
This course features hands-on operation of mills, lathes, shapers, grinders, and electronic discharge machine in addition to instruction on safety practices and related theory needed for operating these tools. Additional instruction will be given on cutting tool materials and geometry, feeds and speeds, machining times, gear cutting, and associated bench practices. Lab fee: \$20.00. Prerequisite: 4608

4612 Manufacturing Processes (A,SU) 3-2-4
This course is designed to be an introduction to basic manufacturing processes and techniques used in American industry today. The topics to be covered fall into three general categories: 1) manufacturing materials; sources and usage; 2) metals; extraction, and refining; 3) production processes; machining, forming, molding. Lab fee: \$5.00.

4615 Materials Science (W) 3-2-4
This is a course that will acquaint the engineering technician with the nature, properties, performance, characteristics and practical uses of various engineering materials. Materials such as ferrous and nonferrous metals as well as concretes, plastics, and selected organic materials will be covered. Lab fee: \$10.00.

4616 Introduction to AutoCAD (On Demand) 1-2-2
Introduction to AutoCAD menu, two dimensional drawing commands, drawing set up procedures, basic operating systems commands, editing and reviewing commands, basic plotting techniques, basic blocks, symbols, dimensioning, and text commands. Students will be exposed to AutoSketch and AutoShade software. Lab fee: \$25.00.

4617 Intermediate AutoCAD (On Demand) 1-2-2
Course presents basic 3D concepts, elevations, 3D lines, 3D polylines, X Y Z filters, intermediate use of blocks, symbols, shape, attributes and data extraction, intermediate file management techniques, and plotting techniques. The assembly of multiple drawings and using macros and script files is covered. Lab fee: \$25.00. Prerequisite: 4616

4626 Hydraulics (SP,SU) 2-3-3
This is a course designed to instruct students in the basics of fluid flow and power transmission in hydraulically and pneumatically controlled machines. This course will emphasize the principals of system design and practical uses of hydraulic and pneumatic components for industrial applications. Much of the course is involved in practical lab exercises to demonstrate basic operating principles including piping, pumps, cylinders, and motors. Lab fee: \$10.00. Prerequisite: 1105 or equivalent

4634 FORTRAN 77 Programming (W,SU) 1-6-3
This course is designed for the beginning programmer, offering instruction and lab exercises in the ANSI 77 FORTRAN language. Students will design, flowchart, code, run, and debug programs in this course. Lab fee: \$10.00. Prerequisites: 4652 and 1106

4635 Numerical Control (W) 2-6-4
This course is designed for the beginning student and covers manual numerical control programming. Each student will prepare numerical control programs in fixed block, tab sequential, and word address formats, in both absolute and incremental positioning systems. Students will program for state-of-the-art computerized numerical control equipment including mills and lathes. Each student will prepare programs utilizing punched paper tape and magnetic media on computerized equipment. Lab fee: \$15.00. Prerequisite: 1112

4644 Statics (SP,SU) 2-3-3
This course deals with the principles of trusses, frames, machines and machine components. The course will offer the student experience in dealing with coplanar load systems that are concurrent, parallel and noncoplanar. Prerequisites: 1112 and 1381

4645 Strength of Materials (A,SU) 2-3-3
This course is a study of the application of external loads to rigid bodies and the analysis of the resulting stresses produced within those bodies. Study will be devoted to thermal expansion, bolted, and welded joints, thin walled pressure vessels, beam stresses and deflection, beam design, column stresses, and column design. Prerequisite: 4644

4651 Introduction to Welding (On Demand) 2-4-4
Presents the basic fundamentals as applied to the welding discipline used in the industrial environment. Provides the practical information for the persons involved to obtain an overall awareness of the various materials joining process. Lab fee: \$35.00.

4652 Computer Applications in Manufacturing (A,SP) 2-3-3
This course provides an introduction to the personal computer for mechanical engineering technology students. Emphasis is placed on the use of the computer as a tool to assist students in solving engineering problems. The course includes basic instruction in operating systems, various application types, and discussion of programming languages. Lab fee: \$10.00. Prerequisite: 1105

4653 Robotics (A) 2-3-3
This course reviews robotic system approach principles, descriptions of robot operations, and application of robots and automation systems. Approaches to economic justification of robots and automatic production systems is presented. Students learn the application of computers to robotics and automation systems. Course provides procedures in designing, purchasing, and installation of robotic and automatic systems. Lab fee: \$10.00. Prerequisites: 4652 and 1111

4654 Statistical Process Control (A,W) 2-3-3
This course provides a broad overview of statistical process control in the industrial

environment. This course includes presentation of the philosophy and practices of modern quality control principles, basic probability, control chart applications, acceptance sampling, frequency distributions, and process capability studies. Prerequisite: 1105

4655 Computer Aided Manufacturing (SP) 2-6-4
This course provides the manual Numerical Control programmer with an understanding of the basic fundamentals of computer aided manufacturing including instruction in the APT computer aided manufacturing language and flexible manufacturing systems. Lab fee: \$15.00. Prerequisites: 4634 and 4635

Medical Laboratory Technology

8005 Immunohematology (A,SP) 4-12-8
This course is designed to teach students to perform, according to American Association of Blood Banks (AABB) standards, the routine serological procedures used in any transfusion service or blood bank. Stress is placed on the performance of pretransfusion testing and the recognition of the presence of serological incompatibilities in a patient's specimen. Students will be introduced to the techniques used in the resolution of the most commonly encountered serological difficulties. Class discussions will also include donor blood collection and processing for component therapy, blood transfusion practices, adverse affects of blood transfusion, investigation of transfusion reactions, and fetal-maternal blood incompatibilities. Upon successful completion of this course, the students will be able to perform the routine pretransfusion procedures during clinical experience. Lab fee: \$70.00. Prerequisite: 8013 or permission of chairperson.

8008 Introduction to Health Care (A,SP) 2-2-3
The student will be introduced to the world of health care through the exploration of the following areas related to the field, including: the evolution of an approaches to health care delivery, allied health care professions, legal and ethical issues, communications and safety in the health care environment. Lab fee: \$15.00. Prerequisite: Placement into 1002. Concurrent: 8019

8009 Hematology I (A,SP) 3-9-6
An introduction to basic laboratory skills, and the origin, formation, and differentiation of blood formed elements. Included are techniques in counting red cells, white cells, platelets (by both manual and automated methods), reticulocytes, eosinophils, and the preparation and study of normal blood smears. Lab fee: \$70.00. Prerequisite: Admission to the program.

8012 Role and Responsibility of the MLT (W,SU) 1-2-2
This course will provide an in-depth examination of the role and responsibilities of the MLT as an important professional in the delivery of quality health care. Discussions will include such topics as professionalism, the general organization and operational activities of a clinical laboratory, and career opportunities for MLT graduates. Students will be exposed to some real clinical settings and meet with practicing laboratory personnel. In addition, students will be introduced to some basic laboratory equipment, specimen processing techniques, the application of laboratory math, and the techniques of phlebotomy. Prerequisite: Admission to the program.

8013 Immunology (W,SU) 3-4-5
A study of the immune system, the nature of immune responses, and the application of immunological reactions to a variety of laboratory procedures. Emphasis is placed on the commonly performed serological tests. Also included are discussions of the etiology and diagnosis of immunologically mediated diseases. Upon successful completion of this course the student will be able to perform the routine serological tests during clinical experience. Lab fee: \$70.00. Prerequisite: Permission of chairperson.

8017 Clinical Microbiology (W,SU) 4-12-8
A practical introduction to the laboratory identification of microbial agents associated with disease in man. Students will be instructed in the techniques necessary to isolate, identify, and evaluate the presence of clinically significant microorganisms. The course also includes a brief introduction into medical mycology and parasitology. Students who successfully complete this course will be able to perform routine clinical microbiology procedures and evaluate test results in clinical experience. Lab fee: \$70.00. Prerequisite: Permission of chairperson.

8022 Hematology II (W,SU) 3-6-6
This course builds on the routine Hematology procedures covered in Hematology I. Blood smears are prepared and studied for the identification of blood cells which aid in the diagnosis of anemias, leukemias, hemoglobinopathies, and other disease states. Hemoglobin studies are performed to evaluate both quantity and types. Also included is the study of coagulation and the routine procedures used to evaluate hemostasis. Upon completion of this course the student will be able to perform routine hematology procedures during clinical experience. Lab fee: \$70.00. Prerequisite: 8005. Concurrent: 8027.

8025 Clinical Chemistry (A,SP) 4-15-9
This course is a study of the application of biochemistry to laboratory medicine and the understanding of the human in health and disease. Analytical procedures utilized to determine chemical constituents in blood, urine and other body fluids will be presented. The chemical principles of the methods will be discussed as well as the correlation of test results as indicators of presence or absence of disease. Students who successfully complete clinical chemistry will be able to perform routine clinical chemistry procedures and evaluate test results in clinical experience. Lab fee: \$70.00. Prerequisite: Permission of chairperson.

8027 Body Fluids (w,SU) 4-2-4
The physical, chemical, and microscopic evaluation of urine and other nonblood body fluids will be studied. Phlebotomy procedures will also be presented through demonstration and practice sessions. Prerequisites: 8005. Concurrent: 8022.

