COLUMBUS STATE

1998-1999 CATALOG

General Information • Programs of Study • Course Descriptions

Course Descriptions

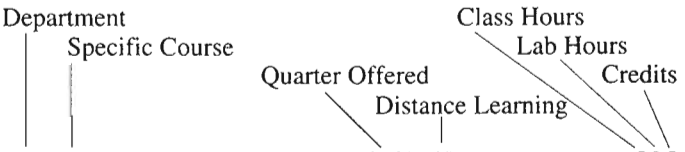
Columbus State's Course Numbering System

No two courses at Columbus State have the same course number. The three or four-letter alpha identifier indicates the department, and the three numbers indicate the specific course within each department.

Listed below are the various departments in alphabetical order. Refer to this chart to find the department in which a given course can be found. For example, ACCT 107 Introduction to Accounting would be found in the Course Descriptions section under Accounting.

Accounting	ACCT
Anthropology	ANTH
Arabic	ARAB
Architecture	ARCH
Art	ART
Automotive Technology	AUTO
Aviation Maintenance Technology	AVI
Biology	BIO
Business Management	BMGT
Chemistry	CHEM
Civil Engineering Technology	CIVL
Communication Skills	COMM
Computer Programming Technology	CPT
Construction Management	CMGT
Dance	DANC
Dental Hygiene	DHY
Dental Laboratory Technology	DENT
Developmental Education	DEV
Dietetic Manager Certificate (See Hospitality Management)	DMGR
Dietetic Technician Major (See Hospitality Management)	DIET
Early Childhood Development	ECD
Economics	ECON
Electro-Mechanical Engineering Technology	EMEC
Electronic Engineering Technology	EET
Emergency Medical Services Technology	EMS
English	ENGL
English as a Second Language	ESL
Environmental Technology	ENVR
Facility Management	FAC
Financial Management Technology	FMGT
Fire Science	FIRE
French	FREN
Geography	GEO
Geology	GEOL
German	GERM
Gerontology	GER
Graphic Communications	GRPH
Health Information Management Technology	HIMT
Heating, Ventilating and Air Conditioning Technology	HAC
Hospitality Management	HOSP
Human Resources Mgmt	HRM
Humanities	HUM
Interpreting/Transliterating	ITT
Italian	ITAL
Japanese	JAPN
Landscape Design/Build	LAND
Latin	LATN
Law Enforcement	LAWE
Legal Assisting	LEGL
Legal Medical Const.	LEGL/HIMT
Literature	ENGL
Logistics Management	LOGI
Marketing	MKTG
Mathematics	MATH
Mechanical Engineering Technology	MECH
Medical Assisting Tech	MAT
Medical Laboratory Technology	MLT
Mental Health/Chemical Dependency/Mental Retardation	MHCR
Microcomputing Technology	MCT
Multi-Competency Health	MULT
Multimedia Production Tech	MMPT
Music	MUS
Natural Science	NSCI
Nursing	NURS
Office Administration	OADM
Philosophy	PHIL
Physics	PHYS
Political Science	POLS
Psychology	PSY
Quality Assurance Technology	QUAL
Radiography	RAD
Respiratory Care	RESP
Real Estate	REAL
Retail Management	RETL
Social Sciences	SSCI
Sociology	SOC
Spanish	SPAN
Sports & Fitness Mgmt.	SFMT
Surgical Technology	SURG
Surveying	SURV
Technical Communication	TCO
Theater	THEA
Veterinary Technology	VET

Explanation of Course Description Codes



ACCT 107 Introduction to Accounting II (W,SP,SU - DL) **5-0-5**
A continuation of ACCT 106 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: ACCT 106. Not open to Accounting majors.

Course Number - the three or four letter alpha identifier indicates the department; the three numbers that follow identify the specific course. Three or four letters followed by xxx 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 alphabetical or numerical characters appear, the elective may come from more than one department.

Quarter Offered - 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 ENGL 101 were listed as a prerequisite for a course, then only students who have completed ENGL 101 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 ACCT 271 is concurrent with course ACCT 272, 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.

Distance Learning - designates course is also available in a distance learning format. Courses taken in the distance learning format may be subject to a different lab fee.

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 (ACCT)

ACCT 101 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: $2.00.

ACCT 102 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. Lab fee: $2.00. Prerequisite: ACCT 101 or ACCT 111.

ACCT 104 Small Business Accounting (W,SP) **4-2-5**
An introductory course for small business management majors with no bookkeeping or accounting background. The emphasis is on the study of the fundamental principles and procedures of double-entry accounting, preparation of financial statements using manual and/or PC systems. Lab fee: $5.00. Prerequisite: MCT 106.

ACCT 106 Introduction to Accounting I (A,W,SP,SU - DL) **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. Lab fee: $2.00.

ACCT 107 Introduction to Accounting II (A,W,SP,SU - DL) **5-0-5**
A continuation of ACCT 106 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. Lab fee: $2.00. Prerequisite: ACCT 106. Not open to Accounting majors.

ACCT 111 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. Lab fee: $6.00. Prerequisites: Placement into ENGL 101 and MATH 102. Not recommended for Associate of Arts or Associate of Science degree seeking students.

ACCT 112 Principles of Accounting II (A,W,SP,SU) **5-0-5**
A continuation of ACCT 111 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. Lab fee: $4.00. Prerequisite: ACCT 111 with a "C" or better.

ACCT 113 Principles of Accounting III (A,W,SP,SU) **5-0-5**
A continuation of ACCT 112 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 ACCT 111, ACCT 112 and ACCT 113 to a computerized practice set for a merchandising corporate entity. Lab fee: $4.00. Prerequisite: ACCT 112 with a "C" or better.

ACCT 121 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: $12.00. Prerequisite: CPT 101

ACCT 201 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. Lab fee: $1.00. Prerequisite: ACCT 113 with a "C" or better.

ACCT 202 Intermediate Accounting II (W) **4-3-5**
A continuation of ACCT 201 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: ACCT 201 with a "C" or better.

ACCT 206 Advanced Accounting (SP) **4-3-5**
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: ACCT 202

ACCT 211 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: $3.00. Prerequisite: ACCT 113

ACCT 221 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: ACCT 113

ACCT 222 Financial Statement Analysis II (W,SU) **2-3-3**
A continuation of course ACCT 221; 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. Lab fee: $2.00. Prerequisite: ACCT 221

ACCT 231 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. Lab fee: $5.00. Prerequisite: ACCT 113

ACCT 232 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: $5.00. Prerequisite: ACCT 113

ACCT 236 Advanced Taxation (SP) **3-3-4**
A continuation of ACCT 232, 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. Lab fee: $2.00. Prerequisite: ACCT 232

ACCT 237 Enrolled Agent's Review Course **3-2-4**
This course is an intense review of all aspects of personal income tax, corporate partnership taxes, the unified transfer tax, taxation of trusts and exempt entity requirements. The purpose of the course is to prepare the student to successfully complete the Enrolled Agent's Examination of the Internal Revenue Service. Emphasis is placed upon examination questions rather than tax return preparation or detailed reporting requirements. Lab fee: $5.00. Prerequisite: ACCT 236. Concurrent: ACCT 238.

ACCT 238 Tax Practice Management **4-0-4**
A study of those aspects of operating a successful tax practice. Maintaining internal control over client tax documents. Issues surrounding deficiency, assessment, and collection procedures. Examination of returns by the Internal Revenue Service (audit flags). Practice before the Internal Revenue Service. Civil and criminal tax procedures. Ethical responsibilities of the preparer. Lab fee: $5.00.

ACCT 241 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. Lab fee: $40.00. Prerequisite: ACCT 113.

ACCT 251 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: $10.00. Prerequisite: ACCT 202

ACCT 256 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: ACCT 202

ACCT 261 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. Lab fee: $4.00. Prerequisite: ACCT 202

ACCT 266 Public Administration/Fund Accounting (SP,SU) **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: ACCT 202

ACCT 271 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: ACCT 201. Concurrent: ACCT 272

ACCT 272 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: ACCT 201. Concurrent: ACCT 271.

Anthropology (ANTH)

ANTH 200 Introduction to Physical Anthropology (A,W,SP,SU) **5-0-5**
A course designed to introduce students to the field of physical anthropology. The course covers the basic concepts of the field, discusses anthropology's relationship with other biological and social sciences, surveys nonhuman primates, examines some aspects and examples of nonhuman behavior in depth, covers topics in current human diversity, and looks at human evolutionary history. Lab fee: $6.00. Prerequisite: Placement into ENGL 101.

ANTH 201 World Prehistory (A,W,SP,SU) **5-0-5**
A course that is designed to provide an overview of world prehistory. Since the majority of human existence occurred long before written records and historical documents were available, this course will introduce students to the fundamentals of prehistoric archaeology. The course will survey human origins, investigate the emergence of domestication and agriculture, and explore the rise of settlements and civilization. A global perspective will be taken in the study of the prehistoric human past. Lab fee: $6.00. Prerequisite: Placement into ENGL 101.

ANTH 202 Introduction to Cultural Anthropology (A,W,SP,SU) **5-0-5**
Cultural anthropology focuses on understanding human cultural diversity, using research techniques such as participant observation to explore the lifeways of groups. Topics include cross-cultural treatments of social systems such as politics, economics, family and marriage, and kinship. General theories of cultural interpretation and change are discussed in a broad geographical context. Students are introduced to real world examples and applications of the concepts presented. Students also complete a "mini-project" using anthropological research techniques. Lab fee: $6.00. Prerequisite: Placement into ENGL 101.

ANTH 240 Introduction to Forensic Anthropology (On Demand) **5-0-5**
A course designed to introduce students to the field of forensic anthropology. Increasingly, methods and applications from anthropology have been utilized by the forensic sciences in the investigation and detection of crime, the processing of mass disasters, the recovery of war dead and missing persons, and in international human rights investigations. The course covers the development of forensic anthropology, examines the theoretical and methodological bases of forensic anthropology, and considers present applications as well as future directions in this relatively new subfield of anthropology. Lab fee: $6.00. Prerequisites: ANTH 200 or LAWE 111 and LAW 113 or LEGL 210 or BIO 161.

ANTH 290 Capstone Experience in Anthropology (On Demand) **2-2-3**
This course is designed for students completing the two-year Associate of Arts or Associate of Science degree who have a special interest in continuing in a baccalaureate degree program in anthropology. Students will devise a research project that relates to their academic interest after reviewing research methodologies and findings in anthropology; complete a portfolio that covers their academic career at Columbus State Community College, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree with five credit hours in anthropology.

ANTH 293 Independent Study in Anthropology (On Demand) **1-5**
An individual student-structured course that examines a selected topic in anthropology through intensive reading or research. The independent study elective permits a student to pursue his/her interests within the context of a faculty-guided program. Lab fee: $5.00. Prerequisite: Permission of the Instructor and the Chairperson.

ANTH 299 Special Topics in Anthropology (On Demand) **1-5**
A detailed examination of selected topics of interest in anthropology. Lab fee: $5.00. Prerequisites vary.

Arabic (ARAB)

ARAB 101 Elementary Arabic I (On Demand) **5-0-5**
Introduction to the fundamentals of the Arabic language with practice in listening, reading, speaking, and writing. Includes studies in Arabic 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: $6.00. Prerequisite: Placement into ENGL 101.

ARAB 102 Elementary Arabic II (On Demand) **5-0-5**
Continuation of ARAB 101 with further development of listening, reading, speaking, and writing skills and further study of Arabic 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: $6.00. Prerequisite: ARAB 101 with a grade of "C" or better.

Architecture (ARCH)

ARCH 100 Introduction to the History of Architecture (A,W,SP,SU) **5-0-5**
A study of the fundamental elements of architecture, its development, and its meaning to various cultures throughout western history. Architecture is viewed from the perspectives of form, function, interior and exterior space, technological development, and landscape. Meets elective requirements in the Associate of Arts and Associate of Science Degree programs. Lab fee: $9.00.

ARCH 111 Construction Basic Drafting (A,W,SP,SU) **2-6-4**
This is a basic drafting course using manual drafting. Areas covered include lettering, linework, layout, dimensioning, geometric construction and orthographic projection. Problems are drawn from throughout the construction industry. Lab fee: $12.00.

ARCH 112 Construction CAD Drafting I (A,W,SP,SU) **1-5-3**
This course is an entry-level computer aided drafting class. Emphasis is placed on the basic drawing, editing, display, dimensioning and block commands. Several small projects will be created utilizing these features. Lectures, in-class demonstrations, and hands on work sessions are employed as teaching tools during the course. The course uses the current release of AutoCAD. Lab fee: $15.00. Prerequisite: ARCH 111 or permission of instructor.

ARCH 113 Construction CAD Drafting II (A,W,SP,SU) **1-5-3**
This course builds upon the basics learned in ARCH 112. Emphasis is placed on advanced dimensioning features, hatching, attributes, and external references. Several small projects will be created utilizing these features. The final project in the course will allow the student to pull together all of the features learned in ARCH 112 and during ARCH 113 to prepare a complete set of construction documents for a residential house. Lectures, in-class demonstrations, and hands on work sessions are employed as teaching tools during the course. The course uses current release of AutoCAD. Lab fee: $15.00. Prerequisite: ARCH 112.

ARCH 116 Piping Systems (A,W,SP,SU) **1-5-3**
A comprehensive study of the UPC, water supply, water treatment and distribution, to include waste water disposal and sanitation standards. Emphasis will be placed on mechanical piping design, nomenclature, the physics of metal, pipe, tubing, fittings, valves, joining methods, pumps, pump sizing, water flow principles, pressure loss, sizing and terminal units. Boilers, furnaces, chillers, and refrigeration systems will be discussed in detail. Lab fee: $12.00. Prerequisite for Architecture students: CMGT 121.

ARCH 130 Introduction to Interior Design (A,W) **2-6-4**
An introduction to the design process, focusing on space planning, through the use of project assignments in a design studio. Emphasis is on problem solving and the process of design, exploring the tools and resources available, and presentation. Several projects, small in scope, will be employed to give the student exposure to a wide variety of typical interior design problems. Lecture, discussion, and studio critiques will be employed as teaching methods during the course. Lab fee: $12.00. Prerequisites: ARCH 161 and ARCH 112.

ARCH 155 Structural Systems (Wood) (W,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: $12.00. Prerequisites: MATH 104 and ARCH 111.

ARCH 161 Architectural Drafting (W,SU) **1-7-4**
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. Basic perspective, planimetric, and isometric drawing are included. Lab fee: $12.00. Prerequisite: ARCH 111

ARCH 214 Electricity and Lighting (W,SP) **2-2-3**
This course deals with the fundamentals of lighting in buildings. The essentials of the electrical code, electrical systems, standards, conventional symbols, nomenclature and layouts. Coordination of electrical work with the elements of the building, and fixture and equipment schedules. Lab fee: $12.00. Prerequisites: ARCH 161 and CMGT 121.