8028 Clinical Seminar	0-2-2
Informal seminar course covering topics specific to working in a medical laboratory including interpersonal skills, resume writing, employer expectations and activities to prepare students for credentialing examinations. Lab fee: \$35.00. Concurrent: 8029	
8029 Clinical Experience	0-25-5
Practical experience in area health care facilities in which students are given the opportunity to work in a laboratory setting under the guidance of laboratory professionals. Lab fee: \$35.00. Prerequisite: all technical courses. Concurrent: 8028.	
8031 Special Topics in Medical Laboratory (A,W,SP,SU)	1-0-1
8032 Special Topics in Medical Laboratory (A,W,SP,SU)	2-0-2
8033 Special Topics in Medical Laboratory (A,W,SP,SU)	3-0-3
These courses are independent studies of advanced topics in laboratory management, instrumentation, computerization, hematology, immunology, immunohematology, microbiology, clinical chemistry, urinalysis, coagulation or phlebotomy. Prerequisite: Permission of chairperson.	

Mental Health/Chemical Dependency and Mental Retardation Technology

8405 Interviewing in Human Services(A,W,SP)	2-2-3
This introductory course focuses on the development of basic interviewing, rapport building and active listening skills in the beginning student. The student will gain a beginning understanding of the process and principles in establishing effective helping relationships using observation and behavioral writing. Lab fee: \$7.00.	
8411 Introduction to Human Services: Mental Retardation/Developmental Disabilities and Mental Health (A,W,SP)	3-2-4
This is an introductory course covering terminology, history, assessment, legal rights, classifications, normalization, community based treatment, medical vs. a human services model and community resources in relation to mental retardation/developmental disabilities and mental health. Students will develop a basic understanding of the needs of those persons with MR/DD and/or mental health issues/problems. The student will also visit community agencies serving the MR/DD and MH populations. Beginning concepts related to working with families of persons with disabilities are also covered. Lab fee: \$7.00.	
8416 Therapeutic Group Work Skills	4-0-4
This course offered as a part of the Mental Health and Chemical Dependency tracks, is dual focus on knowledge and experiential learning using group as the unit of attention. Course content includes formation, process, stages of development, leadership skills and problematic issues of inpatient and outpatient groups. The student will participate as a member in a peer group to compliment classroom theoretical constructs. Lab fee: \$7.00.	
8421 Values and Attitudes (A,W,SP,SU)	0-2-1
This course focuses on the values, beliefs, attitudes and ethical standards necessary in the workplace. Values clarification and self exploration are an integral part of the course. Conducted through a small group experience to facilitate interpersonal understanding. Lab fee: \$7.00.	
8422 Counseling Skills	4-0-4
This core course focuses on the theoretical and practical aspects of effective helping through the counseling relationship. Skills which form the foundation of effective communication using a microtraining model are emphasized. Critical thought and creativity is stressed. Course content includes practicing skills in small study groups, and in role play/simulations. Lab fee: \$7.00.	
8423 Activity Therapy	4-0-4
This course offered as a part of the Mental Health and Mental Retardation track, is designed to provide the student with knowledge of key concepts and specific skills using activities as the tool in helping relationships. The student is exposed to the use of a variety of adjunctive therapies as it facilitates gathering data, assessment and treatment planning for clients. Lab fee: \$7.00.	
8424 Principles of Behavior Management	4-0-4
This core course is designed to coordinate clinical (practical) experiences with theoretical concepts. Focus is on behavior management theory and application in a variety of settings. The student will develop skills in using a behavioral approach in working with clients. This course will reinforce data collection, assessment, and treatment planning skills. Lab fee: \$7.00.	
8425 Case/Program Management	4-0-4
This core course is designed to focus previous learning into a case management milieu, in particular case management services for those persons who have a severe mental disability. Various treatment modalities will be presented. The student will review and practice the skills necessary to conduct effective case management services for those with severe mental disabilities within a community treatment team model. The student in this course of study will experience field practicum with a community treatment team. Lab fee: \$7.00. Prerequisite: 8491. Concurrent: 8494	
8426 Social Policy and Programs	4-0-4
Social policy and its relationship to the work of the human services professional. Overview	

of U.S. social welfare institutions: family, church, government, and economical institutions. This course examines social welfare policies/programs at national, state, and local levels in areas of housing, health care, and income maintenance. Agency analysis and social action for social change model is emphasized. Lab fee: \$7.00. Prerequisite: 8491.

8428 Principles of Vocational Rehabilitation	4-0-4
An advanced course in the Mental Health and Mental Retardation tracks designed to focus on principles of work training. The student will learn the components of vocational rehabilitation and job training approaches. The student will practice the skills necessary to provide effective job training for people with disabilities. Lab fee: \$7.00.	
8429 Principles of Habilitation Programming	4-0-4
An advanced course in the Mental Retardation track designed to utilize and focus previous learning into components of habilitation programming for persons with mental retardation and developmental disabilities. The student will learn current philosophical and technical approaches to designing activities. Various implementation strategies will also be presented. The student will review and practice the skills necessary to participate in the habilitation process. Lab fee: \$7.00.	
8436 Chemical Dependency I	4-0-4
This is a course in the Chemical Dependency track designed to give the student skills in assessing and treating chemical dependency, co-dependency, and other addictions. The course will acquaint the student with philosophies of addiction, assessment processes, treatment planning and intervention strategies with the chemical dependent person. It provides an introduction to the effects of chemical dependency on family systems and identifies family treatment strategies. The course addresses the special issues concerning minority groups, elderly, women and youth. The student will be exposed to various community resources, discharge planning, and will be assisted in identifying their own issues and connecting with a 12 step recovery plan. Lab fee: \$7.00	
8439 Chemical Dependency II	4-0-4
This is an advanced course in the Chemical Dependency track designed to provide the student with the knowledge and skills to collect assessment data, develop treatment plans, do interventions with family/significant others, write discharge summaries and link chemical dependency clients to community resources. Course content will also emphasize issues related to the dual diagnosed chemical dependent client. The student will become a member of a chemical dependency unit/agency treatment team. Lab fee: \$7.00	
8441-8449 Special Studies in MH/CD/MR (On Demand)	1-5
A series of courses designed to meet specific needs of students who wish to pursue in-depth training in the MH/CD/MR/DD field. Typical subject areas may include theory and skills in helping chemically dependent, severely mentally disabled, 'dual diagnosed', or persons with mental retardation/developmental disabilities. Instructional methods may include clinical experience, seminar format, field placement, lecture, research, videotape and role play. Lab fee: \$4.00.	
8488 Field Practicum in Chemical Dependency I	2-14-4
This is a required clinical experience for the student specializing in Alcohol/Drug Dependency. The training needs of the student are matched to the community agency. The student has had training in the fundamental skills requisite to being an effective helper. The student plans an extended placement of two consecutive quarters in a primary treatment setting to carry a small caseload and become involved in on-going work with chemically dependent clients. The student is expected to assume the role of service provider and is responsible for professional conduct and regular work habits. Lab fee: \$25.00.	
8489 Field Practicum in Chemical Dependency II	2-14-4
This is an advanced clinical experience for the student who has chosen to work in the alcohol/drug dependency field. The student will be responsible for collecting assessment data, developing treatment plans, doing intervention with family/significant others of the chemical dependent client. Lab fee: \$25.00.	
8491 Fundamentals in Human Service Practice (A,W,SP)	6-14-8
This is a core course which focuses on the planning process for delivering service to clients which is studied through the steps of data collection, assessment, treatment planning, implementation, and evaluation. The student will become knowledgeable in specific methods to collect data, assess and prioritize client needs, devise treatment plans, implement the treatment plan, and evaluate the effectiveness of the plan. The student will observe and participate in the delivery of service to clients at an agency which provides a range of services. The students will also practice basic skills under close supervision. Lab fee: \$25.00. Prerequisite: Acceptance into the technology.	
8492 Field Practicum in Activity Therapy	2-14-4
This is one of several clinical experiences designed to give the trainee a broad overview of modalities of delivery of MH/MR services using activity as the tool in assessment and treatment planning. This experience gives the trainee an opportunity to observe all components of a facility which provides a range of services, and to practice basic skills under supervision. Lab fee: \$25.00.	
8493 Field Practicum in Habilitation Programming	2-14-4
A clinical experience for the student, specializing in the mental retardation/developmental disabilities track, which takes place in a community agency matching the student's interest and training needs. The student will use basic skills of habilitation programming. The student will work in the capacity of a habilitation specialist and is responsible for professional conduct and regular work hours. Lab fee: \$25.00	
8494 Field Practicum in Vocational Rehabilitation	2-14-4
A clinical experience for the student specializing in mental health/mental retardation which takes place in a community agency matching the student's interests and training needs. The student has a solid grounding in the fundamental skills requisite for being a vocational trainer.	

The student is expected to assume the role of service provider and is responsible for professional conduct and regular work habits. Lab fee: \$25.00

8495 Field Practicum in Group Work 2-14-4
This is a clinical experience for the student in the Mental Health and Alcohol Drug addiction tracks. The student will lead and/or co-lead a group using skills learned in the classroom. The students will assume the role of service provider and demonstrate professional conduct. Lab fee: \$25.00.