ARCH 232 Building Construction Standards (A,SP) **1-5-3**
This course focuses primarily on building and zoning codes. Emphasis is placed on the OBBC (Ohio Basic Building Code) and the Columbus, Ohio zoning code. Other areas of study include: the influence of professional associations, manufacturers, and testing laboratories in design and construction documents; CSI specifications, their organization, content and relationship to other contract documents; and professional practice in architecture Lab fee: $12.00. Prerequisite: CMGT 121.

ARCH 237 Structural Design (W,SU) **2-6-4**
A study in the design and detailing of structural members and systems. CAD applications in the production of drawings is emphasized. Structural systems, layouts, details and coordination of elements are examined. Lab fee: $10.00. Prerequisites: CMGT 121, CIVL 232 and ARCH 113.

ARCH 250 Building Enclosure Materials (A,SP) **2-3-3**
This course is intended to follow CIVL 120 and expose the student to those materials which are specifically associated with the shell of buildings. Topics covered include interior finishes, window and door openings, moisture and thermal protection, acoustical treatments, and mechanical conveyance systems. Lab fee: $12.00. Prerequisite: ARCH 155.

ARCH 262 Presentation Drawings (A,SP) **1-6-3**
An introduction to presentation drawing techniques using computer techniques to focus on three-dimensional drafting, modeling and other computer applications useful to the profession. Lab fee: $15.00. Prerequisite: ARCH 113.

ARCH 263 Working Drawings I (W,SU) **1-9-4**
This course introduces the student to the practice of working drawings, and deals with the generation of schedules, details, plans and other drawings necessary, and ADA requirements, with an emphasis on the organization and coordination necessary among the drawings. Lab fee: $12.00. Prerequisites: ARCH 250 and ARCH 113.

ARCH 264 Workings Drawings II (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: $20.00. Prerequisites: ARCH 232 and ARCH 263.

ARCH 291 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: $15.00. Prerequisites: CMGT 290 or permission of instructor.

Art (ART)

ART 101 History of Western Art (A,W,SP,SU) **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 Humanities, and the Arts. Lab fee: $5.00. Prerequisites: Placement into ENGL 101.

ART 111 Fundamental Concepts of Art (W,SU) **5-0-5**
This is a course that specifically explores the principles of artistic communication through the structural devices of line, color, iconography, shape, perspective, collage, montage, etc. Selected major works of art and styles in the history of art, as well as the moving image, film and video will be analyzed in relation to what they were intended to communicate and how this communication is achieved. Lab fee: $6.00. Prerequisite: Placement into ENGL 101.

ART 121 Beginning Drawing (A,W,SP,SU) **0-10-5**
An introduction to the basic techniques of freehand drawing. Emphasis is on media, concepts, drawing from observation and development of technique. Meets elective requirements in the Associate of Arts and Associate of Science Degree programs and distributive transfer requirements in the Arts. Lab fee: $8.00.

ART 122 Two-Dimensional Design (W and On Demand) **0-10-5**
An introduction to the basic concepts of 2-dimensional design: line, shape, space, hue, value and texture. Use of various media in a variety of problem-solving projects leading toward an awareness of the principles of visual organization. Lab fee: $8.00.

ART 123 Beginning Painting (On Demand) **0-10-5**
An introduction to studio painting fundamentals utilizing varied subject matter and media. Lab fee: $8.00.

ART 131 3-Dimensional Design (W,SU) **0-10-5**
Design II is aimed at developing the student's basic understanding of three dimensional visual communication through the exploration of three dimensional principles. Student's learn through the process of solving visual art problems. Solutions to these problems are achieved through the fabricating of three dimensional art objects. Various techniques and media are also systematically addressed that are common to this area of study. Lab fee: $10.00. Prerequisite: ART 122 or permission of instructor.

ART 230 Color Composition (On Demand) **0-10-5**
This course examines the theory and artistic application of basic color principles through student projects and lecture. Such topics as color mixing, interaction, and organization are presented. Lab fee: $10.00. Prerequisite: ART 111 or ART 121.

ART 242 World Cinema (On Demand) **5-0-5**
A course exploring the history of world cinema through analysis of the content and structure of selected major historic examples in the genre from the beginnings of film in the late 19th century to the present. Special attention will be given to the work of important filmmakers from around the world, and the social and philosophical context in which they worked. Lab fee: $6.00. Prerequisite: Placement into ENGL 101.

ART 290 Capstone Experience in Art (On Demand) **2-2-3**
A capstone course focusing on Art. Students will work on developing techniques and methodologies in the field of art. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to AA and AS students preparing to graduate within 2 academic quarters. Lab fee: $10.00.

ART 299 Special Topics in Art (On Demand) **1-5**
Detailed examination of selected topics of art. Lab fee: $2.00. Prerequisites vary.

Automotive Technology (AUTO)

AUTO 061 Automotive 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 AUTO 062 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: $15.00. Recommend concurrent with AUTO 062.

AUTO 062 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 AUTO 061 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: $15.00. Concurrent or prerequisite: Recommended concurrent with AUTO 061.

AUTO 101 Autocare (On Demand) **2-2-3**
This course is designed for the non-automotive student who is interested in obtaining a familiarity with the fundamentals of automotive systems and preventative maintenance. Also included is information on choosing a repair shop, tips and techniques for dealing with minor breakdowns, and vehicle purchasing strategies. Lab fee: $20.00.

AUTO 110 Engine Repair (A,SU) **2-4-4**
A basic course in the theory of operation and automotive engines. All engine mechanical systems are explored during teardown and assembly of a current automotive engine. Common in-car repairs are covered. 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: AUTO 061 and AUTO 062.

AUTO 115 Advanced Engine Repair (A,SU) **2-2-3**
An advanced engine course including minor cylinder head and valve machining, component service, and engine removal and installation. Prepares student to achieve national ASE certification in engine repair. Lab fee: $20.00. Prerequisite or concurrent: AUTO 110.

AUTO 120 Automatic Transmissions (W,SP) **2-4-4**
A basic course in automatic transmission theory of operation. Hydraulic and electrical systems are emphasized during a complete teardown and assembly. 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: AUTO 061 and AUTO 062.

AUTO 125 Advanced Automatic Transmissions (W,SP) **2-2-3**
An advanced course in automatic transmission and transaxle service and diagnostics. Emphasis on field diagnostics and repairs. Prepares student to achieve national ASE certification in automatic transmissions. Lab fee: $15.00. Prerequisite or concurrent: AUTO 120.

AUTO 130 Manual Transmissions (A,SU) **2-2-3**
This course provides a working knowledge of manual transmissions, transaxles, and differentials. Repair and diagnostics are covered during complete teardown and assembly. 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: AUTO 061 and AUTO 062.

AUTO 135 Advanced Manual Transmissions (A,SU) **2-2-3**
An advanced course in clutch, manual transmission, transaxle, and differential diagnostics. Includes clutch and transmission removal and installation. Prepares student to achieve national ASE certification in manual transmissions. Lab fee: $15.00. Prerequisite or concurrent: AUTO 130.

AUTO 140 Suspension and Steering (A,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. 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: AUTO 061 and AUTO 062.

AUTO 145 Advanced Suspension and Steering (W,SU) **2-2-3**
An advanced course covering detailed diagnostics and service of suspension components. Includes instruction on both two-wheel and four-wheel alignment. Prepares student to achieve national ASE certification in suspension and steering. Lab fee: $15.00. Prerequisite or concurrent: AUTO 140.

AUTO 150 Brake Systems (W,SP) **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. 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: AUTO 061 and AUTO 062.

AUTO 155 Advanced Brake Systems (A,SP) **2-2-3**
An advanced course covering detailed diagnostics and repair of automotive brake systems including anti-lock systems. Prepares student to achieve national ASE certification in brake systems. Lab fee: $15.00. Prerequisite: AUTO 150.

AUTO 160 Electrical Systems (W,SP) **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. 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: AUTO 061 and AUTO 062.

AUTO 165 Advanced Electrical Systems (A,SP) **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. Prepares student to achieve national ASE certification in electrical systems. Lab fee: $15.00. Prerequisite or concurrent: AUTO 160.

AUTO 170 Heating and Air Conditioning Systems (SP) **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. 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: AUTO 061 and AUTO 062.

AUTO 175 Advanced Heating and Air Conditioning Systems (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. Prepares student to achieve national ASE certification in heating and air conditioning systems. Lab fee: $20.00. Prerequisite: AUTO 170.

AUTO 180 Engine Performance (A,W) **2-4-4**
This course provides the opportunity to gain a working knowledge of engine performance 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. 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: AUTO 061 and AUTO 062.

AUTO 181 Fundamentals of Alternate Fuel Systems (W,SP) **2-2-3**
This course provides a working knowledge of the predominate alternate fuel systems currently in use in automotive applications. These include CNG, LNG, propane, ethanol, methanol, electric, oxygenated gasoline, and gasohol. The unique characteristics of each fuel along with the systems used to adapt automobiles to its use is explored along with the federal legislation that is mandating and controlling this technology. Lab fee: $20.00. Prerequisites: AUTO 180.

AUTO 185 Advanced Engine Performance (W,SP) **2-2-3**
The course is designed to provide students with a working knowledge in the area of advanced engine diagnostics. Diagnosis and repair of fuel injection and computerized engine control systems are included. Prepares student to achieve national ASE certification in engine performance. Lab fee: $15.00. Prerequisite: AUTO 180.

AUTO 186 Advanced Alternate Fuel Systems (A,SP) **2-2-3**
An advanced course designed to provide students with background knowledge and experience on current alternate fuel conversion systems and proper installation procedures. Symptom analysis, diagnosis, and repair of alternate fuel related engine performance problems are covered. Prepares student to achieve national ASE certification in alternate fuels. Lab fee: $20.00. Prerequisites: AUTO 181 and 185.

AUTO 190 Automotive Business Management (A,W,SP,SU) **2-2-3**
An introduction to automotive management principles. Topics covered include: A systems approach to management, management styles, financial measures, MBO and quality, time management, customer and employee relations, marketing and the legal environments. Lab fee: $10.00. Prerequisites: AUTO 061 and AUTO 062

AUTO 191 Service Advising (A,SP) **2-2-3**
The primary responsibilities of a Service Advisor: Writing a proper repair order, scheduling, selling maintenance and customer relations are covered in depth in this course. Estimating, repair order tracking and time management skills are also presented. Lab fee: $10.00. Prerequisite: AUTO 190.

AUTO 192 Automotive Service Management (W,SP) **2-2-3**
This course covers the variety of duties of the service manager. Principles presented in AUTO 190 are further developed along with practical implementation strategies. Facilities and equipment planning and management along with financial management and analysis are covered. Lab fee: $10.00. Prerequisite: AUTO 190.

AUTO 193 Automotive Service Merchandising (A,SU) **2-2-3**
Principles of marketing, merchandising and advertising and their application in the automotive repair industry will be covered in this course. Upon completion of this course the student will be able to demonstrate the ability to develop specific merchandising and advertising items and to develop a departmental marketing plan. Lab fee: $10.00. Prerequisite: AUTO 190.

AUTO 195 Auto Parts - Sales (On Demand) **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. Lab fee: $10.00. Prerequisite: AUTO 190.

AUTO 196 Auto Parts - Inventory Control (On Demand) **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. Lab fee: $10.00. Prerequisite: AUTO 190.

AUTO 197 Auto Parts - Management (On Demand) **2-2-3**
This course covers the various management duties of a parts department manager. Pricing, inventory merchandising, forecasting, and purchasing are included. Lab fee: $10.00. Prerequisite: AUTO 190

AUTO 210 Current Trends in Engine Repair (A,W) **1-2-2**
The content of this course reflects recent technological advances and changes in engine design and repair made by the automobile industry during the current model year. Lab fee: $15.00. Prerequisite: AUTO 115

AUTO 220 Current Trends in Automatic Transmissions (SP,SU) **1-2-2**
The content of this course reflects recent technological advances and changes in automatic transmission design and repair made by the automobile industry during the current model year. Lab fee: $15.00. Prerequisite: AUTO 125

AUTO 230 Current Trends in Manual Transmissions (A,W) **1-2-2**
The content of this course reflects recent technological advances and changes in manual transmission design and repair made by the automobile industry during the current model year. Lab fee: $15.00. Prerequisite: AUTO 135

AUTO 240 Current Trends in Suspension Steering (A,SU) **1-2-2**
The content of this course reflects recent technological advances and changes in steering and suspension system design and repair made by the automobile industry during the current model year. Lab fee: $15.00. Prerequisite: AUTO 145.

AUTO 250 Current Trends in Brake Systems (W) **1-2-2**
The content of this course reflects recent technological advances and changes in brake system design and repair made by the automobile industry during the current model year. Lab fee: $15.00. Prerequisite: AUTO 155.

AUTO 260 Current Trends in Electrical Systems (W/AU) **1-2-2**
The content of this course reflects recent technological advances and changes in electrical system design and repair made by the automobile industry during the current model year. Lab fee: $15.00. Prerequisite: AUTO 165.

AUTO 270 Current Trends in A/C Systems (A) **1-2-2**
The content of this course reflects recent technological advances and changes in heating air conditioning system design and repair made by the automobile industry during the current model year. Lab fee: $15.00. Prerequisite: AUTO 175.

AUTO 280 Current Trends in Engine Systems (SP,SU) **1-2-2**
The content of this course reflects recent technological advances and changes in engine control system design and repair made by the automobile industry during the current model year. Lab fee: $15.00. Prerequisite: AUTO 185.

AUTO 297/298/299 Special Topics in Automotive Technology (On Demand) **1-2-2**
Advanced level course electives. This course will address current issues in the automotive industry. Lab fee: $15.00. Prerequisite: AUTO 061 and AUTO 062.

AUTO 300 Shop Experience (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.

Aviation Maintenance Technology (AVI)

AVI 111 Aviation Theory (A,SP) **3-4-5**
Basic science for the aviation maintenance technician, including aerodynamics and flight stability, mathematics, physics, and weight and balance effects. Lab fee: $16.00. Prerequisite: DEV 031 with a grade of "C" or better, or placement into MATH 102.

AVI 115 Aircraft Maintenance Regs., Pubs., and Records (A,SP - DL) **1-3-2**
Application of Federal Aviation Regulations to aircraft maintenance and the aircraft technician. The use of aircraft maintenance forms, records, publications, and other pertinent technical data. Lab fee: $16.00. Prerequisite: DEV 031 with a grade of "C" or better, or placement into MATH 102.

AVI 117 Basic Aviation Maintenance (A,SP) **4-4-6**
Develop an understanding of basic aviation maintenance procedures and the tools used by the aircraft technician. Covers identification and selection of materials used in aircraft construction. Practice in fabricating and installing fluid lines and fittings. Select and perform non-destructive inspection processes. Lab fee: $16.00. Prerequisite: DEV 031 with a grade of "C" or better, or placement into MATH 102.

AVI 119 Aircraft Drawings (A,SP) **1-3-2**
Develop an understanding of the general language and symbolism of the aviation industry. Fundamentals of blueprint reading and interpretation of drawings and shop sketches for fabricating parts. Lab fee: $16.00. Prerequisite: DEV 031 with a grade of "C" or better, or placement into MATH 102.

AVI 121 Basic Electricity (W,SU) 5-11-9
Inspect and service batteries. Determine the relationship of voltage, current, and resistance in electrical circuits. Measure voltage, current, resistance, and continuity, calculate and measure power, read and interpret aircraft electrical circuit diagrams including solid state devices, and logic functions. Calculate and measure capacitance and inductance, and operating principles of generators, alternators, and motors. Lab fee: $16.00. Prerequisites: AVI 111, AVI 115, AVI 117, and AVI 119.

AVI 125 Ground Operations and Cleaning (W,SU) 2-2-3
Ground operations and servicing of aircraft. Identify and select fuels. Identify and select cleaning materials. Identify, remove and treat aircraft corrosion and perform aircraft cleaning. Lab fee: $16.00. Prerequisites: AVI 111, AVI 115, AVI 117, and AVI 119.

AVI 211 Aircraft Environmental Controls (A,SP) 3-3-4
This course includes aircraft oxygen and environmental control systems. The pressurization system, deicing and anti-icing systems, and fire detection and extinguishing systems are explored. Emphasis is placed on troubleshooting systems. Lab fee: $16.00. Prerequisites: AVI 121 and AVI 125.

AVI 213 Airframe Instruments and Electronics (A,SP) 2-6-4
This course centers around aircraft instrument, navigation and communication systems. The theory of operation and troubleshooting the systems. Lab fee: $16.00. Prerequisites: AVI 121 and AVI 125.

AVI 215 Aircraft Electrical Systems (A,SP) 5-6-7
This course deals with the operation and control of electrical generation and distributing systems. Included are wiring procedure and operation principles of electrical appliances such as solenoids, diodes, transistors, motors and switches. Emphasis is placed on troubleshooting the systems. Lab fee: $16.00. Prerequisites: AVI 121 and AVI 125.

AVI 221 Aircraft Structures I (W,SU) 3-3-4
A study of aircraft wood and its defects. Selection, application, inspection, testing and repair of aircraft fabric materials. Selection, identification and application of finishing materials, trim, letters, and touch-up paint. Lab fee: $16.00. Prerequisites: AVI 121 and AVI 125.

AVI 223 Aircraft Structures II (W,SU) 4-15-9
Identification of aircraft structural materials, properties of aircraft metals, and heat treatment. Inspection of welded assemblies. Layout from blueprints, bend allowances, forming and fabrication techniques. Installation and inspection of conventional and special rivets and fasteners. Construction techniques, inspection, repair and finishing of composite structures and components. Lab fee: $16.00. Prerequisites: AVI 121 and AVI 125.

AVI 241 Aircraft Fluid Power Systems (A,SP) 3-3-4
Inspect, troubleshoot, service and repair aircraft hydraulic and pneumatic system components in accordance with pertinent maintenance directives. Lab fee: $16.00. Prerequisites: AVI 211, AVI 213, AVI 215, AVI 221, and AVI 223.

AVI 245 Aircraft Fuel Systems (A,SP) 1-2-2
Inspect, troubleshoot, service and repair aircraft fuel system components in accordance with pertinent maintenance directives. Lab fee: $16.00. Prerequisites: AVI 211, AVI 213, AVI 215, AVI 221 and AVI 223.

AVI 246 Aircraft Landing Gear Systems (A,SP) 3-3-4
Inspect, troubleshoot, service and repair aircraft landing gear system components in accordance with pertinent maintenance directives. Lab fee: $16.00. Prerequisites: AVI 211, AVI 213, AVI 215, AVI 221, and AVI 223.

AVI 249 Aircraft Rigging, Assembly and 100-Hour Inspection (A,SP) 3-7-6
Study of aircraft rigging and assembly. Inspection of the complete airframe and all its systems. Review of airframe topics via written examinations that present a comprehensive overview of all airframe training units. Lab fee: $16.00. Prerequisites: AVI 211, AVI 213, AVI 215, AVI 221, and AVI 223.

AVI 311 Reciprocating Engine Theory, Overhaul, and Repair (W,SU) 4-6-6
Theory and operation of aircraft reciprocating engines. Study of the reciprocating engine construction and design. Reciprocating engine maintenance, inspection, repair, and troubleshooting. Procedures of engine removal, installation, rigging, and testing. Lab fee: $16.00. Prerequisites: AVI 121 and AVI 125.

AVI 313 Reciprocating Engine Ignition and Fuel Systems (W,SU) 4-6-6
Electrical principles of reciprocating ignition systems. Aircraft magneto inspection, repair and overhaul. Installation and adjustment of aircraft magnetos. Reciprocating engine ignition harness construction and repair. Aircraft spark plug inspection and servicing. Reciprocating engine ignition system troubleshooting. Theory of operation, maintenance, repair and troubleshooting of aircraft carburetors. Operation, maintenance, repair and troubleshooting of reciprocating engine fuel injection systems. Repair and maintenance of engine fuel systems,. Lab fee: $16.00. Prerequisites: AVI 121 and AVI 125.

AVI 315 Reciprocating Engine Cooling, Induction, and Exhaust Syst. (W,SU) 2-3-3
The theory, maintenance, troubleshooting, and repair of reciprocating engine lubrication systems. Inspection and repair of reciprocating engine cooling systems. Fundamentals and repair of reciprocating engine induction and exhaust systems. Lab fee: $16.00. Prerequisites: AVI 121 and AVI 125.

AVI 321 Turbine Engine Theory and Overhaul (A,SP) 4-6-6
Theory and operation of aircraft turbine engines. Study of the turbine engine construction and design. A study of turbine engine maintenance, inspection, repair, and troubleshooting techniques. Application of procedures to remove, install, rig and operationally test turbine engines. Identification and repair of lubrication systems and components. Lab fee: $16.00. Prerequisites: AVI 121 and AVI 125.

AVI 323 Turbine Engine Airflow Systems (A,SP) 3-2-4
A study of fundamental principles of turbine engine ice and rain, cooling, exhaust and thrust reverser systems. A study of the applied techniques to inspect, maintain, troubleshoot, repair and service induction and airflow systems to industry standards. Lab fee: $16.00. Prerequisites: AVI 121 and AVI 125.

AVI 325 Turbine Engine Fuel and Ignition Systems (A,SP) 4-6-6
A study of operating principles, and theory of turbine engine fuel systems, fuel metering systems and subsystems. A study of applied techniques to inspect, maintain, troubleshoot, repair and adjust respective systems to industry standards. A study of electrical principles of turbine engine ignition systems. Principles of operating turbine engine starting systems of both electrical and pneumatic type. A study of applied techniques to inspect, service, troubleshoot and repair respective system components to industry standards. Lab fee: $16.00. Prerequisites: AVI 121 and AVI 125.

AVI 331 Propellers (W,SU) 4-6-6
Aerodynamic principles of propellers. Propeller types, construction and operation. Inspection, repair and troubleshooting. Installation, removal, tracking and balance. Controllable propellers. Constant speed governor control, operation and adjustment. Reversible propellers. Hazards of propeller operation. Lab fee: $16.00. Prerequisites: AVI 311, AVI 313, AVI 315, AVI 321, AVI 323, and AVI 325.

AVI 333 Engine Instruments and Electrical Systems (W,SU) 2-1-3
Identify types of powerplant instrument and electrical systems, operating principles and procedures to inspect, check and troubleshoot temperature, pressure and RPM indicating systems. Lab fee: $16.00. Prerequisites: AVI 311, AVI 313, AVI 315, AVI 321, AVI 323, and AVI 325.

AVI 335 Powerplant Inspection and Fire Protection (W,SU) 4-8-7
One hundred hour inspection of powerplants and systems. Use of inspection equipment and aids. Procedures for returning aircraft engines to service. FAA regulations and maintenance records. Theory, inspection, service and troubleshooting of engine fire protection and fire detection systems. Radial engine design, systems and differences. A summative evaluation course to determine, in a comprehensive manner, the competence necessary for certification testing. Lab fee: $16.00. Prerequisites: AVI 311, AVI 313, AVI 315, AVI 321, AVI 323, and AVI 325.

Biology (BIO)

A mandatory safety lesson (normally given in the laboratory) must be completed before the student is admitted to certain biology laboratory sessions. Approved safety glasses are required for some laboratory sessions and may be purchased through the Bookstore. Attendance during the first week of class is mandatory and may affect a student's continued enrollment in these classes. Students must complete 60% of the laboratories to receive course credit.

BIO 100 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. Lab fee: $3.00. Prerequisite: Placement into ENGL 100 or higher. Not open to students with credit for BIO 111, BIO 112, BIO 125, BIO 126, BIO 131, BIO 132, NSCI 101, NSCI 102, NSCI 103, BIO 161, BIO 169, BIO 174 or BIO 175.

BIO 101 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. Lab fee: $3.00. Prerequisite: Placement into ENGL 100 or higher. Not open to students with credit for BIO 121, BIO 122, BIO 161 or BIO 169.

BIO 111 Introductory Biology I (A,W,SP,SU) 4-3-5
An introduction to the biological sciences for the non-major student. Topics included are cell structure and function, bioenergetics, DNA structure and function, cell reproduction, biodiversity, ecology, and evolution. Lab fee: $19.00. Prerequisite: Placement into ENGL 101. Not open to students with credit for BIO 174 or BIO 175. This course and BIO 112 or BIO 115 or BIO 125 or BIO 126 or BIO 127 provide a two-quarter sequence in biological science that will fulfill the elective requirement for the Associate of Science Degree.

BIO 112 Introductory Biology II; Human Biology (A,W,SP,SU) 4-3-5
An introduction to the study of human biology. Topics included are human evolution, human reproduction, human growth and development, homeostasis, the human brain, and the environmental impact of humans on earth. Lab fee: $19.00. Prerequisites: High school biology or BIO 100 or BIO 111, and placement into ENGL 101.

BIO 115 General Microbiology (A,W,SP,SU) 3-4-5
A general microbiology course for biology majors (non-microbiology 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: $26.00. Prerequisites: high school chemistry and biology, or CHEM 100 and BIO 100 or NSCI 103, and placement into ENGL 101.

BIO 116 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 mechanics of antigen-antibody reactions. Additional topics for detailed discussion are human airborne, foodborne and waterborne infections and human contact diseases. Lab fee: $3.00. Prerequisites: BIO 115, ENGL 101.

BIO 121 Anatomy, Physiology and Pathology I (A,W,SP,SU) 4-3-5
An integrated organ systems approach to the anatomy, physiology and pathology of the human body. Topics include cell biology, histology, and integumentary, skeletal, muscular and nervous systems. The cat and human cadavers are used for demonstrations in the laboratory. Lab fee: $19.00. Prerequisites: High school biology and chemistry or BIO 100 and CHEM 100 or NSCI 103 and placement into ENGL 101. Not open to students with credit for BIO 161 or BIO 169.

BIO 122 Anatomy, Physiology and Pathology II (A,W,SP,SU) 4-3-5
A continuation of BIO 121. Topics include endocrinology, respiratory system hematology, cardiovascular system, metabolism, gastro-intestinal system, thermal regulation, and renal and reproductive systems. The cat and human cadavers are used for demonstrations in the laboratory. Lab fee: $19.00. Prerequisite: BIO 121.

BIO 124 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. Lab fee: $3.00. Prerequisites: high school biology or BIO 100 or NSCI 103, and ENGL 101.

BIO 125 General Botany (A,SP,SU) 4-3-5
This course covers the biology of the major plant groups. Topics include diversity, physiology, reproduction, ecology, and economic significance. Lab fee: $18.00. Prerequisites: Placement into ENGL 101; high school chemistry and biology, or CHEM 100 and BIO 100, or NSCI 103.

BIO 126 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: $16.00. Prerequisites: BIO 111 or BIO 174, high school chemistry, CHEM 100, or NSCI 103.

BIO 127 Environmental Science (A,SP,SU) 4-3-5
This course provides a survey of current issues in the study of environmental science. Topics include scientific principles and concepts, human population dynamics, resources and resource management, pollution, world problems, and environment and society. Emphasis will be placed on how individual actions, and economic and political policies can affect the environment. Proposed solutions to environmental problems will be considered. Lab fee: $19.00. Prerequisites: NSCI 101 and NSCI 102; or BIO 111 or BIO 174 or equivalent and placement into ENGL 101.

BIO 161 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. Human cadavers are used for demonstrations. Lab fee: $26.00. Prerequisites: high school biology or BIO 100 or BIO 101 or NSCI 103; placement into ENGL 101. This course and BIO 169 provide a two-quarter sequence in biological science that will fulfill the elective requirement for the Associate of Science Degree. Not open to students with credit for BIO 121.

BIO 162 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. Lab fee: $3.00. Prerequisites: BIO 161, and placement into ENGL 101.

BIO 169 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: $13.00. Prerequisites: BIO 161 or equivalent, CHEM 113 or CHEM 112 or equivalent, placement into ENGL 101. Not open to students with credit for BIO 121.

BIO 170 Human Pathophysiology (A,W,SP,SU) 5-0-5
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. Lab fee: $3.00. Prerequisites: BIO 169 or equivalent; CHEM 112 or CHEM 113 or equivalent or permission of instructor.

BIO 174 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: $26.00. Prerequisites: High school chemistry or CHEM 100, high school biology or BIO 100. Concurrent: CHEM 111 or CHEM 171. This course and BIO 175 provide a two-quarter sequence in biological science that will fulfill the elective requirement for the Associate of Science Degree.

BIO 175 Biological Sciences II (A,W,SP,SU) 4-3-5
A continuation of BIO 174. A biology course designed for biology majors that provides an in-depth coverage of evolution, diversity of life, animal behavior, and ecology. Lab fee: $25.00. Prerequisite: BIO 174.

BIO 201 General Zoology: Animal Diversity and Systematics (A,SP) 4-3-5
A survey of the diversity of organisms in the animal kingdom. Emphasis will be placed on evolutionary interrelationships, locomotory, nutritional, and reproductive strategies of the major groups. Lab fee: $26.00. Prerequisite: BIO 174. This course and BIO 174 provide a two-quarter sequence in biological science that will fulfill the elective requirement for the Associate of Science Degree.

BIO 290 Capstone Experience in Biology 2-2-3
An integrated science course blending elements of chemistry, physics and biology. Topics include the historical development of the sciences, ethical issues in science and how they affect the advancement of scientific thought, and the scientific method as it relates to experimental design and interpretation of scientific results. The laboratory utilizes an investigative approach taking students through the process of identifying a research problem, conducting a literature review, writing a research proposal, collecting and analyzing data, writing a scientific paper and presenting results. Lab fee: $19.00. Prerequisites: 75 hours or more of course work completed with a minimum of 20 credit hours within the sciences. This course is required for all biological science majors seeking either the Associate of Arts or Associate of Science degree.