Multi-Competency Health Technology

8801 Basic Electrocardiography (EKG) (A,SU) 5-2-6
This course is designed to provide basic entry-level skills in cardiovascular technology. The course covers an introduction to health care, anatomy and physiology of the heart, operation of the electrocardiograph and recording of EKG's, cardiac pathology and basic cardiac rhythm recognition skills. Completion of the course qualifies the student to function as an EKG technician, a skill ordinarily utilized in an acute health care setting or physician's office. Concurrent: 8811

8802 Tissue Identification (SU) 1-6-3
A modern day study of histology involves the study of cell and tissue structure in relation to function. Consequently the emphasis of this course will be twofold. The first emphasis will be on learning to recognize various cellular structures and arrangements and applying them to the identification of different tissue sources. The second emphasis will be correlating the tissue identification with function. Study will begin with the single cell then progress through the four basic tissue types, organ structure, and organ systems. Students will spend considerable time examining already prepared tissue sections. This examination will include macroscopic observation with emphasis on microscopic study using the light microscope. Prepared slide examination will be supplemented with other visual aides whenever possible. Prerequisite: Acceptance into Histology program.

8803 Chemistry of Stains (A) 5-0-5
Fixation, processing and staining of tissue is discussed. The theory behind each process and the purpose of each process is defined with specific technical details related to the staining of each type of tissue. Prerequisite: 8802 or permission of program director.

8805 Basic Histology Techniques (A) 0-20-7
This course provides laboratory practice in all phases of the practice of histology. Prerequisite: 8802 or permission of program director.

8807-08 Case Study Review and Seminar (W,SP) 3-0-3
This course is concurrent with the clinical experience and includes instruction on preparation for employment, taking the registry and preparation of specimens for the registry exam. Case studies are presented and prepared by the students to demonstrate the total histological process. Prerequisites: 8803 and 8805

8809 Basic Histology (A) 4-0-4
This course is equally divided between two major areas of study: laboratory safety regulations and laboratory mathematics. Various types of laboratory hazards and safety techniques dealing with such hazards are identified. In addition the federal, state, and other organization's regulations concerned with laboratory safety in the use of chemicals are discussed. Finally a study of laboratory mathematics emphasizes the procedures applicable to reagent preparation in a routine histology laboratory. Prerequisite: 8802 or permission of program director.

8811 EKG Clinical Practice (A,SU) 0-3-1
This course is designed to provide students with hands-on experience in EKG recording, as well as experience in interacting with persons needing health care. Various hospitals are utilized for this experience; students work under the direct supervision of an EKG technician. Concurrent: 8801, beginning after successful completion of the written and practical midterm exams.

8812-13 Histology Clinical Experience (W,SP) 0-25-5
The student will attend three (3) different clinical facilities, 25 hours per week for 22 weeks. The 22 week period will be divided into two weeks at Battelle Research Institute plus eleven and nine weeks in two different clinical sites. During this time, the student will perform all functions in the clinical site as a Histology technician. Prerequisites: 8803 and successful completion of all internship requirements or permission of program director.

8815 Phlebotomy (W,SU) 3-9-6
Blood collection by both venipuncture and capillary puncture techniques, using various equipment are performed in class and in the hospital. Professional ethics and liability, composition and appearance of blood, safety, anticoagulants and clinical relevance of laboratory tests are studied. Problems encountered in phlebotomy, in addition to special specimen collection for transfusion services, blood cultures, coagulation tests, timed tests and the nursery are also reviewed. This course includes a 60 hour clinical experience in a Central Ohio health care facility.

8821 Physician's Office Microbiology 2-4-3
This course introduces basic microbiology skills routinely performed by the laboratory in emergency care centers and physicians offices. X-Ray positioning and safety will also be presented. Skills for performing gram stains, wet preps, microbiological plating and identification of some organisms on media will be included.

8822 Physician's Office Chemistry and Immunology 2-4-3
This course is an introduction to basic skills routinely performed by the laboratory in

emergency care centers and doctor's offices. Emphasis will be in clinical chemistry and immunology. Skills for performing routine tests on basic laboratory instruments, quality assurance, blood typing, pregnancy, Syphilis and Infectious Mononucleosis tests will be included. Skills for obtaining correct vital signs will also be included.

8823 Physician's Office Urinalysis (SP) 2-2-3
Physician's Office Urinalysis is the study of the composition of urine and its clinical significance through physical properties, routine chemical tests and microscopic evaluation. This course is not tech- restricted and not intended for Medical Laboratory Students.

8824 Physician's Office Hematology 2-4-3
This course is an introduction to basic hematology skills routinely performed by the laboratory in emergency care centers and doctors offices. Skills for performing a complete blood count, preparation and staining of blood smears, white cell differentials and quality control will be presented.

8881 Medical Terminology (A,W,SP,SU) 2-0-2
This course includes the presentation of 350 medical terms which students are taught to spell, pronounce and define using an audiotape technique.

8882 Cardiopulmonary Resuscitation (CPR) (A,W,SP,SU) 1-0-1
Cardiopulmonary resuscitation including early warning signs of heart attacks and stroke are taught. Students completing the course will be eligible for American Heart Association Certification.

8883 Standard First Aid and Personal Safety (A,W,SP,SU) 1-2-2
Requirements for Red Cross First Aid Certification including artificial respiration, bleeding control, treatment of shock, and care of fractures are presented.

Nursing Technology

8541 Introduction to Nursing (A,SP) 2-9-5
The student is introduced to the role of the Associate Degree Nurse within the health care system. The wellness-illness continuum and stress/adaptation concepts are discussed in relation to health promotion. An overview of the nursing process is presented including the relationship to communication theory and teaching/learning concepts. The human needs focus for clients of all ages will be: safety and security, activity, rest and sleep, the external environment, love and belonging. Lab fee: \$25.00. Prerequisite: Admission to the Nursing Technology. Concurrents: 1313, 1361 and 1002

8544 Nursing Concepts of Wellness I (W,SU) 2-12-6
The student is introduced to the role of the Associate Degree Nurse within the acute care facility. Maslow's physiological needs for air, food and fluids, internal environment (sensation and communication) and external environment (skin integrity) are critically examined using the nursing process approach. Learning opportunities are provided to expand the skills of assessment, diagnosing, planning, implementation, and evaluation which support wellness. Lab fee: \$10.00. Prerequisites: 8541, 1313, 1361 and 1002. Concurrents: 8545, 1369 and 1185

8545 Concepts of Pharmacology (W,SU) 2-0-2
The student is introduced to the general principles of pharmacology as related to man and his basic needs. Drug classifications and their relationship to the concepts of health, society and nursing will be emphasized. Lab fee: \$5.00. Prerequisites: 8541, 1313 and 1361. Concurrents: 8544, 1369 and 1185

8547 Nursing Concepts of Wellness II (A,SP) 2-12-6
The student has the opportunity to apply knowledge and skills in providing care for clients and families during the childbearing process. Sexuality as a need of holistic man is explored. All human needs are reviewed and incorporated into plans of care. The student develops the ability to use the nursing process to promote health with childbearing clients and families. Lab fee: \$10.00. Prerequisites: 8544, 8545, 1369 and 1185. Concurrents: 1585 and 1315

8549 Nursing Concepts of Health Alterations I (W,SU) 3-15-8
The student is introduced to the role of the Associate Degree Nurse in relation to clients with common recurring health alterations. The needs for food, fluid, and regulation of internal environment are addressed as they relate to illness. The nursing process is expanded by broadening the assessment base to include pathophysiology and concepts of growth and development. The learning experience emphasizes nursing skills that promote adaptation and optimum wellness in pediatric and adult clients and their families in the acute care facility. Lab fee: \$25.00. Prerequisites: 8547, 1585 and 1315. Concurrents: 1551 and 1006.

8551 Nursing Concepts of Health Alterations II (A,SP) 3-15-8
The student will continue to focus on the role of the Associate Degree Nurse in relation to clients with common recurring health alterations. The needs of air, internal environment maintenance, activity, and rest are addressed as they relate to illness. All aspects of the nursing process are incorporated in care of the client. Learning experiences emphasize nursing skills that promote adaptation and optimal wellness in pediatric and adult clients and their families in the acute care facility. Lab fee: \$10.00. Prerequisites: 8549, 1006 and 1551. Concurrents: 1931, 1932, 1933, 1941 or 1942.

8553 Nursing Concepts of Mental Health (W,SU) 3-9-6
The student is introduced to the role of the Associate Degree Nurse in relation to clients experiencing mental health alterations. The needs of safety (trust), love and belonging, self-esteem, and self-actualization are related to the mental health-illness continuum. Each phase of the nursing process is utilized in providing holistic care for clients. Clinical and laboratory experiences are provided in hospital and community care settings. Students are encouraged to explore their own adaptive behaviors in order to enhance personal and professional growth.

Lab fee: \$10.00. Prerequisites: 8551; 1931, 1932, 1933, 1941 or 1942. Concurrents: 1024 or 1027; 1502, 1503, 1504 or 1548.

8555 Role and Function of the Associate Degree Nurse (A,SP) 2-21-9
The purpose of the course is to synthesize concepts from previous courses and apply them to nursing practice. The student is introduced to concepts for managing nursing care for groups of clients. Opportunities are provided for students to demonstrate progression from student nurse role to the role of the Associate Degree Nurse. Lab fee: \$25.00. Prerequisites: 8553, 1024; 1502, 1503, 1504 or 1548. Concurrents: 8556 and 1003

8556 Perspectives in Nursing (A,SP) 2-0-2
The course will focus on contemporary trends and issues, in historical perspective, that influence the future of nurses and nursing. The student will synthesize concepts of man, society, health, and nursing in relation to the Columbus State Community College Nursing Technology philosophy and knowledge gained during the past six quarters. This synthesis will lead the student to develop a personalized philosophy of Associate Degree Nursing. Lab fee: \$5.00. Prerequisite: 8553. Concurrents: 8555 and 1003

8581 Proficiency Student Transition (A,W,SP,SU) 1-0-1
This course is designed to assist the student who has proficiency credit for one or more designated nursing courses with transition into the nursing sequence. The components of the course include socialization into the student role, communication skills, and nursing process. Prerequisite: Examination credit in designated nursing courses.