BIO 293 Independent Study in Biology 1-5
Detailed examination of selected topics of interest in Biology. Lab fee: $6.00. Prerequisite: permission of instructor.

Business Management (BMGT)

BMGT 101 Introduction to Business (A,W,SP,SU - DL) 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: $5.00.

BMGT 102 Managing Interpersonal Skills (A,W,SP,SU) 3-2-4
This course introduces the student to management themes and the five primary skill sets required to be a successful manager. The course provides opportunities for students to begin to learn, develop, and apply managerial skills through personal assessment and an introduction to various skill concepts and behavior models. Lab fee: $25.00.

BMGT 111 Management (A,W,SP,SU - DL) 5-0-5
The basic management functions 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. Topics include leadership, motivation, communication and problem solving. Lab fee: $5.00.

BMGT 211 Organizational Behavior (A,W,SP,SU - DL) 3-2-4
An introduction to fundamental concepts and applications of individual, group, and organizational behavior in the workplace. Topics include foundations of organizational behavior, perception and individual decision making, values, attitudes, the foundations of group behavior, understanding work teams, and organizational dynamics. Lab fee: $5.00. Prerequisite: BMGT 111.

BMGT 216 Business Ethics (A,W,SP,SU - DL) 3-0-3
A comprehensive and practical study of ethical systems designed to explore, analyze and evaluate the organizational values, strategic policies and expected behaviors required to develop high ethical standards both on a personal and organizational level. Emphasis will be placed on case studies and exercises in ethical behaviors. Lab fee: $5.00. Prerequisites: BMGT 111 and LEGL 264.

BMGT 218 Management Training for Supervisors (A,W,SP,SU) 5-0-5
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, problem 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: $5.00.

BMGT 219 International Business (A,SP) 3-0-3
The course focuses on the economic, social and cultural considerations in doing business overseas. The globalization of markets and the growth of overseas business ventures is explored. The need to develop varied techniques for managing people from other cultural backgrounds, the means of minimizing risks in financial transactions, and development of systems for coordinating and controlling operations will be stressed. Techniques to overcome international business barriers are examined. Lab fee: $5.00.

BMGT 220 Leadership Fundamentals 2-2-3
This course provides an in-depth study of leadership styles, skills, roles, and the functions of leaders in organizations. The course integrates writings from the Humanities, military leaders, political leaders, religious leaders, and business leaders with basic leadership principles. The course provides the opportunity for the student to explore the concept of leadership and to develop and improve his/her leadership skills. Prerequisites: Placement into program level reading, writing, mathematics, and computer science, or completion of requirement developmental courses in these areas.

BMGT 231 Small Business Development (A,W,SP,SU - DL) 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: $5.00.

BMGT 232 Small Business Operations (A,W,SP,SU- DL) 4-0-4
This course is a sequel to BMGT 231 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. Lab fee: $5.00. Prerequisite: BMGT 231.

BMGT 234 Case Studies in Small Business (A,SP) **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: $5.00. Prerequisites: BMGT 231 and BMGT 232.

BMGT 235 Strategic Business Planning (A,SP) **2-6-5**
Preparation and presentation of a formal business plan using Lotus 1-2-3. Lab fee: $10.00. Prerequisites: ACCT 101, ACCT 102, BMGT 231, BMGT 232, MKTG 111.

BMGT 236 Franchising (A,SP) **3-0-3**
This course introduces the fundamentals of franchising from both the franchisee and the franchiser points of view. The focus of the course is the franchise as a tool for those buying a business and those wanting to expand an existing business. Contractual arrangements covering the establishment and the operation of a franchise as well as the relationship between the franchisee and the franchiser including the subjects of distributorships and licensing. Lab fee: $5.00.

BMGT 237 Home Based Business (A,SP) **3-2-4**
This course is designed specifically for individuals who strive to commence their own business or have currently established a venture. The goal will be to prepare students for the challenges of their business with full awareness of potential situations and to have the knowledge of how to handle them effectively. Focus will be on the realities of beginning, growing, and leaving your business. This course also includes a student field study of an existing business or a concentration on an area of concern in the student's established business. Lab fee: $5.00.

BMGT 238 Small Business Management Internship (A,W,SP,SU) **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. Lab fee: $2.00. Concurrent: BMGT 239.

BMGT 239 Small Business Management Seminar (A,W,SP,SU) **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: BMGT 238.

BMGT 253 Negotiation Principles (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. Lab fee: $5.00.

BMGT 257 Operation Management (SU) **4-0-4**
This course is designed to provide an analysis of the structure and functions of operations management. Particular emphasis is placed on industry application of relevant theories. Students will also learn how operations management interacts with other areas within an organization. This course focuses on both qualitative and quantitative methods used to design processes, manage inventory and the work force, plan and execute decisions related to capacity, quality, productivity and performance. Lab fee: $5.00.

BMGT 261 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. Lab fee: $2.00. Concurrent: BMGT 262.

BMGT 262 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 visa a report. Lab fee: $1.00. Prerequisite: Advisor approval required. Concurrent: BMGT 261.

BMGT 263 Business Management Internship II (A,W,SP,SU) **0-40-4**
Continuation of BMGT 261. Prerequisite: BMGT 261 and advisor approval required the quarter before the student actually begins the internship. Lab fee: $1.00. Concurrent: BMGT 264.

BMGT 264 Special Problems in Business Management II (A,W,SP,SU) **0-4-2**
Continuation of BMGT 262. Lab fee: $2.00. Prerequisite: Advisor approval required. Concurrent: BMGT 263

BMGT 271 Management Decisions (A,W,SP,SU - DL) **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 or through advisor approval.

BMGT 272 Case Studies in Business Seminar (A,W,SP,SU - DL) **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: $10.00. Prerequisite: Open to graduating students only or through advisor approval.

BMGT 273 Management Service Project (A,W,SP,SU) **1-4-3**
This course requires the student to serve in a leadership role as a member of an external team in a community-based project setting in a private industry, public sector agency, or not-for-profit organization; or to serve as a facilitator for a team in t he Introduction Management Skills course. In a community-based project setting the student will lead the team in the identification, analysis, and development of potential solutions to one or more problem situations. As a team facilitator, the student will facilitate the team in developing and accomplishing assigned tasks. Lab fee: $10.00.

BMGT 276 Assessment, Analysis and Evaluation Skills **3-2-4**
This course provides students with the opportunity to develop their knowledge and skills in the basics of training assessment and evaluation. Course topics include needs assessment, data collection, data analysis, performance assessment, levels of evaluation, testing, and evaluation methods. This course will emphasize application of assessment and evaluation techniques on projects from students' personal or work experiences. Lab fee: $10.00.

BMGT 277 Instructional Design and Development Skills **3-2-4**
This course provides the basic knowledge and skills necessary for the systematic design, development and evaluation of instruction and training by focusing on the design of instruction/training programs, development of effective strategies and materials, and the evaluation of instruction/training. Emphasis will be placed on application of instructional design methodology. Students will demonstrate skills through the development of and delivery of training materials related to their area of work or personal interest. Lab fee: $10.00.

BMGT 278 Training Delivery Skills **3-2-4**
This course provides basic knowledge and skills required to conduct effective training. Topics include the training and development process, effective training competencies, adult learning practices, on-the-job training process, the learning environment, facilitation skills, presentation skills, feedback guidelines, visual aids, and reinforcement for transfer of learning to the workplace. Application of effective training delivery skills will be emphasized. Students will demonstrate skills through the development and delivery of training materials related to their area of work or personal interest. Lab fee: $10.00.

BMGT 281-293 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.

Chef Apprentice Major
(See Hospitality Management)

Chemistry (CHEM)

A mandatory safety lesson must be completed before the student is admitted to any other chemistry laboratory sessions. Approved Chemical Splash Resistant goggles are required and may be purchased through the Bookstore. Certain clothing restrictions exist and will be explained by the instructor. Attendance during the first week of class is mandatory and may affect a student's continued enrollment in these classes. Students must complete 60% of the laboratories to receive course credit.

CHEM 100 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. Lab fee: $13.00. Prerequisites: MATH 102 or higher. Placement into ENGL 100 or higher. Not open to students with credit for CHEM 111, CHEM 112, CHEM 113, CHEM 171, CHEM 172, or CHEM 173.

CHEM 111 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: $19.00. Safety training and goggles are required for laboratory sessions. Prerequisites: high school chemistry or CHEM 100; MATH 102 or equivalent; placement into ENGL 101. Not open to students with credit for CHEM 171, CHEM 172, or CHEM 173. This course and CHEM 112 provide a two-quarter sequence in physical science that will fulfill the elective requirement for the Associate of Science Degree.

CHEM 112 Elementary Chemistry II (A,W,SP,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. Not open to students with credit for CHEM 171 or CHEM 251. Safety training and goggles are required for laboratory sessions. Lab fee: $19.00. Prerequisite: CHEM 111.

CHEM 113 General and Biological Chemistry (A,W,SP,SU) **4-3-5**
This is a course in elementary chemical concepts designed primarily for allied health students. It includes the study of principles of general chemistry as applied to physiological principles; basic organic chemistry, especially related to functional groups; and biochemistry including carbohydrates, lipids, proteins, enzymes and nucleic acids. Emphasis is placed on physiological function. Safety training and goggles are required for the laboratory session. Lab fee: $19.00. Prerequisites: High school chemistry completed within the last three years or CHEM 100 or successfully completing a chemistry placement exam; MATH 102 or equivalent, and placement into ENGL 101. Not open to students with credit for CHEM 112.

CHEM 171 General Chemistry I (A,W,SP,SU) **4-3-5**
A course in fundamental chemical principles for chemistry majors and pre-professionals. Topics include chemical calculations, the mole concept, atomic structure, periodic classification, bonding, and acid-base chemistry. Laboratory sessions provide bench experiences. Safety training and goggles are required for laboratory sessions. Lab fee: $19.00. Prerequisites: high school chemistry or CHEM 100, MATH 148 or equivalent, and placement into ENGL 101. This course and CHEM 172 provide a two-quarter sequence in physical science that will fulfill the elective requirements for the Associate of Science Degree.

CHEM 172 General Chemistry II (A,W,SP,SU) **4-3-5**
A continuation of CHEM 171. Topics include solutions, oxidation-reduction reactions, kinetics, gases and kinetic theory, thermodynamics, kinetics, and equilibrium. Laboratory sessions provide bench experiences. Safety training and goggles are required for laboratory sessions. Lab fee: $19.00. Prerequisite: CHEM 171.

CHEM 173 General Chemistry III (A,W,SP,SU) **4-3-5**
A continuation of CHEM 172. Topics include acid-base and solubility equilibria, electrochemistry, nuclear chemistry, the representative and transition elements, and qualitative analysis., Laboratory sessions provide bench experiences. Safety training and goggles are required for laboratory sessions. Lab fee: $19.00. Prerequisite: CHEM 172.

CHEM 251 Organic Chemistry I (A,W,SP,SU) **5-0-5**
The first course in a three-course sequence in organic chemistry. Structure, nomenclature, physical properties, bonding and reactions of alkanes, alkenes, and alkyl halides. Lab fee: $6.00. Prerequisite: CHEM 173.

CHEM 252 Organic Chemistry II (A,W,SP,SU) **5-0-5**
The second course in a three-course sequence in organic chemistry. This course includes the study of physical and chemical properties of aromatic compounds, alcohols, thiols, ethers, epoxides, sulfides, carbonyl compounds, carboxylic acids and their derivatives, and carbohydrates. Lab fee: $6.00. Prerequisite: CHEM 251.

CHEM 253 Organic Chemistry III (A,W,SP,SU) **5-0-5**
The third course in a three-course sequence in organic chemistry. This course includes the study of spectroscopic methods, molecular orbital theory, polymers, the chemical and physical properties of amines, amino acids, proteins, lipids, and nucleic acids. Lab fee: $6.00. Prerequisite: CHEM 252.

CHEM 254 Organic Chemistry Laboratory I (A,W,SP,SU) **1-8-3**
The first course in a two-course sequence in organic chemistry laboratory. This course introduces the student to laboratory techniques of organic chemistry, including synthesis, isolation, purification, and identification of organic compounds. Lab fee: $39.00. Prerequisite or concurrent: CHEM 252.

CHEM 255 Organic Chemistry Laboratory II (A,W,SP,SU) **1-8-3**
The second course in a two-course sequence in organic chemistry laboratory. This course includes further study of organic laboratory techniques including synthesis, isolation, purification, and identification of organic compounds. Lab fee: $39.00. Prerequisites: CHEM 252 and CHEM 254.

CHEM 261 Introduction to Biochemistry (A,W,SP,SU) **5-0-5**
This is an introductory course in biochemistry dealing with the molecular basis of structure and metabolism of plants, animals, and microorganisms. Lab fee: $5.00. Prerequisites: CHEM 252 and two quarters of biological science.

CHEM 290 Capstone Experience in Chemistry (On Demand) **2-2-3**
An integrated science course blending elements of chemistry, physics and biology. Topics include the historical development of the sciences, ethical issues in science and how they affect the advancement of scientific thought, and the scientific method as it relates to experimental design and interpretation of scientific results. The laboratory utilizes an investigative approach taking students through the process of identifying a research problem, conducting a literature review, writing a research proposal, collecting and analyzing data, writing a scientific paper and presenting results. Lab fee: $18.00. Prerequisites: 75 hours or more of course work completed with a minimum of 20 credit hours within the sciences. This course is required for all science majors seeking either the Associate of Arts or Associate of Science degree.

CHEM 293 Independent Study in Chemistry (A,W,SP,SU) **1-5**
Detailed examination of selected topics of interest in chemistry. Lab fee: $6.00. Prerequisite: permission of instructor of chemistry.

Civil Engineering Technology (CIVL)

(Also see Surveying SURV)

CIVL 112 MicroStation CAD Drafting I (A,W,SP) **1-5-3**
This course is to provide training in the use of basic display, drawing, manipulation, dimensioning, text, cell, reference files and plotting commands required to the elementary use of Microstation. After mastering system basics, students will be given individual projects. Lab fee: $15.00. Prerequisite: ARCH 111 or permission of instructor.

CIVL 120 Basic Construction Materials (A,W,SP,SU) **2-3-3**
A study of the properties, construction applications, standards, specifications and elementary material testing methods of soils, aggregates, asphalts, portland cement concrete, masonry, metals and woods. Laboratory exercises include basic common construction industry materials testing procedures and comparison of results to industry standards and specifications. Lab fee: $15.00. Prerequisite: MATH 102 or placement into a higher level mathematics course.

CIVL 121 Heavy Construction Materials (A,W,SP) **2-3-3**
A comprehensive study and application of the material testing methods of soils, aggregates, asphalt and portland cement concrete required in the heavy construction industry. The laboratory exercises provide fundamental hands-on experience toward the American Concrete Institute (ACI) Grade 1 Concrete Field Technician. Lab fee: $15.00. Prerequisite: CIVL 120.

CIVL 221 Elementary Hydraulics (A,W) **2-3-3**
A study of liquids at rest and in motion in enclosed conduits and open channels. The effects of static head, velocity, pressure and friction in enclosed piping systems are analyzed. Principles of pump systems, pump station design and detailing are emphasized. Fundamentals of open channel flow, quantification of rainfall runoff and culvert design are introduced. Lab fee: $12.00. Prerequisite: MATH 104 or MATH 112.

CIVL 223 Public Utility Systems (W,SU) **2-3-3**
A study of the principles of public utility theory, planning, design and detailing. Emphasis is placed on applying current design standards and local and state regulations to the planning, design and plan preparation for sanitary collection systems, stormwater management systems and water distribution systems. Detail plan preparation using CAD systems is also emphasized. Lab fee: $12.00. Prerequisites: CIVL 221 and CMGT 123.

CIVL 232 Statics & Strength of Materials (A,W,SU) **2-3-3**
A study of the application of external loads on rigid bodies and analysis of the resulting forces and internal stresses in those bodies. The rigid bodies include beams, columns and truss systems. Topics covered include statics. shear, bending, properties of sections and stress and stain relationships. Lab fee: $12.00. Prerequisite: MATH 148.

CIVL 233 Structural Steel Systems (A,W) **1-5-3**
Design and drafting exercises of steel construction techniques and detailing using the steel construction handbooks, Structural layouts, details, schedules, ship drawing techniques, checking and coordination of steel structural elements with other parts of the building will be examined. Some computer materials testing lab exercises will be scheduled. Lab fee: $9.00. Prerequisites: CIVL 232 and ARCH 121.

CIVL 235 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: $9.00. Prerequisites: CIVL 232 and ARCH 121.

CIVL 291 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: $15.00. Prerequisites: CMGT 290 and permission of instructor.

Communication Skills (COMM)

(Also see English and Theater)

COMM 105 Speech (A,W,SP,SU - DL) **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: $3.00. Prerequisite: ENGL 101 or ENGL 111 or concurrent registration with ENGL 101 or ENGL 111.

COMM 110 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. This course is recommended as a substitute for COMM 105 in some technologies. Check with your academic advisor. Lab fee: $3.00. Prerequisite: ENGL 101 or ENGL 111 or concurrent registration with ENGL 101 or ENGL 111.

COMM 115 Oral Interpretation (A,W,SP,SU) **3-0-3**
Students will read literature orally and listen critically. They will then practice techniques for presenting literature dramatically. 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 COMM 105 for all Associate of Arts and Associate of Science students. Lab fee: $3.00. Prerequisite: ENGL 101 or ENGL 111 or concurrent registration with ENGL 101 or ENGL 111.

COMM 220 Introduction to Mass Communications (A) **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. Lab fee: $3.00. Prerequisite: ENGL 102 or ENGL 111.

COMM 297-298-299 Special Topics in Communications (On Demand) **1-5**
Special topics from the communication skills area designed to meet specific needs. Prerequisites vary.

Computer Electronics Major
(See Electronic Engineering Technology)

Computer Programming Technology (CPT)

CPT 101 Computer Literacy I (A,W,SP,SU) 2-2-3
An introductory course designed to provide basic information about computer hardware, software, data communications, operating systems, popular application packages and ethical issues. Hands-on lab experience using the PC and a popular integrated software package is emphasized in the course. The software package introduces the student to business applications using a word processor, file manager, spreadsheet, and graphics Note: This course meets the Computer Literacy requirements for all technologies. Lab fee: $10.00. Prerequisites: DEV 030 and DEV 040, OADM 131 is recommended.

CPT 105 PC Applications (A,W,SP,SU) 2-3-3
A course designed to provide computer programming majors with fundamental data processing concepts. Hands-on lab experience using word processing, spreadsheet, database and presentation graphics software is emphasized. Lab fee: $25.00. Prerequisites: CPT 101 and MATH 103. Note: MCT 106 will substitute for CPT 105.

CPT 108 Program Design and Development (A,W,SP,SU) 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. Prerequisites: CPT 101 and MATH 103. CPT 105 may be taken prior to or with CPT 108.

CPT 111 Assembly Language 1 (A,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: MATH 121. CPT 108 may be taken prior to or with CPT 111.

CPT 112 Assembly Language 2 (W,SP,SU) 2-8-5
A continuation of CPT 111. 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: $40.00. Prerequisite: CPT 111

CPT 131 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 and Windows), and mini (OS/400) mainframe (DOS/VSE, OS/MVS, and UNIX). The student will code several JCL lab exercises. Lab fee: $10.00. Prerequisite: CPT 111.

CPT 151 BASIC Business Language (On Demand) 2-3-3
Introduction to the BASIC programming language with business applications. Lab fee: $25.00. Prerequisite: CPT 111.

CPT 155 Visual Basic (A,W,SP,SU - DL) 2-8-5
Emphasizes the essential aspects of creating the graphical user interface of a Visual Basic Windows program. The student will also learn fundamental aspects of coding a Visual Basic program, along with more advanced topics such as manipulating MS Access databases, sequential and random-access file processing, error handling and data validation. Programs are run on IBM micro computers using the Windows operating system. Lab fee: $40.00. Prerequisite: CPT 111.

CPT 201 COBOL 1 (A) 2-8-5
Introduction to the concepts and techniques of batch COBOL programming using structured programming techniques. Sequential access methods are stressed. An introduction to alternate mediums will be used. Lab fee: $40.00. Prerequisite: CPT 112.

CPT 202 COBOL 2 (W) 2-8-5
A continuation of CPT 201. Sort procedures, random access through VSAM file structure and table handling are stressed. Alternate mediums will be used. Lab fee: $40.00. Prerequisite: CPT 201.

CPT 205 COBOL 3 (CICS) (SP) 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: CPT 202. CPT 205 may be taken prior to or with CPT 281.

CPT 206 Introduction to Object-Oriented COBOL (A,W,SP,SU) 2-8-5
Introduction to OOCOBOL using classes and objects are discussed. Object Analysis and Object Design concepts are introduced for COBOL programming. Programs written are runable on personal computers using and ANSI-standard COBOL-97 compiler. Lab fee: $40.00. Prerequisites: CPT 201.

CPT 211 Systems Analysis 1 (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. Lab fee: $15.00. Prerequisite: CPT 111.

CPT 212 Systems Analysis 2 (W) 3-2-4
A continuation of CPT 211. 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. Lab fee: $15.00. Prerequisite: CPT 211.

CPT 221 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 Oracle. Lab fee: $25.00. Prerequisite: CPT 111.

CPT 225 Database Systems (W,SU) 2-3-3
An introduction to database systems in theory and application. Students will design and build a database on IBM personal computers using Oracle. Lab fee: $25.00. Prerequisite: CPT 221.

CPT 241 Introduction to AS/400 (A,W,SP,SU) 2-3-3
Survey of IBM AS/400 computer system operation and use of application development tools. Topics include: Program Development Manager (PDM), Source Entry Utility (SEU), Data File Utility (DFU), Query/400, and Screen Design Aid (SDA). Lab fee: $25.00. Prerequisite: CPT 105 for Computer Programming students; MCT 106 for Microcomputing Technology students.

CPT 243 Command Language/400 (A,W,SP,SU) 2-3-3
Introduction to Control Language Programming on the AS/400 will stress the skills required to effectively use Control Language in the operations of an AS/400. Topics include: basic CL programming, input/output in CL programs, and advanced file techniques. Lab fee: $25.00. Prerequisites: CPT 108 and CPT 241.

CPT 244 AS/400 System Operations (A,SP) 2-3-3
System Operations will be a continuation of CPT 241, Introduction to the AS/400, and will cover typical daily AS/400 operational duties as well as weekly and monthly tasks. Topics include: security, managing print functions, device configuration, backup, performance, and client access. Lab fee: $25.00. Prerequisite: CPT 241.

CPT 245 Beginning RPG (A,SP) 2-8-5
Study of the fundamentals of Report Program Generator (RPG) programming language, particularly as it applies to an IBM AS/400 computer. Topics include: structured program design in both batch and interactive applications, file handling, arithmetic operations, externally defined files, and table and array handling. Lab fee: $40.00. Prerequisites: CPT 243 and CPT 111.

CPT 246 Advanced RPG (W,SU) 2-8-5
A continuation of CPT 245. Advanced course in RPG programming using the IBM AS/400 computer. Topics include: structured RPG programming with interactive file processing (Subfiles), Command and System Application Program Interfaces (APIs), data structures, and other advanced topics. Lab fee: $40.00. Prerequisite: CPT 245.

CPT 248 RPG IV (W,SU) 2-8-5
A continuation of CPT 246, Advanced RPG. It will present the most suitable, modern techniques of RPG IV and ILE concepts. This is an advanced class concentrating on subfile applications on an AS/400. Lab fee: $40.00. Prerequisite: CPT 246.

CPT 251 Introduction to C++ Programming (A,W,SP,SU) 2-8-5
An introductory course in ANSI-Standard C++ Language Programming. Lab problems are are targeted towards writing programs with business applications. Computer lab projects will provide hands-on experience in developing programs with an ANSI-Standard C++ compiler environment. Lab fee: $40.00. Prerequisites: CPT 111 or CPT 155 or CPT 201or CPT 245.

CPT 252 Advanced C++ Programming (A,W,SP,SU) 2-8-5
An advanced course in ANSI-Standard C++ Language programming. Lab problems are targeted towards writing programs that explore data structures using object-oriented techniques. Computer lab projects will provide further hands-on experience in developing programs with an ANSI-Standard C++ compiler environment including debugging techniques. Lab fee: $40.00. Prerequisite: CPT 251.

CPT 253 Programming in C++ for Windows (A,W,SP,SU) 2-8-5
The Windows graphical user interface and creation of related C++ programming projects are built and tested. Students experience first hand coding and use of C++ to drive the Windows Application Interface (API). Programs are runable on personal computers using the Windows operating system and an installed ANSI-Standard C++ compiler for Windows development. Lab fee: $40.00. Prerequisites: CPT 155 and CPT 252.

CPT 261 Network Communication Systems (A,W,SP,SU) 5-0-5
Students will learn the fundamentals of data communication and computer networks. To include basic communication theory as applied to both digital and analog communication networks. Also students will learn the basics of the OSI layered network model and characteristics of the wide area, and local area data communication networks. Prerequisite: MCT 221.

CPT 262 Client Server Systems (A,W,SP,SU) 2-3-3
Students will learn the basic information about client/server computing and the operation of Local Area Networks (LAN). Students will create users, establish network security, share printers, and other network resources in a single server environment. Lab fee: $25.00. Prerequisite: MCT 221.

CPT 263 Networking (A,W,SP,SU) 2-8-5
A continuation of CPT 262. Students will learn advanced local area network concepts and how they can be applied to support enterprise wide information management of a large organization. Student will learn to install and use a popular LAN operating system. Lab fee: $40.00. Prerequisite: MCT 221.

CPT 264 Advanced Networking (A,W,SP,SU) 2-8-5
A continuation of CPT 263. Students will learn to use Microsoft Windows NT software to support small and enterprise wide information management systems. Students will complete a series of laboratory assignments using Windows NT software Lab fee: $40.00. Prerequisite: CPT 263.

CPT 265 Distributed Database Management Systems (A,W,SP,SU) 2-8-5
Students will learn the characteristics and types of distributed DBMS currently available for use on distributed data networks. Additionally, students will learn to design and create an enterprise wide database (Oracle) that will be maintained on a distributive network system in a laboratory environment. Lab fee: $40.00. Prerequisite: CPT 264.

CPT 266 Certification Test Review (A,W,SP,SU) 0-3-1
Students will review the material necessary to become certified with a popular network operating systems software. Students will complete a series of practical exercises designed to enhance their ability to successfully complete a popular vendor certification program. Lab fee: $15.00. Prerequisite: CPT 264.

CPT 281 Final Project (SP,SU) 2-8-5
This is the capstone course for the Computer Programming Technology. Students will work in small groups to design, choose appropriate medium and program a typical business system. Lab fee: $40.00. Prerequisite: CPT 202 and CPT 212. CPT 205 may be taken prior to or with CPT 281.

CPT 289 ACP Examination (A,W,SP,SU) 0-3-1
Students will review topics covered in all previous technical courses. Students will be eligible to take general and COBOL areas of 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 CPT 289 during their graduating quarter. Lab fee: $20.00.

CPT 291 Special Topics in CS 1 (On Demand) 1-5,0,1-5
CPT 292 Special Topics in CS 2 (On Demand) 1-5,0,1-5
CPT 293 Special Topics in CS 3 (On Demand) 1-5,0,1-5
CPT 294 Special Topics in CS 4 (On Demand) 1-5,0,1-5
CPT 295 Special Topics in CS 5 (On Demand) 1-5,0,1-5
CPT 296 Special Topics in CS 6 (On Demand) 1-5,0,1-5
Special topics in CS 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 chairperson. Lab fee: $30.00.

CPT 297 Computer Science Internship/Field Experience 1 (On Demand) 0-12-1
The student works 12 hours per week in an activity which relates to the students' occupational objective. The on-the-job experience is coordinated by a faculty member who aids in the students' growth and development.

CPT 298 Computer Science Internship/Field Experience 2 (On Demand) 0-24-2
The student works 24 hours per week in an activity which relates to the students' occupational objective. The on-the-job experience is coordinated by a faculty member who aids in the students' growth and development.

CPT 299 Computer Science Internship/Field Experience 3 (On Demand) 0-36-3
The student works 36 hours per week in an activity which relates to the students' occupational objective. The on-the-job experience is coordinated by a faculty member who aids in the students' growth and development.

Construction Mgmt. (CMGT)

CMGT 101 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: $2.00.

CMGT 105 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 final project. Lab fee: $4.00.

CMGT 106 Supervision of 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: $4.00.

CMGT 115 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. Lab fee: $3.00.

CMGT 121 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: $9.00. Prerequisite: MATH 103 or higher.

CMGT 123 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: $5.00.

CMGT 125 Heavy Construction Methods (A,W) 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: $5.00.

CMGT 131 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: $9.00. Prerequisite: CMGT 121. Concurrent: MATH 104.

CMGT 135 Safety and Loss Prevention (SP) 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: $7.00.

CMGT 141 Building Estimating (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. Involving thr take-off procedure used. Lab fee: $9.00. Prerequisites: CMGT 131 and CMGT 115.

CMGT 231 Computer Estimating (A) 2-3-3
A continuation of the study for the skills required to "take-off" the amount of materials from a set of construction plans in an orderly manner. The course will develop the general background information for the process of bidding a construction project utilizing computer software and discussing the most current software applications. Lab fee: $20.00. Prerequisites: CMGT 141, CMGT 131 and MATH 104.

CMGT 241 Planning and Scheduling (A) 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: $10.00. Prerequisite: CMGT 115 or CMGT 131.