Philosophy
See Humanities

Political Science
See Social and Behavioral Sciences

Psychology
See Social and Behavioral Sciences

Quality Assurance Technology

For other related course descriptions, see Electronic Engineering Technology and Mechanical Engineering Technology.

4801 Total Product Quality (A) 2-2-3
A study of the basic approaches that different companies use to control the quality of their products, from early design to final packaging. Special focus is given to how different departments in a company work to maintain and improve product quality.

4802 Metrology (W) 2-2-3
Making precise measurements is an important part of producing quality products for consumers, industry, and the military. This course teaches students how to use a variety of instruments and systems to make precision measurements, using both English and Metric systems. Lab fee: \$10.00.

4803 Value Engineering (W) 2-2-3
A survey of the basic approaches that companies use to keep the costs of making a product low without losing its quality or usefulness. The course examines how the methods used to design and manufacture parts and components affect the quality of a product and what it costs to make. Students learn how to estimate the costs of engineered products.

4804 Reliability and System Maintainability (SP) 3-0-3
An examination of the basic elements that companies use to ensure the reliability of their products. Students learn about the data systems used, the effectiveness of data analysis, and use of test programs, and ways to analyze system malfunction and failure. The course also examines how human factors affect the reliability of a product at different states, including product design, development, and production. Concurrent: 4806

4805 Technical Project Management (SP) 3-0-3
Course provides an integration of the elements involved in planning, developing, and managing a successful and efficient technical project for quality control. Concurrent: 4806

4806 Materials Testing and Analysis (SP) 3-1-3
Course provides an integration of the nondestructive and destructive testing practices that industry uses to measure the quality level of products. Students practice basic methods of analyzing the physical and electrical properties of various materials. Students learn how to interpret standards of quality established for different industries. Lab fee: \$5.00. Concurrent: 4804

Real Estate Technology

3601 Real Estate Principles and Practices (A,W,SP,SU) 3-0-3
An introduction to the language of real estate, the economics of the real estate business and the general practices performed in the listing and selling of real estate. Provides a basic knowledge of the real estate business. Course covers the physical, legal, locational and economic characteristics of real estate, real estate markets, regional and local economic influences on real estate values, evaluation, financing, licensing and professional ethics. Meets all state requirements for licensing. Lab fee: \$2.00.

3602 Real Estate Law (A,W,SP,SU) 3-0-3
Real estate law includes all of the areas of law of common concern to the typical real estate practitioner and investor-consumer. Among topics covered are the law of agency as applied to real estate brokers and salespersons, law of fixtures, estates (including leases), conveyancing of real estate, real estate managers, licensure laws of Ohio, zoning, cooperatives and condominiums. Meets state requirements for licensing. Lab fee: \$2.00.

3603 Residential Sales Practices (SP) 3-0-3
A "how to" course providing a step-by-step approach for success as a real estate professional based on sound principles and acceptable techniques. Course sets forth basic fundamentals which must be mastered by real estate practitioners regardless of their specialization or type of property involved. Underlying theme is communication. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00. Prerequisites: 3601 and 3602 or Real Estate License

3605 Real Estate Marketing (SP) 3-0-3
An in-depth study of the marketing of real property. Various techniques will be used to help the practitioner use the many resources available. Areas of exploration will include computers, telemarketing, radio, television and the print media. All types of property will be used. Course may meet the part of the continuing education requirement. (See advisor) Lab fee: \$5.00. Prerequisite: Real Estate License.

3607 Real Estate Finance (A,W,SP,SU) 3-0-3
Covers four major concerns of real estate financing: 1) financing instruments and creative financing techniques; 2) in-depth mortgage payment patterns and concepts, economic characteristics and standards, and financing of single and income-producing properties; 3) sources and availability of mortgage money and credit and the impact of various factors on the mortgage market; and 4) special government activities having an impact on real estate financing. Meets requirements for licensing. Lab fee: \$2.00. Concurrents: 3601, 3602 and 3611.

3609 Condominium Communities (A) 3-0-3
A guide to condominium ownership and legal obligations assumed by purchase into the condominium community. Condominium ownership is defined and responsibilities are discussed in detail from the condominium association that governs the community to management, maintenance problems and costs, rights, restrictions, social interdependence and self government. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00

3611 Real Estate Appraisal (A,W,SP,SU) 3-0-3
Stresses the methodology of appraising the single family residential property and the theory underlying appraisal techniques. The three basic techniques of appraising: market comparison; penalized cost of replacement; and income approach (GMRM) are covered. A term appraisal project is assigned to give the student practical experience in applying these techniques. Meets state requirements for licensing. Lab fee: \$2.00. Concurrents: 3601, 3602 and 3607.

3612 Income Property Appraisal (W) 3-0-3
A selective research into specific income producing property for applying appropriate analytical techniques. Studies the principles of anticipation and use of the capitalization process, and translates income projection into a present capital value indication. A term appraisal project is required. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00. Prerequisite: 3611

3613 Advanced Real Estate Investment Analysis (W) 3-0-3
An overview of the scope and nature of real estate investments. Discusses advantages and disadvantages, individual versus group forms of realty ownership, financing investments, tax ramifications and mathematical analysis. Different types of opportunities are discussed from vacant lots to land, houses, apartments, shopping centers, industrial developments and government sponsored projects. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00. Prerequisites: 3611 and 3612 (3612 - may be taken concurrently)

3614 Marketing Investment Analysis for Real Estate (SP) 3-0-3
An analysis and guide for investigating real estate opportunities, covering the problems of residential, office and retail properties. Details of conducting market and feasibility studies, analyzing materials and data collected and evaluating the relevancy of the studies are studied. A term project is to prepare a detailed market investment analysis for a user-client. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00. Prerequisite: 3613

3616 Real Estate Commercial Investment (A) 5-0-5
The practical application of real estate investment concepts used in daily real estate practice. A step-by-step approach through a typical case study involving, a typical client beginning with investment in general, yield analysis, taxation, then continuing through property analysis, tax deferred exchange, the installment sale and alternative investments. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00. Prerequisite: 3601

- 3617 Professional Property Management (SP)** 3-0-3
A course studying decision-making as it affects management of residential, commercial and industrial property. The emphasis shall be on the practical application of theory to actual management problems. Specific topics include Ohio Tenant Landlord Act, forcible entry and detainer, typical leases, office management, hiring, merchandising, advertising, collection problems, taxes insurance and maintenance. An alternate course for licensing as a real estate broker (see advisor). Course may meet continuing education requirement (see advisor). Lab fee: \$2.00. Prerequisite: 3601
- 3632 Real Estate Mathematics (A,W,SP,SU)** 3-0-3
A review of arithmetic processes including common fractions, decimal fractions, and percentage. Topics include sale, list, net prices and commissions, unique problems in area and volume, principal, interest, and points computed on mortgages, taxes and transfer tax stamps, prorations of insurance, mortgage interest, and taxes to date of sale and preparation of closing statements. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00.
- 3633 Practical Financial Analysis (A,W,SP)** 3-0-3
Emphasis is on hand-held calculators as a tool to analyze the many financial problems that realtors encounter in the conduct of their practice. Deals with a special class of hand-held calculators, namely financial calculators, such as the HP-12c and TI financial I and II calculators. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00.
- 3634 Human Resource Management (SP)** 4-0-4
An introduction to human resources management as it applies to the real estate business. Provides basic knowledge for present and prospective real estate brokers. The course covers the recruiting, selection, and training of personnel; the motivation and retention of sales associates, and the management of salespeople. Lab fee: \$2.00.
- 3681 Real Estate Today Seminar I (on Demand)** 1-0-1
A specially designed course which offers to meet the needs of the constantly changing real estate community, industry and the student population. Creative seminar topics are relative to today's market, and will provide flexibility in meeting a variety of needs. Lab fee: \$2.00.
- 3682 Real Estate Today Seminar II (on Demand)** 2-0-2
Continuation of 3681. Lab fee: \$2.00.
- 3683 Real Estate Today Seminar III (on Demand)** 3-0-3
Continuation of 3682. Lab fee: \$2.00.