CMGT 243 Construction Labor Law (A) 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: $3.00.

CMGT 248 Heavy Construction Estimating (A,SU) 1-3-2
A comprehensive study of the topics associated with and unique to heavy/highway construction estimating. The major focus of the course will involve determining the cost factors of the equipment intensive operations associated with heavy/highway construction. The secondary focus will be relating the equipment selection and cost factors to the labor requirements, materials price extensions, and time requirements as utilized in the model crew method of estimating. Lab fee: $9.00. Prerequisites: CMGT 125, CMGT 123 and CMGT 131.

CMGT 251 Construction Cost Controls (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: $10.00. Prerequisites: CMGT 141 or CMGT 248 and CMGT 241.

CMGT 252 Construction Contract Law (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: $1.00. Prerequisite: CMGT 105.

CMGT 253 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: $2.00.

CMGT 261 Project Management (SP) 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: $10.00. Prerequisite: CMGT 251.

CMGT 263 Marketing Construction Services (SP) 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: $5.00.

CMGT 290 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.

CMGT 291 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: CMGT 290 or permission of instructor.

Corrections Major
(See Law Enforcement)

Dance (DANC)

All studio classes are held at Ballet Met.

DANC 101 Classical Ballet I (On Demand) **0-6-2**
Classical ballet at the beginning level. Fundamentals of classical ballet technique, coordination, strength and flexibility with an emphasis on proper execution and comprehension. Lab fee: $8.00.

DANC 102 Classical Ballet II (On Demand) **0-6-2**
A continuation of Classical Ballet I, following through on the development of basic skills and their incorporation into combinations of movements. Lab fee: $8.00. Prerequisite: 6 hours of Ballet I or permission of instructor.

DANC 106 Classical Ballet VI (On Demand) **0-9-3**
Professional level training offered to serious dance students, with extensive aptitude and abilities wishing to pursue a serious career in Ballet. Emphasis is on high level of technical proficiency combined with artistic interpretation and personal discipline. Lab fee: $8.00. Prerequisite: By audition only.

DANC 107 Ballet Repertoire VI (On Demand) **0-6-2**
The opportunity to learn works from the classical dance repertoire and to participate in BalletMet company rehearsals and performances. Emphasis on professional standards of performance and work habits. Lab fee: $8.00. Prerequisite: Acceptance into DANC 106.

DANC 111 Modern Dance I (On Demand) **0-6-2**
Introductory level training in modern dance. Emphasis on fundamental movement principals of modern dance including the release of weight in and out of the flow, mobility of the back and three dimensional usage of the spine, while frequently moving off the vertical plan. Lab fee: $8.00.

DANC 112 Modern Dance II (On Demand) **0-6-2**
A continuation of Modern Dance I integrating the use of more complex concepts and rhythms. Lab fee: $8.00. Prerequisite: 6 hours of Modern Dance I or permission of instructor.

DANC 121 Theatre Dance I (On Demand) **0-6-2**
Jazz and tap techniques at the beginning level. Jazz dance combines classic Broadway theatre dance with contemporary movement styles. Elementary body part isolations, introduction to basic movement elements and basic combinations. Tap classes emphasize precession in sound, rhythm, movement, gesture and expression. Lab fee: $8.00.

DANC 122 Theatre Dance II (On Demand) **0-6-2**
Fundamentals of jazz and tap developed to include more complex movement combinations and interpretations. Emphasis on quick and efficient learning skills. Lab fee: $8.00. Prerequisite: 6 hours of Theatre Dance I or permission of instructor.

DANC 201 Fundamentals of Music and Dance (On Demand) **2-0-2**
Exploration of the relationship of music and dance. The elements of music reinforced from a dance perspective and the elements of dance examined within the context of music theory. Lab fee: $8.00.

DANC 210 History of Dance (On Demand) **3-0-3**
An appreciation of dance as it exists today through the understanding of the historical developments both within dance and the world. How dance sometimes mirrors the concerns or fashions of the time and its place in the world today. Lab fee: $8.00.

DANC 254 African Dance History (On Demand) **3-0-3**
An overview of the evolution and significance of African dance from its roots to the influences exerted on other dance forms of today. Lab fee: $8.00.

DANC 299 Special Topics in Dance (On Demand) **1-5**
Examination of types and styles of dance other than those regularly offered. Lab fee: $8.00.

Dental Hygiene (DHY)

DHY 110 Introduction to Dental Hygiene (A) **3-0-3**
This three hour course is designed to acquaint the dental hygiene student with the role of the dental hygienist and provide background knowledge, information and the necessary foundation required for subsequent didactic and clinical dental hygiene course work. Prerequisite: Admission to Dental Hygiene program. Concurrents: DHY 140 and DHY 141.

DHY 111 Dental Hygiene Techniques Seminar I (W) **2-0-2**
This one credit course is designed to provide the student with knowledge of the basic principles of instrumentation, instrument design and fundamental skills necessary to perform in subsequent clinical dental hygiene courses. Prerequisites: Admission to Dental Hygiene program and DHY 140, DHY 141 and DHY 110. Concurrent: DHY 120.

DHY 112 Dental Hygiene Techniques Seminar II (SP) **1-0-1**
This one hour lecture course is designed to expand the student's knowledge of dental hygiene practice including ultrasonic instrumentation, instrument sharpening, treatment planning, dental charting and care of the special needs patient. Prerequisites: Admission to Dental Hygiene program and DHY 130, DHY 131, DHY 111, DHY 120. Concurrent: DHY 121.

DHY 120 Dental Hygiene Clinic I (Pre-Clinical) (W) **0-12-4**
This four credit hour clinical course is designed to apply the basic principles of instrumentation, instrument design, instrument utilization, and fundamental clinical dental hygiene skills. The method of evaluation is competency-based and guided by mastery of skills. Lab fee: $60.00. Prerequisites: Admission to Dental Hygiene program and DHY 110, DHY 140 and DHY 141. Concurrents: DHY 111, DHY 130 and DHY 131.

DHY 121 Dental Hygiene Clinic II (SP) **0-0-4**
This twelve hour clinical course continues the clinical experience of total patient care emphasizing instrumentation skills, radiographic techniques, patient education charting and treatment planning. Lab fee: $60.00. Prerequisites: Admission to Dental Hygiene program and DHY 120, DHY 130, DHY 131 and DHY 111. Concurrent: DHY 112.

DHY 130 Dental Radiography (W) **3-0-3**
This three hour lecture course provides the fundamental theory for safe and effective use of x-radiation as it relates to dentistry. It encompasses: history, production and uses of radiation; film exposure; operation techniques for exposure; and radiographic interpretation. Prerequisites: Admission to the Dental Hygiene program and DHY 140, DHY 141 and DHY 110. Concurrent: DHY 131, DHY 111 and DHY 120.

DHY 131 Dental Radiography Laboratory (W) **0-3-1**
This one credit laboratory course places emphasis on proficiency in exposing and developing diagnostically acceptable dental radiographs. The course provides experience in the use of x-ray equipment, exposure projections and techniques, processing, mounting and evaluation of radiographs. Lab fee: $30.00. Prerequisites: Admission to Dental Hygiene program and DHY 141, DHY 110 and DHY 140. Concurrent: DHY 130.

DHY 140 Head and Neck Anatomy/Tooth Morphology (A) **3-0-3**
This three hour course includes the study of skeletal, muscular, circulatory, nervous and glandular structures of the head, neck and oral cavity. The study of anatomy and morphology of the head and soft tissues of the oral cavity will also be included in this course. Lab fee: $3.00. Prerequisite: Admission to Dental Hygiene program. Concurrents: DHY 110 and DHY 141.

DHY 141 Head and Neck Anatomy, Tooth Morphology Lab (A) **0-3-1**
This one credit course involves the identification and reproduction of teeth and orofacial structures, morphology of hard and soft tissues of the oral cavity and head and neck with special emphasis on clinical application. Lab fee: $30.00. Prerequisite: Admission to Dental Hygiene program. Concurrents: DHY 140 and DHY 141.

DHY 210 Dental Hygiene Techniques Seminar III (SU) **1-0-1**
This one hour lecture course is designed to introduce the foundational theories and clinical techniques of root planing, gigival curettage and pit and fissure sealants. In addition, instruction will be provided on the practical aspects of nutritional need of the dental patient and nutritional counseling. Prerequisites: Admission to Dental Hygiene program and DHY 112, DHY 141, DHY 121 and DHY 241. Concurrents: DHY 250, DHY 260 and DHY 220.

DHY 211 Dental Hygiene Techniques Seminar IV (A) **1-0-1**
This one hour lecture course is designed to provide knowledge and understanding regarding dental hygiene care and management for patients with special needs, including but not limited to, pediatrics, geriatric and the handicapped. Prerequisites: Admission to Dental Hygiene program and DHY 210, DHY 220 and DHY 260. Concurrents: DHY 270 and DHY 221.

DHY 212 Dental Hygiene Techniques V (W) **1-0-1**
This one hour course is designed to provide the student with the fundamental knowledge and theory to perform expanded function duties of the dental hygienist. Prerequisites: Admission to Dental Hygiene program and DHY 211, DHY 221 and DHY 270. Concurrents: DHY 222 and DHY 280.

DHY 213 Dental Hygiene Techniques Seminar VI (SP) **2-0-2**
This two hour lecture course is designed to provide the student with knowledge of professional ethics, legal responsibilities of the dental hygienist, and the role of organized dental hygiene. In addition, office management skills, alternate practice settings and securing employment will be emphasized. Prerequisites: Admission Dental Hygiene program and DHY 212. DHY 222 and DHY 280 . Concurrents: DHY 223 and DHY 281.

DHY 220 Dental Hygiene Clinic III (SU) **0-0-4**
This twelve hour clinical course continues clinical experience of total patient care, instrumentation skills, radiographic techniques, patient education, assessment and treatment planning. In addition, new treatment modes will include: sealant placement, impression making, nutritional counseling and the introduction to ultrasonic scaling, root planing and curettage. Lab fee: $60.00. Prerequisites: Admission to the Dental Hygiene program and DHY 112, DHY 121, DHY 240 and DHY 241. Concurrents: DHY 250, DHY 260 and DHY 210.

DHY 221 Dental Hygiene Clinic IV (A) **0-0-4**
This twelve hour clinic course builds upon previous clinical course work involving dental hygiene total patient care. The course will expand student knowledge in instrumentation skills, radiographic techniques, patient education assessment and treatment planning, sealant placement, impression making, nutritional counseling and periodontal therapies. Lab fee: $40.00.

Prerequisites: Admission to Dental Hygiene and DHY 250, DHY 260, DHY 210 and DHY 220. Concurrents: DHY 211 and DHY 270.

DHY 222 Dental Hygiene Clinic V (W) **0-0-4**
This twelve hour clinic course will provide ongoing experience in total patient care. Treatment parameters from previous clinic course work will be increased to include expanded function duties as well as intraoral imaging. Lab fee: $60.00. Prerequisites: Admission to Dental Hygiene program and DHY 211, DHY 221 and DHY 270. Concurrents: DHY 212 and DHY 280.

DHY 223 Dental Hygiene Clinic VI (SP) **0-0-5**
This fifteen hour clinical course is the final course in the clinical dental hygiene sequence. It is designed to enable the student to incorporate all the techniques and treatment modalities previously acquired involving total patient care. Emphasis will be placed on refinement of treatment, speed and professional decision making. Prerequisites: DHY 222 and DHY 212. Concurrents: DHY 281 and DHY 213.

DHY 241 Dental Materials Laboratory (SP) **0-3-1**
This three hour laboratory course places emphasis on the manipulative techniques and practical application of various materials used in the practice of dentistry. Lab fee: $40.00. Prerequisites: Admission to Dental Hygiene program and DHY 130, DHY 131, DHY 111 and DHY 120. Concurrents: DHY 240, DHY 112 and DHY 121.

DHY 250 Oral Histology and Pathology (SU) **4-0-4**
This three credit course involves the study of tissues comprising the oral cavity along with the embryonic development of these tissue and facial structures. In addition, general and oral pathology will be covered with emphasis placed upon the recognition of normal and abnormal conditions. Prerequisites: Admission to Dental Hygiene program and DHY 240, DHY 241, DHY 112 and DHY 121. Concurrents: DHY 260, DHY 210 and DHY 220.

DHY 260 Periodontology (SU) **3-0-3**
This three hour lecture course is designed to place emphasis on the etiology, assessment, evaluation, classification, treatment and maintenance of the periodontally involved dental patient. Prerequisites: Admission to Dental Hygiene program and DHY 240, DHY 241, DHY 112 and DHY 121. Concurrents: DHY 210, DHY 220 and DHY 250.

DHY 270 Dental Pharmacology (A) **2-0-2**
This three hour course is a survey of drugs commonly encountered in the dental office. Emphasis is given to drugs and drug actions which can affect dental treatment. Prerequisites: Admission to Dental Hygiene program and DHY 260, DHY 210, DHY 220 and DHY 250. Concurrents: DHY 211 and DHY 221.

DHY 280 Community Dental Health (W) **3-0-3**
This three hour lecture course is an introduction to the study of the philosophy, techniques, attitudes and behaviors necessary to promote dental disease prevention through organized community-based programs. The student will be responsible for assessing, planning, implementing and evaluating community oral health programs. Prerequisites: Admission to Dental Hygiene program and DHY 211, DHY 221 and DHY 270. Concurrents: DHY 212 and DHY 222.

DHY 281 Community Dental Health External Projects (SP) **0-0-1**
This two hour course provides the student with the opportunity to apply the principles of public and community dental health in a practical setting. Projects that include implementation and evaluation will be included. Lab fee: $20.00. Prerequisite: DHY 221. Concurrents: DHY 231 and DHY 223

Dental Laboratory Technology (DENT)

DENT 101 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. Prerequisite: Acceptance into program.

DENT 102 Materials II (A) **2-0-2**
This course is a continuation of the study of materials introduced in DENT 101. Prerequisite: Acceptance into program.

DENT 111 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. Prerequisite: Acceptance into program.

DENT 121 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. Lab fee: $65.00. Prerequisite: Acceptance into program.

DENT 122 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. Lab Fee: $65.00. Prerequisite: DENT 121.

DENT 123 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: $65.00. Prerequisite: DENT 122.

DENT 132 Occlusion (W) **1-6-3**
This course will entail a study of occlusal morphology, the tempromandibular joint and mandibular movements. Prerequisite: DENT 111.

DENT 142 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: DENT 121.

DENT 143 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: DENT 142.

DENT 153 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: DENT 132.

DENT 224 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: $65.00. Prerequisite: DENT 123.

DENT 244 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: DENT 143.

DENT 254 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 veneers. Prerequisite: DENT 153.