Respiratory Care Technology

- 8602 Introduction to Respiratory Care Equipment (W,SU)** 4-4-6
A survey of apparatus utilized in providing respiratory care, including manufacture, storage and safe handling of medical gas cylinders, regulators, flowmeters, nebulizer, humidifier, and intermittent positive pressure breathing equipment. Also to include the administration of oxygen; aerosol and IPPB therapy. Lab fee: \$30.00. Prerequisites: 1181, 1311, 1331, or 1344, 8621 or permission of instructor.
- 8603 Respiration in Health and Disease (SU)** 4-0-4
A study of the physiologic and the pathologic processes which are seen in normal and abnormal cardiopulmonary conditions. Topics include pulmonary and cardiac anatomy, the physiology of ventilation and perfusion, renal anatomy and physiology, obstructive and restrictive lung disorders, and cardiac and vascular disorders. Prerequisites: 1344 and 8621
- 8604 Cardiopulmonary Physiology (SP)** 3-0-3
A study of the anatomy and physiology of the cardiovascular and pulmonary systems. Topics included are pulmonary anatomy, mechanics of breathing, transport of oxygen and carbon dioxide, acid-base balance, heart anatomy, and cardiac mechanics. Prerequisites: 1331, 1332 or permission of instructor.
- 8605 Pharmacology (SU,A)** 3-0-3
A study of the general principle of pharmacology, including drug types, dispensing, dosage, effects including contraindications and regulations. Drug groups relating to respiratory care will be emphasized to include bronchodilators, wetting agents, mucolytics, proteolytics, antibiotics, and aerosol solutions. Prerequisite: 8603 or 8604
- 8606 Clinical Specialties (SU)** 3-0-3
A study of cardiopulmonary disorders including clinical signs and symptoms, pathophysiology, diagnosis, and treatment. The course content includes evaluation techniques of the pulmonary system, obstructive and restrictive lung diseases, pulmonary vascular disorders, and respiratory failure. Prerequisite: 8604 or permission of instructor.
- 8607 Mechanical Ventilators (A)** 2-0-2
A course dealing with the equipment used to provide ventilator support, including ventilator classification, operation and adjuncts. Prerequisite: 8602
- 8608 Pulmonary Function and Blood Gas Analysis (A)** 3-0-3
A study of the equipment and the techniques utilized in pulmonary function testing and blood gas analysis. This course examines the types of analyzers used in performing lung volume tests, lung flow tests, and gas analysis test with a discussion of the advantages and disadvantages of such systems. Procedures used in each test are discussed including patient instruction and calculation of the data. Prerequisite: 8606 or permission of instructor. Concurrent: 8683
- 8609 Organization and Administration (SP)** 2-0-2
A course dealing with general management concepts as they relate to the administrative duties

in a respiratory care department. Topics include policy and procedure manual, human relations, budgeting, productivity and quality control. A portion of the course is devoted to preparing for the national credentialing exams. Prerequisite: 8634 or permission of instructor.

- 8611 Therapeutic Procedures I (A)** 2-0-2
A study of the goals, indications, contraindications and hazards associated with oxygen, aerosol and IPPB therapy and chest physiotherapy. Other topics include basic EKG's, incentive spirometry, suctioning and airway care. Prerequisites: 8602, 8603 and 8641. Concurrent: 8642
- 8612 Therapeutic Procedures II (W)** 3-0-3
A survey of the aspects of mechanical ventilatory support including types of ventilators, criteria for support and weaning, "PEEP" therapy, and hemodynamic monitoring. Course content also covers the basic techniques in pulmonary function testing and arterial blood gas analysis, and an overview of neonatal and pediatric respiratory care procedures. Prerequisites: 8605, 8611 and 8642. Concurrents: 8643 and 8644
- 8621 Patient Care for Respiratory Care (A,SP)** 3-4-5
An introduction to respiratory care including discussion of the role of respiratory therapy in current medical practice, and duties, responsibilities, and professional liabilities of the therapist. Also a study of the procedures and skills of patient care as they apply to the respiratory patient in a clinical setting, including approach, rapport, and explanation of treatment to the patients. Laboratory instruction includes body mechanics, medical asepsis, and cardiopulmonary resuscitation. Lab fee: \$20.00. Prerequisite: Acceptance into the technology.
- 8631 Respiratory Procedures I (SP)** 2-0-2
A discussion of the goals, indications, and hazards of oxygen and aerosol therapy. Other topics include basic EKG's, incentive spirometry, suctioning procedures, and airway care. Prerequisites: 8602 and 8621. Concurrents: 8681 and 8604
- 8632 Respiratory Procedures II (SU)** 2-0-2
A study of the goals, indications, contraindications, and hazards associated with IPPB therapy and chest physiotherapy. Course content also covers electrocardiogram study and artificial airways, including types, hazards, and care of these airways. Prerequisites: 8631, 8681 and 8604. Concurrents: 8682, 8606 and 8605
- 8633 Respiratory Procedures III (A)** 3-0-3
A study of the application of mechanical ventilatory support. The theory of operation of ventilators is covered including terms, abbreviations, classification, and flow characteristics. Patient application to ventilatory support is discussed, including indications for support, hazards of ventilatory support, maintenance procedures, monitoring techniques, and weaning procedures. Also included will be material on positive pressure therapy, hemodynamic monitoring, and other special topics. Prerequisites: 8605, 8606 and 8632. Concurrent: 8683
- 8634 Respiratory Procedures IV (W)** 3-0-3
A study of the therapeutic procedures of respiratory care which are associated with pediatric and neonatal patients. Course content includes evaluation and care of the newborn, neonatal mechanical ventilatory support, neonatal diseases, and pediatric diseases. Prerequisites: 8608, 8633 and 8683. Concurrent: 8684
- 8641 Clinical I (SU)** 0-12-3
An introduction in the clinical setting for the respiratory technician. Practical application of oxygen and aerosol therapy and incentive spirometry, also to include maintenance and sterilization of equipment. Lab fee: \$25.00. Prerequisites: 8603 and 8621. Concurrents: 8602 and 8603
- 8642 Clinical II (A)** 0-12-3
Practical application of IPPB and chest physiotherapy; also, to include airway management and emergency procedures. Lab fee: \$25.00. Prerequisites: 8602, 8603 and 8641. Concurrent: 8611
- 8643 Clinical III (W)** 0-12-3
Instruction and practical application of mechanical ventilation. Lab fee: \$25.00. Prerequisites: 8605, 8611 and 8642. Concurrents: 8612 and 8644
- 8644 Clinical IV (W)** 1-16-3
This clinical affiliation will allow the student to experience the practical application of skills presented during the previous three quarters. The student will be assigned to an accredited hospital to work 16 hours per week, and the student will have the responsibilities of a department member during this affiliation. Lab fee: \$30.00. Prerequisite: 8642. Concurrent: 8643
- 8681 Clinical Practice I (SP)** 0-12-6
An introduction in the clinical setting for the respiratory therapist. Practical application of oxygen and aerosol therapy and incentive spirometry, also to include maintenance and sterilization of equipment. Lab fee: \$25.00. Prerequisites: 8602. Concurrents: 8631 and 8604
- 8682 Clinical Practice II (SU)** 0-12-6
Practical application of IPPB therapy and chest physiotherapy. Also to include airway management and emergency procedures. Lab fee: \$25.00. Prerequisites: 8681, 8631 and 8604. Concurrents: 8632, 8606 and 8605
- 8683 Clinical Practice III (A)** 0-12-6
Instruction and practical application of mechanical ventilation. Clinical practice in the operation and maintenance of pulmonary function equipment and the drawing and analysis of blood gases. Lab fee: \$25.00. Prerequisite: 8682. Concurrents: 8633 and 8608

8684 Clinical Practice IV (W) 0-12-6
A continuation of 8683, with additional clinical rotations for pediatric respiratory care. Lab fee: \$25.00. Prerequisites: 8683, 8633 and 8608. Concurrent: 8634

8685 Clinical Experience (SP) 1-24-4
The clinical experience will allow the student to experience the practical application of the skills presented during the previous quarters. The student will be assigned to accredited hospitals to work 24 hours per week. During this clinical affiliation the student will gain the experience needed to develop clinical judgement in preparation for employment. Lab fee: \$30.00. Prerequisite: 8684

Retail Management Technology

2901 Introduction to Retailing (A,W,SP,SU) 4-0-4
Principles and methods of retail management, including organization policy making, and a survey of the functions of merchandising, sales promotion, finance and control, store operations and personnel. Lab fee: \$1.00.

2902 Retail Sales Promotion (W) 4-0-4
A study of the various sales promotion activities, including advertising retail display and the coordination of an effective sales promotion program. Lab fee: \$2.00. Prerequisites: 3901, 3910 and 2901.

2904 Retail Store Operations and Control (SU) 4-0-4
This course is designed to deal with the two major functions of a retail establishment. The first is the operations function which includes: location, receiving, warehousing, repair and alterations, deliveries, customer service maintenance, accounts receivable, accounts payable, credit and collections, and inventories. The second function is how to control these operations profitability. Lab fee: \$2.00. Prerequisite: 3762.

2913 Retail Buying I (W) 5-0-5
Retail buying is a course designed to provide the student with the basic fundamentals involved in a buyer's determination. A study of what merchandise and quantity to buy. In addition to this, an overview of textiles and merchandise information is given that will enable the student to have a broader knowledge of various products and understand the buying process. Lab fee: \$2.00. Prerequisites: 2981 and 2985.

2914 Retail Buying II (SU) 4-0-4
This course is designed to assist the student in understanding the many different duties of a buyer and how he/she may use their role in assuring profitability. The buyer's role is as a manager of risk, inventory shortage control, people, promotion and laws that will affect them and their employer. This class will direct itself to these and other areas. Lab fee: \$1.00. Prerequisites: 2981-2985.

2921 Introduction to Fashion Merchandising (A) 4-0-4
This course is designed as an overview of the field. A broad range of topics is covered including fashion change, research, textile and fiber production, fashion centers and markets, design development, apparel production, and retail merchandising. Lab fee: \$1.00. Prerequisite: 2901.

2923 Textiles (W) 4-0-4
The fundamentals of textiles are covered in these areas: fibers and yarns, weaves, non-woven construction, finishes, dyes, and fabric selection and care. Lab fee: \$2.00. Prerequisite: 2921.

2925 Twentieth Century Fashions 4-0-4
This course is designed as a study of fashion trends and styles from 1900 to 1990. Designers, both past and present, will be studied extensively. Fashion terminology will be emphasized and applied to each designer category. Lab fee: \$1.00. Prerequisite: 2923.

2981 Retail Internship I (A,SP,SU) 0-40-4
Supervised on-the-job application of knowledge and skills acquired in the classroom. Prerequisite: successful completion of first year curriculum.

2982 Retail Internship II (A,SP,SU) 0-40-4
A continuation of 2981. Prerequisite: 2981

2983 Retail Internship III (A,SP,SU) 0-40-4
A continuation of 2982. Prerequisite: 2982

2985 Special Problems in Retailing I (A,SP,SU) 0-4-2
The first of three courses in which the student applies his practical knowledge of retailing to specific areas on his job and submits reports to his coordinator/supervisor. Prerequisite: Successful completion of first year curriculum.

2986 Special Problems in Retailing II (A,SP,SU) 0-4-2
A continuation of 2985. Prerequisite: 2985

2987 Special Problems in Retailing III (A,SP,SU) 0-4-2
A continuation of 2986. Prerequisite: 2986

Secretarial Science

3301 Business Grammar Review (A,W,SP,SU) 2-3-3
This course is a structured program of grammar review for business students. It is designed to assist the student to become skillful in word choice, punctuation, vocabulary, capitalization, number expression, and spelling with particular emphasis on areas pertaining to the business office.

3311 Accounting Basics (A,W,SP,SU) 3-2-4
This course is designed to provide students with a basic understanding of accounting principles and procedures including journalizing, posting, adjusting and closing entries, and statement preparation. Also included are banking, payroll, and petty cash.

3312 Lotus 1-2-3 Basics (A,W,SP,SU) 1-4-3
A foundation course in spreadsheets for office workers. Covers major features of the program, including macros, graphs, and database functions. Requirement: Basic typing skill including numbers. Lab fee: \$5.00.

3314 Introduction to Information Management (W,SP,SU) 2-3-3
This course is designed to provide knowledge of efficient handling of business records, filing methods and systems, and principles for the selection of records systems and supplies.

3319 Typing Improvement (A,W,SP) 1-4-3
This elective course is designed to provide students with increased skills in the operation of the keyboard. Greater speed and accuracy are the goals. The emphasis is on speed and accuracy using straight copy material. Lab fee: \$2.00. Prerequisite: 3325.

3325 Typing I (Keyboarding) (A,W,SP,SU) 2-3-3
Introduction to the touch keyboarding system with emphasis on correct techniques. Development of speed and accuracy on keyboard operations. Lab fee: \$3.00.

3328 Typing 2 (Production I) (A,W,SP) 2-3-3
Application of keyboarding operations with emphasis on development of proficiency in letters, reports, tabulations, and business forms. Lab fee: \$3.00. Prerequisite: 3325.

3329 Typing 3 (Production II) (SP,SU) 2-3-3
Further development of the student's ability to type letters, tabulations, reports, and other business forms. Lab fee: \$3.00. Prerequisite: 3328.

3337 DOS/Data Entry (W,SU) 2-3-3
Development and refinement of office skills related to DOS commands and data entry procedures. Lab fee: \$4.00. Prerequisite: 3325.

3341 Shorthand (Beginning) (A,W) 3-2-4
A foundation course in shorthand theory with emphasis on phonetics, word families, brief forms and phrases, and penmanship. Practice for speed and accuracy.

3342 Shorthand (Intermediate) (W,SP) 3-2-4
A course designed to perfect basic shorthand theory with emphasis on phonetics, word families, brief form and phrases, and penmanship. Practice for speed and accuracy. Introduction to typewritten transcription. Lab fee: \$1.00. Prerequisite: 3341.

3343 Shorthand (Advanced) (SP,SU) 3-2-4
A continuation of shorthand (intermediate) intended to build accuracy and speed. Introduction of shortcuts. Development of typewritten transcription skill. Lab fee: \$1.00. Prerequisite: 3342.

3355 Word Processing I (A,W,SP,SU) 2-3-3
Introduction to text editing equipment and to word processing concepts. Lab fee: \$7.50. Prerequisite: 3328. Concurrent: 3329.

3356 Word Processing II (W,SP,SU) 2-3-3
In-depth experience on a selected type of word processing equipment. Lab fee: \$7.50. Prerequisite: 3355.

3357 WordPerfect (A,W,SP,SU) 1-4-3
Provides a solid foundation in this word processing package. Covers basic to advanced features, including macros, merge, sort, and document assembly. Requirement: 35 wpm typing skill. Lab fee: \$5.00.

3364 Machine Transcription (SP,SU) 3-2-4
This course is designed to provide secretarial students with increased skills in the use of machine transcription equipment. Mailable copy is the goal in transcribing machine dictation of business correspondence, technical reports, drafts, and other business communications in a broad range of business formats. Emphasis on the fundamentals of English in grammar, spelling, and vocabulary will reinforce transcription skills. Lab fee: \$3.00. Prerequisite: 3328. Concurrent: 3329.

3374 Executive Office Procedures I (A) 5-5-7
Development of skills pertaining to secretarial work to include a complete review of typing and transcription and an introduction to job seeking skills and office procedures. Lab fee: \$5.00. Prerequisites: 3343 and 3329

3375 Executive Office Procedures II (W) 5-5-7
Development of skills pertaining to secretarial work including typing and transcription, using features of Lotus 1-2-3 efficiently, telephone usage, handling mail, composing correspondence, and assisting with travel and conference arrangements. Lab fee: \$5.00. Prerequisite: 3374.

3376 Executive Office Procedures III (SP) 5-5-7
Continuation of executive secretarial skill development with emphasis on mailability of written, machine, and oral input as well as using features of a database program. To receive credit for this course, students must have also met the following minimum skill competencies: shorthand: 80 WAM on 3-minute speed takes passed twice with 12 or fewer errors. Typing: five-minute timings at a minimum speed of 60 WAM passed twice with 5 or fewer errors. Lab fee: \$5.00. Prerequisite: 3375.

3378 Executive Secretarial Internship/Field Experience I (W) 0-24-2
The student is placed in a secretarial position in a business that will provide application of as many phases of the theory taught in the secretarial science program as is practical for each individual. Students work in an on-the-job experience supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: 3374.

3379 Executive Secretarial Internship/Field Experience II (SP) 0-24-2
A continuation of 3378. The student is placed in a secretarial position in business. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: 3378.

3384 Legal Office Procedures I (A) 5-5-7
Introduction to skills peculiar to law offices, legal ethics, telephone usage, and handling of mail; complete review of typing and transcription skills. Introduction to court systems, types of law, civil and criminal procedures, preparation of appropriate civil and client documents, and applicable legal terminology. Legal terminology includes shorthand outlines for frequently used terms. Lab fee: \$5.00. Prerequisites: 3343 or 3364 and 3329.

3385 Legal Office Procedures II (W) 5-5-7
Continuation of legal secretarial skill development including grammar, vocabulary, and spelling; study of domestic relations, probate, corporate, bankruptcy, and real estate law and applicable terminology and document preparation; introduction to basic legal research procedures. Lab fee: \$5.00. Prerequisite: 3384.

3386 Legal Office Procedures III (SP) 5-5-7
Continuation of legal secretarial skill development including grammar, vocabulary, and spelling; study of appellate procedures and appellate courts; study of legal filing, records management, timekeeping and billing procedures, and docket control. To receive credit for this course, students must have also met the following minimum skill competency: typing: five-minute timings at a minimum speed of 60 WAM passed twice with 5 or fewer errors. Lab fee: \$5.00. Prerequisite: 3385.

3388 Legal Secretarial Internship/Field Experience I (W) 0-24-2
The student is placed in a secretarial position, preferably legal in nature. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: 3384.

3389 Legal Secretarial Internship/Field Experience II (SP) 0-24-2
A continuation of 3388. The student is placed in a secretarial position. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: 3388.

3394 Medical Office Procedures I (A) 5-5-7
Development of skills pertaining to work as a medical secretary to include a review of typing, machine transcription, and proofreading. Also to include medical/legal responsibilities, receptionist duties, telephone procedures, appointment scheduling, job-seeking skills, medical terminology, and medical reports transcribed on word processing equipment. Lab fee: \$5.00. Prerequisites: 3343 or 3364 and 3329.

3395 Medical Office Procedures II (W) 5-5-7
Continuation of skill development pertaining to work as a medical secretary to include typing, machine transcription, and proofreading. Also to include patient records, professional reports, filing, office maintenance and management, medical communications, mail processing, medical terminology, and medical reports transcribed on word processing equipment. Lab fee: \$5.00. Prerequisite: 3394.

3396 Medical Office Procedures III (SP) 5-5-7
Continuation of skill development pertaining to work as a medical secretary to include typing, transcription, and proofreading. Also to include health insurance records, travel arrangements, drugs and prescriptions; fees, credit, and collection; payroll, banking, and bookkeeping procedures; medical terminology; and medical reports transcribed on word processing equipment. To receive credit for this course, students must have also met the following minimum skill competency: typing: five-minute timings at a minimum speed of 60 WAM passed twice with 5 or fewer errors. Lab fee: \$5.00. Prerequisite: 3395.

3398 Medical Secretarial Internship/Field Experience I (W) 0-24-2
The student is placed in a secretarial position. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: 3394.

3399 Medical Secretarial Internship/Field Experience II (SP) 0-24-2
A continuation of 3398. The student is placed in a secretarial position. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: 3398.