DENT 255 Fixed Partial Dentures III (A) **2-6-4**
This course will extend the students' experiences in crown and bridge construction by introducing soldering and multiple unit appliances. The unit will also cover temporary appliances and alternate model construction methods. Lab fee: $65.00. Prerequisite: DENT 254

DENT 256 Fixed Partial Dentures IV (W) **1-6-3**
This course will involve a study of crown and bridge cases not covered previously as well as the use of attachments. The student will construct multiple unit appliances and construct one piece castings. Lab fee: $65.00. Prerequisite: DENT 255.

DENT 264 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: DENT 123.

DENT 275 Ceramics I (A) **2-6-4**
This course is an introduction to dental ceramics and will involve a study of porcelain fused to metal restorations. The students will construct porcelain veneers and full coverage single unit crowns. Prerequisite: DENT 254.

DENT 276 Ceramics II (W) **1-6-3**
This unit will entail a continuation of the study of the porcelain fused to metal restoration. It will also include the study of the Maryland bridge and the porcelain jacket crown and other multiple unit appliances. Prerequisite: DENT 275.

DENT 285 Othodontics (A) **1-3-2**
This course will entail a basic introduction to the laboratory skills necessary to provide services in the areas of orthodontics.

DENT 296 Applied Laboratory I (W) **1-6-3**
This course consists of laboratory and is intended to simulate a working laboratory. The student will fabricate fixed and removable appliances. Prerequisites: DENT 224 and DENT 255.

DENT 297 Applied Laboratory II (SP) **1-18-7**
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: $75.00. Prerequisite: DENT 296.

Developmental Education Department (DEV)

DEV 006 Writing Skills/Grammar/Sentence Structure (A,W,SP,SU - DL) **2-0-2**
This course is designed to build proficiency in basic writing skills, grammar, and sentence structure. It is opened to students enrolled in DEV 040, 041, 042 or the ENGL 100 series whose diagnostic test indicates specific deficiencies in language skills. Lab fee: $2.00.

DEV 007 Basic Punctuation Skills (A,W,SP,SU) **2-0-2**
This course in basic punctuation skills is structured to build students' proficiency in using punctuation correctly. It is opened to students enrolled in DEV 040, 041, 042, or ENGL 100 series whose placement or diagnostic test indicates specific deficiencies in punctuation skills. Lab fee: $2.00.

DEV 015 Spelling and Vocabulary (A,W,SP,SU) **3-0-3**
For development of vocabulary and spelling skills through the use of phonics, personal word lists and basic spelling rules. Lab fee: $2.00.

DEV 029 Math Foundations (A,W,SP,SU) 3-0-3
This course is designed for students who need special assistance with basic math in order to reenter DEV 030, Basic Mathematics. This course includes whole number operations, problem-solving strategies, estimation and number sense, Order of Operations, an introduction fractions and math study skills. DEV 029 is taught through lectures, group activities, tutorial exercises, and small group instruction. This course is not open to students with credit for DEV 030 or higher.

DEV 030 Basic Mathematics (A,W,SP,SU) 5-0-5
Basic Mathematics offers a review of arithmetic concepts including whole numbers, fractions, decimals, percents, simple equations, formulas, and data interpretation. The course is structured to develop students' critical thinking, problem solving, math and study skills through collaborative activities, writing assignments, real-life applications and the use of modern technology in the classroom. Traditional and computer-mediated sections available. This mastery learning course is not open to students with credit for DEV 031, MATH 101 or MATH 102. Lab fee: $6.00 for traditional; $65.00 for computer-mediated (includes software and textbooks.).

DEV 031 Pre-Algebra (A,W,SP,SU) 5-0-5
Pre-Algebra is designed for students who have no experience with algebra and for those who need to strengthen their abilities to work with algebraic mathematics. Topics in DEV 031 will include simplifying algebraic expressions, working with exponents, formulas, signed number operations, polynomial operations and application problems. This course will help to develop students' algebra and thinking skills and help them to perform successfully in MATH 101, MATH 102, and in the workplace. Traditional, mastery, and computer-mediated sections available. This course is not open to students with credit for MATH 101 or MATH 102. Lab fee: $6.00 for traditional and mastery; $65.00 for computer-mediated (includes software and textbooks). Prerequisite: By placement or, minimum of "C" or above in DEV 030.

DEV 040 Reading Improvement (A,W,SP,SU) 4-2-5
This course focuses on developing students' basic reading skills. Students will practice strategies for improving reading rate and comprehension. Critical reading skills will be introduced through reading and responding to essays, keeping a journal and vocabulary notebook, and doing workbook activities. Lab fee: $4.00.

DEV 041 Basic Communication Skills (A,W,SP,SU) 4-2-5
This course combines elements of the writing process with the basic principles of writing clear, coherent, and well-developed paragraphs. Students will review rules of grammar usage and punctuation. Critical thinking skills will be developed through reading, class discussion, and journal writing. This course is open to students who place by Writing Test into DEV 041. It is not open to students with credit for any of the ENGL 100 series. Lab fee: $5.00.

DEV 042 Principles of Writing (A,W,SP,SU) 5-0-5
In this writing-intensive course, students will build on the composing, revising and editing strategies introduced in DEV 041. Through a review of individual DEV 041 writing portfolios, students' needs will be determined and instruction will address these needs. Students in this course will develop critical thinking skills through analyses of student and professional writings and through journal and response to reading assignments. Prerequisite: DEV 041 and permission of instructor. Lab fee: $5.00.

DEV 044 Critical Reading and Thinking (A,W) 3-0-3
Critical Reading and Thinking is designed to help students develop higher-order thinking skills needed for academic study and career success. In this course, students will develop thinking and language abilities through discussion topics, reading and writing assignments that allow them to critique their self-knowledge, evaluate ideas, and recognize errors in thinking. The course is open to all Columbus State students. Lab fee: $2.00. Prerequisite: DEV 040.

DEV 050 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: $11.00.

DEV 090 College Success Skills (A,W,SP,SU) 2-0-2
College Success provides students with skills necessary to be successful in their personal, academic, and career-related pursuits. The course focuses on an orientation to the College, study skills, note-taking, test-taking, and time management. This course is required of students who place in two Developmental Education courses. Lab fee: $6.00.

Dietary Manager Certificate (DMGR)

Dietetic Technician Major (DIET)

(See Hospitality Management)

EDP Auditing Major

(See Accounting)

EMT-Paramedic Degree Track

(See Multi-Competency Health)

Early Childhood Development (ECD)

ECD 103 Cognitive Curriculum (W,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: $12.00. Prerequisites: PSY 261, ECD 105, ECD 107, and ECD 203.

ECD 105 Self-Concept (A,W,SP,SU) 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: $12.00. Prerequisite: Placement into ENGL 101.

ECD 107 Curriculum Planning (A,W,SP,SU) 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 developmentally appropriate practice. Deals with the organization of time and space as it impacts on group living. Lab fee: $12.00. Prerequisite: ECD 105.

ECD 109 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: $12.00. Prerequisites: ECD 105, ECD 107, ECD 203, and PSY 261.

ECD 110 Infant - Toddler Curriculum (A,SP) 3-0-3
Presents an overview of caregiving for infants and toddlers. Emphasizes programming for infants and toddlers across curriculum areas through appropriate experiences, the design of supportive environment, the use of various methods of developmental stimulation, and optimizing the growth potential of daily routines. The role of the caregiver in relation to parent and child is examined. Special issues of parent participation in infant and toddler care, and advocacy are included. Lab fee: $12.00. Prerequisites: ECD 105, ECD, 107, ECD 203 and PSY 261.

ECD 112 Physical Development Curriculum (A,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: $12.00. Prerequisites: ECD 105, ECD 107, ECD 203, and PSY 261.

ECD 115 School Age Child Care (W) 3-0-3
This course will present principles that are important for developing and administering child care program for children in Kindergarten through Grade 5. Developmental characteristics of school aged children will be reviewed and appropriate care and education practices identified. Information regarding licensing regulations for school age child care programs in Ohio will be disseminated. Lab fee: $12.00. Prerequisites: ECD 105 and ECD 107.

ECD 151 ECD Media Resource I (A,W,SP,SU) 1-0-1
This course will provide and overview and orientation to resources, equipment and materials available for creating learning activities for children. Students will have opportunities to practice safe, economical and appropriate skills in creative ways. Lab fee: $12.00. Prerequisites: ECD 105 or permission of ECD Coordinator.

ECD 152 ECD Media Resources II (A,W,SP,SU) 1-0-1
This course will expand students' opportunities to learn, implement, and evaluate appropriate materials and methods for creating learning activities for children. Emphasis will be on extensions of appropriate classroom activities and environments through the use of media materials. Lab fee: $12.00. Prerequisite: ECD 151.

ECD 161 - 265 ECD Seminars I-V (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 ECD Field Experience I-V. Seminars focus on observing and recording, the basic principles of guidance, and application of classroom studies in field. Prerequisites: ECD 105, ECD 107, ECD 203, and PSY 261. Concurrent: ECD 171-275.

ECD 171 - 275 ECD Field Experiences I-V (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: $20.00. Prerequisite: Admission to Technology. Concurrents: ECD 161-265.

ECD 190 Activity Plan Seminar (A,W,SP,SU) **1-0-1**
This seminar will be required for ECD students who have received nontraditional credit for Field Experience and Seminars I & II. The class will focus on preparing written documentation of developmentally appropriate activities for preschool aged children. Students will learn to write concepts, objectives, and procedures for developmentally appropriate plans, consistent with ECD program outcomes. Prerequisites: ECD 162 and ECD 172.

ECD 200 First Aid (A,W,SP) **1-0-1**
This course provides the student with training and practice in first aid. Meets requirement of Ohio Child Day Care Licensing Rules and Regulations for staff in early childhood settings. Lab fee: $12.00. Prerequisite: ENGL 100 placement.

ECD 201 Health and Safety (A,W,SP) **1-3**
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: $12.00. Prerequisite: Placement into ENGL 100.

ECD 202 Communicable Disease Management (A,W,SP) **1-0-1**
A course designed to provide students with the knowledge and skills in recognition and management of communicable diseases. Meets requirements for Ohio Child Day Care Licensing Rules and Regulations for staffs in early childhood settings. Lab fee: $4.00. Prerequisite: ENGL 100 placement.

ECD 203 Creative Curriculum (A,W,SP) **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. Prerequisites: ECD 105 and ECD 107.

ECD 204 Recognition of Child Abuse & Neglect (A,W,SP) **1-0-1**
A course designed to provide students with the knowledge and skills in child abuse recognition and prevention. Meets requirements for Ohio Child Day Care Licensing Rules and Regulations for staffs in early childhood settings. Lab fee: $4.00. Prerequisite: ENGL 100 placement.

ECD 205 Parent Involvement - Early Childhood Programs (W,SU) **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: $12.00. Prerequisite: ECD 206.

ECD 206 Social Development Curriculum (A,SU) **3-0-3**
This course will include the following components of social development: recognition of family patterns and traditions, gender identity and sex roles, moral reasoning of young children, play theories and programming for classroom play, multicultural practices and diversity, and social studies for young children. The teacher's role as classroom facilitator of social development will be defined. Lab fee: $12.00. Prerequisites: ECD 112 and ECD 103.

ECD 207 Guidance and Discipline in Early Childhood Programs (SU,SP) **3-0-3**
A study of guidance of young children and social learning theories. Focus is on preventing problem behaviors, and teaching desirable behavior through example, communication and setting limits. Issues of controlling child behavior, punishment and analyzing discipline problems will be discussed. Focus is on resolving problem situations, changing behavior and development of moral reasoning. Includes helping children cope with stressful situations. Lab fee: $12.00. Prerequisite: ECD 205.

ECD 208 Young Children With Special Needs (A,SP) **3-0-3**
This course presents the rationale and skills in educating and caring for young children with special needs in programs with typically developing young children. It describes skills for identifying and assessing children with special needs and appropriate adoptive activities and strategies useful in an integrated classroom. This course will enable students to acknowledge the importance and necessity of collaboration with community professionals and resources. Lab fee: $12.00. Prerequisite: ECD 205.

ECD 209 Early Childhood Staff (W,SU) **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: $12.00. Prerequisite: ECD 206.

ECD 211 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: $12.00. Prerequisites: Minimum of one year working in ECD setting/permission of ECD advisor, placement into ENGL 101.

ECD 220 Special Topics in Early Childhood (A,W,SP,SU) **1-3**
This course will facilitate offerings of special topics related to ECD, on a quarterly basis. Topics may include: Children's Literature, Diversity and Young Children, Intergenerational Care, Music & Movement, Fitness for Children, Nutrition, Sign Language, Leadership, Advocacy, etc. Lab fee: $12.00. Prerequisite: ECD 205 or permission of instructor.

ECD 267 Student Teaching Seminar (A,W,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: $12.00. Prerequisite: ECD 264. Concurrent: ECD 277.

ECD 277 Student Teaching Practicum (A,W,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: $12.00. Prerequisite: ECD 274. Concurrent: ECD 267.

Economics (ECON)

ECON 100 Introduction to Economics (A,W,SP,SU) **5-0-5**
An issues-based introduction to basic economic concepts such as scarcity, opportunity cost, supply and demand. Application issues include topics such as the minimum wage, the trade-off between jobs and the environment, and the Federal Reserve's effort to balance inflation and employment objectives. Lab fee: $6.00. Prerequisites: Placement into ENGL 101 and MATH 101, REAL 104 or equivalent.

ECON 200 Principles of Microeconomics (A,W,SP,SU - DL) **5-0-5**
A course designed to introduce students to the economic decision making of individuals and firms. Topics include scarcity, opportunity cost, supply and demand, consumer choice, elasticity, market structure, profit maximization, resource markets, and international trade. Lab fee: $6.00. Prerequisites: Placement into ENGL 101 and MATH 101, REAL 104, or the equivalent.

ECON 240 Principles of Macroeconomics (A,W,SP,SU - DL) **5-0-5**
A course designed to introduce students to economic decision making at the aggregate level. Topics include national income analysis, the business cycle, inflation, unemployment, fiscal and monetary policies and objectives. Lab fee: $6.00. Prerequisites: ECON 200, ENGL 101, MATH 101 or REAL 104, or the equivalent (successful completion of MATH 102 or its equivalent is strongly recommended).

ECON 290 Capstone Experience in Economics (On Demand) **2-2-3**
This course is designed for students completing the two-year Associate of Arts or Associate of Science degree who have a special interest in continuing a baccalaureate degree program in economics. Students will devise a research project that relates to their academic interests after reviewing research methodologies and findings in economics; complete a portfolio that covers their academic career at Columbus State Community College; and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree with five credit hours in economics.

ECON 293 Independent Study in Economics (On Demand) **1-5**
An individual student-structured course that examines a selected topic in economics through intensive reading or research. The independent study elective permits a student to pursue his/her interests within the context of a faculty-guided program. Lab fee: $5.00. Prerequisites: Permission of the instructor and the Chairperson.

ECON 299 Special Topics in Economics (On Demand) **1-5**
A detailed examination of selected topics of interest in economics. Lab fee: $5.00. Prerequisites vary.