Social and Behavioral Sciences

1502 Cultural Diversity (A,W,SP,SU) 5-0-5
An interdisciplinary survey of the psychological, sociological, political and economic diversity among the various groups comprising world cultures. Emphasis will center on how individual beliefs, social values, and political and economic policies affect our perspectives and lifestyles. Proposed solutions to the problems generated by diverse cultural influences will be considered. A general education core course. Lab fee: \$3.00. Prerequisite: Placement into 1002.

1503 America in Transition (A,W,SP,SU) 5-0-5
An interdisciplinary course which focuses on the analysis of issues and problems created by the development and application of technology in modern American life. The impact of change is considered at the individual level and with reference to key social institutions, the labor market and economic structure of American society, and American political outlooks and institutions. Some foreign policy issues related to changes in American society are also considered including the prospects for world peace and policies to ensure the preservation of the global environment. A general education core course. Lab fee: \$3.00. Prerequisite: Placement into 1002.

1504 Social Problems (A,W,SP,SU) 5-0-5
An examination of how various conditions within society come to be defined as social problems. Cultural, structural, and individual causes of such problems will be presented, based on relevant sociological, psychological, economic, and political science research. The consequences of problems for both the individual and society will be discussed, along with possible intervention strategies. Problems to be covered include health and well-being; social and interpersonal violence; conformity and deviance; social and economic inequality associated with poverty, minority status, aging, and sex roles; and institutional change and future issues and trends. A general education core course. Lab fee: \$3.00. Prerequisite: Placement into 1002.

1512 Human Sexuality (On Demand) 3-0-3
An introduction to the biological, physiological, psychosocial, behavioral, and cultural aspects of human sexuality. Special emphasis is placed on research facts, fallacies, and feelings surrounding human sexuality. Lab fee: \$3.00.

1524 Adult Psychology (On Demand) 4-0-4
A developmental psychology course which covers the various developmental stages of youth, adulthood and old age. Research and theory related to death as the final stage of growth are examined. Lab fee: \$3.00. Prerequisite: 1551.

1525 Marriage and Family Relations (A,W,SP,SU) 3-0-3
An introduction to the impact of modern society upon the family as it relates to courtship, size of family, member relationships, economic problems, and marital stability. This course compares alternative life styles, marriage and family relations throughout the life span. Lab fee: \$3.00.

1526 Abnormal Psychology (A,W,SP,SU) 3-0-3
Abnormal Psychology presents the basic concepts of abnormalities as defined by the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R), as revised in 1987. The course illuminates the classification scheme of diagnoses, listing descriptive terms and symptoms of all diagnoses. Research, major perspectives, and myths in the field of mental health will be examined. Lab fee: \$3.00. Prerequisite: 1551.

1528 Ethnic Studies (On Demand) 3-0-3
An introductory course that explores the diverse cultures and experiences of ethnic and minority groups in America. Topics include: Cultural Pluralism in America; Assimilation of European Ethnic Groups and Other Racial Minority Groups; Social Classes in America; Old World, New World, and Third World Cultural Perspectives. Lab fee: \$3.00.

1534 Introduction to Child Development (On Demand) 5-0-5
Study of the nature, nurture, and development of children from conception through eight years of age. The traditional child development approach is utilized with emphasis upon physical, cognitive, social, emotional, and language development. Observation of children is an integral part of the course. Lab fee: \$3.00.

1537 Introduction to Economics (On Demand) 5-0-5
An explanation of economic principles fundamental to a broad array of social concerns and utilization of these concepts in understanding the economic activity of the household, the organization and the economy. Emphasis is on the definition of basic economic terms. Lab fee: \$3.00.

1538 Principles of Macroeconomics (A,W,SP,SU) 5-0-5
A study of the methods and subject matter of economics within the ideological and factual framework of American capitalism at the macro-level. Emphasis is placed on the following economic concepts: national income analysis, money and banking, employment theory, and monetary and fiscal policy. Lab fee: \$3.00.

1539 Principles of Microeconomics (A,W,SP,SU) 5-0-5
A study of the methods and subject matter of economics within the ideological and factual framework of American capitalism at the micro-level. Emphasis is placed on the following economic concepts: consumer behavior, theory of the firm, resource allocation, price theory, and demand and supply analysis. Lab fee: \$3.00.

Sociology

See Social and Behavioral Sciences

1541 Community Sociology (On Demand) 5-0-5
Description and analysis of the community as a social entity. Introduction to major community concepts and ideas, and to community processes. Patterns of interaction, organization, and dynamics of community are examined. The urbanization process and condition is explored. Lab fee: \$3.00.

1547 World Regional Geography (On Demand) 5-0-5
Geographical study of all major regions of the world. The factors of landforms, climate, population, culture, political development, and problems associated with regions in relation to geographic conditions will be examined. Lab fee: \$3.00.

1548 World Economic Geography (A,W,SP,SU) 5-0-5
An interdisciplinary course that offers a geographical examination of the world economy. The course focuses on the problems of management and depletion of world resources, environmental degradation, overpopulation, the energy crisis and disparities in economic development and modernization amongst the nations of the world. Further the course aims at tracing the historical evolution of the world economy and the relationship of interdependence between the industrial nations of the First World and the Less Developed Countries of the Third World. Patterns of agriculture, international trade, industrialization, technological development, spatial differentiation and socio-cultural diversity are examined with a view to identifying the causes of economic growth and development and the possible solutions to the problems of Third World underdevelopment. A general education core course. Lab fee: \$3.00. Prerequisite: Placement into 1002.

1551 Introduction to Psychology (A,W,SP,SU) 5-0-5
An introductory course that provides an overview of the origins, growth, present-day content and applications of psychology, including the application of the scientific method in treatment of the following topics: research methodology; beginning statistics and theories of physical, cognitive, moral and emotional development; sensation; perception; learning; motivation; intelligence; memory; personality; coping processes; abnormality and adjustment; and the individual in small groups and a pluralistic society. Lab fee: \$3.00.

1555 Psychology of Adjustment (On Demand) 3-0-3
Psychological factors which influence individual growth, development, and behavior will be explored. Current theoretical approaches to understanding and achieving self-awareness, application of conditioning and motivation techniques to behavior modification, group dynamics, methods of self-help, and methods of improving interpersonal communications and relationships will be investigated. Lab fee: \$3.00. Prerequisite: 1551.

1561 Introduction to Sociology (A,W,SP,SU) 5-0-5
A survey course designed to introduce the basic concepts, methods, and findings of sociology as a scientific discipline. The sociological perspective, emphasizing social interaction and structure, will be used to explore the following topics: culture; socialization; social groups, including organizations; deviance; various types of social inequality; major social institutions; collective behavior, social movement and social change. Lab fee: \$3.00.

1571 Introduction To Cultural Anthropology (On Demand) 5-0-5
An introduction to the study of anthropology with primary emphasis on the subdiscipline of cultural anthropology. Other anthropological subdisciplines will be drawn on and incorporated where relevant. Topics to be covered will include: basic anthropological concepts and theories; various world cultures, the nature of cultural diversity; and the evolution and development of socio-cultural systems. Lab fee: \$3.00.

1572 Introduction to Physical Anthropology (On Demand) 5-0-5
An introduction to physical anthropology within the larger framework of the overall field of anthropology. Topics to be covered include: the origin and antiquity of humankind, human biological evolution, humans as primates, and modern human diversity. Lab fee: \$3.00.

1581 Introduction to American Government (A,W,SP,SU) 5-0-5
An introduction to the nature, purpose and structure of the American political system. Attention will be given to the institutions and processes that create public policy. The strengths and weaknesses of the American political system will be discussed, along with the role of citizens in a democracy. Lab fee: \$3.00.

1582 Introduction to Politics (A,W,SP,SU) 5-0-5
An introduction to the basic concepts and issues in the study of politics. The course will compare various political institutions, ideologies, and economic systems; examine political socialization and culture; explore methods of resolving international conflict and explain the impact of modern bureaucracies on policy-making. Lab fee: \$3.00.

1585 Human Growth and Development Through the Life Span (A,W,SP,SU) 4-0-4
A survey of developmental change from conception to death. The course covers the following stages of human growth and development: conception and prenatal growth, infancy, childhood, adolescence, adulthood, and death. This course focuses on physical, social, emotional and cognitive development. Lab fee: \$3.00. Prerequisite: 1551.

1593 Independent Study (On Demand) 3-0-3
An individual student-structured course. The independent study elective permits a student to pursue his/her interests within the context of a faculty-guided program. Prerequisite: Approval by instructor.

Social Services Technology

7503 Family Planning Services (W) 3-0-3
This course provides the student with an overview of human sexuality from birth to death. Included are: sexual reproductive systems, family planning methods and psycho-social implications of sexuality. Development of verbal ease in communicating about sexuality, responsive listening, exploring and accepting divergent views are emphasized. Lab fee: \$2.00. Prerequisite: 1003.

7504 Casework Practices (A,SU) 3-0-3
This course is designed to expose the social service student to the unique importance of the professional interpersonal relationship between worker and client. The course defines, evaluates and analyzes this relationship via use of case studies, group practicums and role plays. Lab fee: \$2.00. Prerequisites: 7521 and 7512.

7505 Categorical Disabilities (W) 3-0-3
This course is designed to heighten the social services student's sensitivity in working with individuals with atypical physique. Prerequisite: 1002.

7506 Mental Hygiene Services (SP) 3-0-3
Designed to give the social service student a professional working knowledge of the concepts of mental health, mental illness and mental retardation. Prerequisite: 7505.

7508 Family Ecology (A,SU) 3-0-3
Family ecology views the family as an ecosystem and examines its interrelationships with the environment (biophysical, psychosocial, and technological) through processes of perceiving, valuing, spacing and deciding. Emphasis is placed on family organization, family members, and their roles. Lab fee: \$2.00.

7509 Family Health Care (A) 3-0-3
This is a basic introductory course which surveys the American health care delivery system from a consumers viewpoint. Topics covered include health-delivery systems, insurance, health products, medication and the cost of death. Lab fee: \$2.00. Prerequisite: 1002.

7512 Counseling Concepts (W,SU) 3-0-3
This course is designed to develop in students an awareness and understanding of the counseling process, the philosophical basis for counseling and the impact of the personality of the counselor to the outcome of counseling. The course intent is to demonstrate that "in order to give help wisely one needs to develop a certain degree of self-awareness as well as knowledge and skills of how to help". Prerequisite: 7521.

7513 Family Counseling (SP) 3-0-3
It is the aim of this course to familiarize students with the dynamics of the functional and dysfunctional family and the methods and procedures designed to assist families in dealing with their problems. Prerequisite: 7512.

7515 Case Recording (W,SU) 3-0-3
Designed to develop in the social service student the basic knowledge and skills in case recording techniques, social summary face sheet, family social summary history, communication devices and case recording practices through role playing. Prerequisite: 7504.

7516 Current Issues in Social Services (SP) 2-0-2
A seminar course that reviews the contemporary issues that affects the social work profession in the age of social, psychological and ecological crisis. Lab fee: \$2.00.

7517 Aid In Crisis (W,SU) 3-0-3
This course is designed to acquaint the student with practical and innovative strategies of crisis intervention required for the helping profession. To assist in the enhancement and the development of new skills and techniques, guest speakers and lecturers will also be a part of the course content. Prerequisites: 1002 and 7521.

7521 Interview Techniques (A,SU) 3-0-3
This course is designed to acquaint the beginning student with the practical essential interviewing skills and tools required for the social work profession. To assist in the development of these skills and tools, role playing exercises will be a part of the course content.

7522 Introduction to Social Work/Social Welfare (A,SU) 3-0-3
This course is a basic orientation course for the total social services program, designed to introduce students to the field of social welfare, prepare them for future social work courses, provide the framework for working with people and arriving at policy decisions.

7523 Theories and Treatment (A,SU) 3-0-3
Designed to provide the social service student with an introduction to interpersonal helping in the context of social work practices, and to give the student a conceptual framework for interpersonal helping that would enable the student to effectively utilize the various treatment methods and strategies currently practiced.

7533-34 Field Experience Seminars III, IV (A,W,SP,SU) 1-0-1
Group discussions of experiences arising during field internship. Integration of theory and practice. Individual reports. Lab fee: \$3.00. Prerequisite: Third quarter standing and/or 30 quarter hours. Concurrents: 7583 and 7584

7535-36 Field Experience Seminars V, VI (A,W,SP,SU) 1-0-1
Group discussions of experiences arising during field internship. Integration of theory and practice. Individual reports. Lab fee: \$20.00. Prerequisite: Third quarter standing and/or 30 quarter hours. Concurrents: 7585 and 7586

7583-7584 Social Services Field Experience III, IV(A,W,SP,SU) 0-10-2
These courses involve the student in applying his classroom studies in the field. Students are accepted by local social service agency administrators and supervisors on a part-time volunteer basis. These professionals guide and evaluate the student performance. Lab fee: \$15.00. Prerequisite: Third quarter standing. Concurrents: 7533-7534

7585-7586 Social Services Field Experience V, VI(A,W,SP,SU) 0-12-2
These courses involve the student in applying his classroom studies in the field. Students are accepted by local social service agency administrators and supervisors on a part-time volunteer basis. These professionals guide and evaluate the student performance. Lab fee: \$15.00. Prerequisite: Third quarter standing. Concurrents: 7535-7536

Spanish See Humanities

Veterinary Technician Technology

8902 Veterinary Technology (A) 4-2-5
Introduction to the Veterinary Technician Technology including laws and ethics, duties and job opportunities. Medical terminology, nutrition requirements for various animals, management, restraint, sexing basic techniques and common diseases of laboratory animals are discussed. Lab fee: \$70.00. Prerequisite: Admission to program.

8908 Veterinary Parasitology (W) 2-2-3
An introduction to the common internal and external parasites of domestic animals including scientific nomenclature, life cycles, common methods of identification and the treatment and/or prevention of these parasites. Lab fee: \$70.00. Prerequisite: 8902.

8909 Client Relations (A) 2-0-2
Exploration of the procedures used in veterinary practices, in client and public relations, including standard office procedures and computerized processes. Prerequisite: Admission to program. Concurrent: 8902.

8916 Veterinary Surgical Techniques (SP) 3-0-3
Fundamentals of routine surgery, including preparation of patient, identification of instruments, preparation of surgical packs, suture materials and patterns. Use of the autoclave and other methods of sterilization. Preanesthetic laboratory tests and postoperative care of the patient are discussed. Prerequisite: 8902.

8917 Principles of Veterinary Radiology (W) 2-0-2
Study of elementary physics, atomic structure, x-ray physics in the production of x-rays, interaction of x-ray within the body, interaction of x-rays with x-ray film, radiation safety, patient measurement and positioning, preparation of a techniques chart, radiographic, development procedures, special diagnostic radiographic procedures and equipment. Concurrent: 1331.

8918 Veterinary Pharmacology (A,W) 3-0-3
Drugs commonly used in veterinary medicine, including brief history, terminology, source, dosage form and drug classification. Methods of administration, factors altering drug response, prescription terminology and metrology. Regulations for controlled substances. Prerequisite: 1105 and 8921.

8919 Principles of Veterinary Anesthesia (W) 3-0-3
Study of systemic and inhalation anesthetic agents, premedication agents, ventilators, respirators and monitoring equipment, preanesthetic physical, emergency drugs and CPR. Concurrent: 1331.

8921 Animal Health and Disease I (SP) 3-0-3
A physiological systems approach to the most frequently encountered diseases of dogs and cats including: disease name, definition and history, animals at risk, causes and symptoms, diagnosis, treatment, prevention and vaccination programs. Diseases are discussed which can be potentially transmitted from animal to man as well as emphasizing safety and prevention from them. Prerequisites: 8902 and 8908. Concurrent: 1332.

8922 Animal Health and Disease II (A,W) 3-0-3
Presentation and discussion of the most common diseases of horses, food animals, and exotics including vaccination programs, nutrition, breeding and husbandry. Prerequisite: 8921.

8926 Veterinary Hematology (SP,SU) 3-6-6
Students perform procedures required for a complete blood count. Students use hemocytometer, pipet, centrifuge, spectrophotometer, and automated cell counters. Emphasis on the differential white blood cell counts including abnormal and immature red blood cells and white blood cells. Other tests performed in a veterinary hematology clinic are presented. Prerequisite: 1332.

8927 Veterinary Urinalysis and Clinical Chemistry (A,W) 2-6-5
Students perform analysis on urine, such as protein, glucose, ketones, and other diagnostic tests of a routine urinalyses. They learn physical characteristics and tests performed on transudates, exudates, and cerebrospinal fluid. Students perform blood chemistries, including glucose, BUN, creatinine, and enzymes. Prerequisite: 8926.

8929 Veterinary Microbiology (A,W) 2-6-5
Processes necessary to isolate and identify causative agents of bacterial infections. Students perform susceptibility testing to determine the effective chemical or antibiotic agents necessary for treatment. Basic bacteriological procedures include: isolation of colonies on culture plate and gram staining. Serologic procedures include: identification of brucellosis by antigen/antibody detection. Prerequisite: 1315

8931 Clinical Application I (SP) 0-6-3
Laboratory exercises for 8916, 8917 and 8919. Students practice techniques of surgery, anesthesia, radiology, venipuncture and injection. Lab fee: \$70.00. Prerequisites: 2782, 8917 and 8919. Concurrent: 8916

8932 Clinical Application II (A,W) 0-6-3
Practice skills commonly performed in veterinary clinics, such as: record keeping, administration of fluids and medications, pre-anesthetic evaluation, surgical preparation, anesthetic administration, radiology and laboratory procedures. Lab fee: \$70.00. Prerequisites: 8986 and 8931

8986 Clinical Experience I (SU,A) 0-30-6
Practical experiences in techniques used in veterinary medicine. Students are assigned to veterinary facilities: the Veterinary Teaching Hospital in the College of Veterinary Medicine at The Ohio State University, and other facilities including research, private practices and the Columbus Zoo. Lab fee: \$70.00. Prerequisite: 30 technical credits

8987 Clinical Experience II (W,SP) 0-30-6
Continuation of 8986. Lab fee: \$70.00. Prerequisites: All 89xx courses

8991 Clinical Seminar I (SU,A) 0-2-1
Discussion of issues relating to clinical experience including euthanasia, problem solving models and change strategies. Prerequisite: 8919. Concurrent: 8986

8992 Clinical Seminar II (W,SP) 0-2-1
Continuation of 8991, seminar course, which addresses issues emanating from the students clinical experience. Strategies for job hunting are discussed, and simulation job interviews are practiced. Prerequisite: 8986. Concurrent: 8987



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