Electro-Mechanical Engineering Technology (EMEC)

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

EMEC 250 Motors and Controls (A) **2-3-3**
A study of the basic elements of AC and DC motors and generators, how they are used in industry, how to select them for different purposes, and how to control their motion. Students also learn about series and parallel circuits, capacitors, inductors, motor speed and torque ratings, and the calculation of horsepower and efficiency. Lab fee: $12.00. Prerequisite: EET 132 or permission of instructor.

EMEC 251 Electro-Mechanical Controls I (W) **3-3-4**
An introduction to the basic interface circuitry used in electro-mechanical controls. Students learn about solenoids, relays, ladder logic, ladder diagrams, and how to design control systems. Students are also exposed to transducers, stepper motors, servomechanism, and programmable logic controllers (PLC's). Lab fee: $12.00. Prerequisite: EET 243 or permission of instructor.

EMEC 260 Electro-Mechanical Controls II (SP) **3-3-4**
This course presents an integrative approach to the use of electro-mechanical controls and how to apply them to typical industrial situations. Students gain experience programming industrial PLC's (programmable logic controllers) and designing systems to meet given criteria. Students become proficient in programming the Allen-Bradley SLC 500 Series of PLC's. Lab fee: $12.00. Prerequisite: EMEC 251.

Electronic Engineering Technology (EET)

EET 101 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. Lab fee: $4.00. Prerequisite: MATH 103.

EET 102 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. Lab fee: $4.00. Prerequisite: EET 101.

EET 110 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). Lab fee: $4.00.

EET 111 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: MATH 103 or placement into MATH 111. Concurrents: EET 112 and MATH 111.

EET 112 DC Laboratory (A,W,SP,SU) **0-6-2**
This is an introductory course in the use of power supples 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. Lab fee: $9.00. Concurrent: EET 111.

EET 120 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: EET 111 and EET 112. Concurrents: EET 121 and MATH 112.

EET 121 Alternating Current Laboratory (A,W,SP,SU) **0-6-2**
Laboratory study of signal sources, oscilloscopes, reactance, inductance, AC networks, transformers and filter circuits. Lab fee: $9.00. Prerequisites: EET 111 and EET 112. Concurent: EET 120.

EET 122 CAD/Electronics (W,SU) **1-4-3**
A follow-up to EET 110, 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. Lab fee: $5.00. Prerequisite: EET 110 or permission of the instructor

EET 130 Electronic Devices (A,W,SP,SU) **4-0-4**
An indepth investigation of the operating characteristics of basic active devices. The course is designed to explain the approximate electrical equivalence and circuit analysis of devices to the basic AC, DC models, with sample applications of the most frequently used circuits. Prerequisites: EET 120 and EET 121. Concurrent: EET 131.

EET 131 Electronic Devices Laboratory (A,W,SP,SU) **0-6-2**
The lab exercises in this course closely follow the EET 130 lecture theory for reinforcement through experimentation and theoretical verification of results. All lab exercises use modern devices, planned experiments and industrial standard equipment. Lab fee: $9.00. Prerequisites: EET 120 and EET 121. Concurrent: EET 130.

EET 132 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). Lab fee: $4.00. Prerequisite: EET 111 or permission of instructor

EET 144 PC Hardware (A,W,SP,SU) **2-2-3**
Course provides instruction and hands on experience in upgrading, reconfiguring and adding boards, memory, etc. Use of modems and utilities. Students will tear down and reassemble a PC. Lab fee: $12.00. Meets degree requirement for MCT students. Prerequisites: CPT 101 recommended.

EET 145 Computer Maintenance (A,SP) **1-4-3**
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. Lab fee: $10.00. Prerequisite: EET 130 or permission of the instructor

EET 203 National Electrical Code (On Demand) **3-3-4**
This course gives a brief description of each National Electrical Code article and discusses 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. Completion of this course does not guarantee eligibility to sit for any licensing examinations and may not meet electrical contractor or Electrical Safety Inspector refresher course requirements. Check with the College or The Ohio Department of Industrial Relations.

EET 240 Calculus for Electronics (A,W,SP,SU) **5-0-5**
Practical application of differential and integral calculus to electronics. Covers rates, limits, derivatives, differentials and differentiators, higher derivatives, maxima/minima, integrals and integrators, definite integrals, trigonometric and logarithmic functions, and selected advanced topics. Graphical methods calculators and computers will be used for problem solutions where appropriate. Prerequisites: MATH 113 or MATH 150 and EET 120.

EET 241 Electronic Devices Circuit Analysis (A,W,SP,SU) **4-0-4**
This course covers the concepts of 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: EET 130 and EET 131. Concurrent: EET 242.

EET 242 Electronic Devices Circuit Analysis Lab (A,W,SP,SU) **0-6-2**
This course is designed to compliment EET 241 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. Lab fee: $9.00. Prerequisites: EET 130 and EET 131. Concurrent: EET 241.

EET 243 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. Prerequisites: EET 132 and EET 130. Concurrent: EET 244.

EET 244 Digital Devices Laboratory (A,W,SP,SU) **0-6-2**
This lab course, concurrent with the lecture course EET 243, 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 a computer are introduced and used in experiments. Lab fee: $9.00. Prerequisite: EET 132. Concurrent: EET 243.

EET 250 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, and video circuits. A survey of current trends in digital communication concepts, microwave principles, and fiber optics will be presented. Prerequisite: EET 130. Concurrent: EET 251.

EET 251 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. Lab fee: $9.00. Prerequisite: EET 131. Concurrent: EET 250.

EET 252 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 68HCII microprocessor is used throughout the course. Prerequisite: EET 243. Concurrent: EET 253.

EET 253 Microprocessor Lab (A,W,SP,SU) **0-6-2**
This lab course is the practical version of the concurrent lecture course EET 252. 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 68HCII microprocessor is used. Lab fee: $9.00. Prerequisite: EET 243. Concurrent: EET 252.

EET 254 Electronic Fabrication (A,W,SP,SU) **1-3-2**
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 technology faculty advisor for details. Lab fee: $12.00. Prerequisite: EET 120.

EET 255 Instrumentation and Controls (A,SP) **2-3-3**
This course presents the basic theories and specific methods of measurement of temperatures, pressure, liquid level, and other parameters which may be measured in industrial and scientific applications. The laboratory part of this course enables the student to gain experience with transducers. Major process control schemes as used in industry are covered along with conditions affecting response and stability of control systems. Lab fee: $10.00. Prerequisites: MATH 113, EET 130, EET 132. Concurrents: PHYS 185.

EET 260 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. Prerequisites: EET 241 and EET 252. Concurrent: EET 261.

EET 261 Industrial Laboratory (A,W,SP,SU) **0-6-2**
Paralleling the development of topics in EET 260, this course permits student evaluation of theoretical predictions pertaining to industrial systems and their control. Lab fee: $9.00. Prerequisite: EET 253. Concurrent: EET 260.

EET 262 Digital Communications and Telecommunications (W,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. Lab fee: $4.00. Prerequisites: EET 250 and EET 243.

EET 264 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. Lab fee: $5.00. Prerequisite: EET 250.

Emergency Medical Services Technology (EMS)

EMS 100 Crash Injury Management, First Responder (SU,SP) 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.

EMS 110 EMT- Basic (A,W,SP,SU) 4-8-8
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. This course includes 18 clock hours of clerical experience. Lab fee: $50.00. Prerequisite: Placement into ENGL 100 and permission of instructor.

EMS 111 EMT - Intermediate (A,W,SP,SU) 4-4-6
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: $75.00. Prerequisite: State Certified EMT-Basic.

EMS 121 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 current trends in EMS. Lab fee: $12.00.

EMS 122 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. Lab fee: $8.00. Prerequisite: Permission of instructor.

EMS 123 Emergency Psychiatric Intervention (W) 3-0-3
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. Lab fee: $10.00. Prerequisite: Permission of instructor.

EMS 124 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. Lab fee: $5.00. Prerequisite: Must be CPR Certified.

EMS 125 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. Lab fee: $5.00. Prerequisite: Permission of instructor.

EMS 126 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: $25.00. Prerequisite: Permission of instructor.

EMS 127 Handling Hazardous Materials Situations (SU) 2-0-2
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). Lab fee: $3.00. Prerequisite: Permission of instructor.

EMS 130 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: $8.00. Prerequisite: State of Ohio Certified Intermediate Swimmer

EMS 131 Special Topics for Paramedics (SU) 3-0-3
In this course, the paramedic will be required to develop and present an in-depth study in an area of their individual interest. Lab fee: $3.00. Prerequisite: Permission of instructor.

EMS 132 Emergency Medical Services Dispatcher (SP) 1-2-2
The EMS dispatcher course is designed to prepare EMS dispatcher personnel to receive requests for emergency medical services and allocate community resources in response to such request and give pre-arrival instruction. Lab fee: $170.00 (includes book and certification fee). Prerequisite: Permission of instructor.

EMS 133 Ice & Cold Water Rescue (A) 2-0-2
This course deals with rescuing victims from ice covered and cold water, hypothermia and other related medical concerns. Lab fee: $25.00. Prerequisite: Permission of instructor.

EMS 134 EMS Administration I (A) 4-0-4
The first in a two course sequence designed to introduce the concepts of EMS Administration and its effect on patients, employees and themselves. Lab fee: $5.00. Prerequisites: EMS 121, EMS 122, BMGT 218 and HRM 121.

EMS 135 EMS Administration II (W) 2-2-3
The second in a two course sequence designed to introduce the concepts of EMS Administration and its effect on patients, employees and themselves. Lab fee: $5.00. Prerequisite: EMS 134.

EMS 140 Construction/Collapse for Fire/Rescue (W) 2-2-3
This course is an introduction to the present and past practices of building construction. Tells of important standard elements of buildings, the hidden dangers of old and new buildings, what influences structural stability of walls in fires and collapse, and how to look for and judge structural dangers. Relationships between construction materials and damage of a building. Lab fee: $5.00. Prerequisites: CMGT 121 and CIVL 120.

EMS 141 Hazardous Material (Technician Level) (SU) 1-2-2
This course provides a foundation for working at a hazardous materials incident including the developing and implementing a site safety plan and implementing decontamination procedures. It will also cover the use of difference reference materials, and the identification, verification, and control of hazardous materials. Lab fee: $10.00.

EMS 142 Vertical Rescue (SP) 1-3-2
This course is designed to present the fundamentals of rope rescue, using up-to-date equipment and techniques with a major emphasis on safety. Terminology, selection of proper equipment, essential knots, and current standards will be presented, as well as rope rescue systems and litter packaging. Practical application evolutions will include solving rescue problems and evaluating rope rescue systems and/or techniques. Includes rescue of the injured and/or stranded from ledges, cliffs, elevator shafts, etc. Lab fee: $20.00.

EMS 143 Search and Rescue (A) 1-3-2
This course includes the introduction to job responsibilities, philosophy and concepts of effective search and rescue management. It describes preplanning, resources, investigation, interviewing, determining urgency, subject behaviors, search strategy, area probability, base camp set up and management, briefing and debriefing. The course also introduces map and compass reading. Lab fee: $20.00. Prerequisite: Permission of instructor.

EMS 144 Confined Space Rescue (SP) 1-3-2
This course is designed to present the learner with OSHA regulations, and requirements. Also confined space entry procedures to safely and properly perform a rescue from tanks, pipelines, manholes, cave-ins, etc. The course will address necessary rescue shoring and tunneling equipment required for a confined space rescue. Lab fee: $15.00. Prerequisite: EMS 142.

EMS 145 Vehicle Extraction (A) 1-3-2
This course is designed to prepare the learner for situations involving auto's, school buses, commercial buses, and trucks. Participants will be presented information on how to respond to incidents involving these types of vehicles, the methods used to construct the vehicles and how they are operated. Learner will be expected to apply classroom theory and hands-on application dealing with vehicle stabilization, patient handling and removal, extrication incident. Lab fee: $20.00. Prerequisite: EMS 110.

EMS 147 Farm/Agricultural Rescue (A) 1-2-2
This course will familiarize the learner with different types of farm/agricultural accidents, including machinery upsets/rollovers, grain bin entrapments, patients caught within large machinery, exposure to toxic chemistry/pesticide. Lab fee: $5.00. Prerequisite: EMS 110.

EMS 211 EMT-Paramedic I (W,SU) 5-4-7
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 and trauma as well as principles of communications. Lab fee: $80.00. Prerequisite: EMS 110 . Concurrent: EMS 281 and EMS 291.

EMS 212 EMT-Paramedic II (A,SP) 5-3-6
This course encompasses the training of the paramedic in the areas of: cardiovascular, anaphylaxis, and the endocrine and nervous systems. Lab fee: $70.00. Prerequisite: EMS 211. Concurrents: EMS 232, EMS 282 and EMS 292.

EMS 213 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: $65.00. Prerequisite: EMS 212. Concurrents: EMS 283 and EMS 293.

EMS 214 EMT-P IV (SP,A) 1-0-1
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: EMS 213. Concurrents: EMS 234, EMS 284 and EMS 294.

EMS 232 Advanced Cardiac Life Support (ACLS) 1-0-1
Advanced cardiac life support. Lab fee: $10.00. Prerequisite: Permission of instructor.

EMS 234 Basic Trauma Life Support (BTLS) 1-0-1
Basic trauma life support. Lab fee: $50.00. Prerequisite: Permission of instructor.

EMS 281 Hospital Clinical I (W,SU) **0-6-2**
Hospital clinical, observation and experience, encompassing the didactic areas covered in EMS 211. Lab fee: $3.00. Concurrents: EMS 211 and EMS 291.

EMS 282 Hospital Clinical II (A,SP) **0-6-2**
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8306. Lab fee: $3.00. Prerequisite: EMS 281. Concurrents: EMS 212 and EMS 292.

EMS 283 Hospital Clinical III (W,SU) **0-6-2**
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8307. Lab fee: $3.00. Prerequisite: EMS 282. Concurrents: EMS 213 and EMS 293.

EMS 284 Hospital Clinical IV (A,SP) **0-6-2**
Hospital clinical, observation and supervised experience, encompassing the didactic areas covered in EMS 214. Lab fee: $3.00. Prerequisite: EMS 283. Concurrents: EMS 214 and EMS 294.

EMS 291 Field Clinical I (W,SU) **0-5-1**
Vehicle clinical, observation and experience. Lab fee: $3.00. Prerequisite or concurrent: EMS 281 Concurrents: EMS 211.

EMS 292 Field Clinical II (A,SP) **0-5-1**
Vehicle clinical, observation and experience. Lab fee: $3.00. Prerequisites: EMS 211, EMS 281 and EMS 291. Concurrents: EMS 212 and EMS 282.

EMS 293 Field Clinical III (W,SU) **0-5-1**
Vehicle clinical, observation and experience. Lab fee: $3.00. Prerequisites: EMS 292. Concurrents: EMS 213 and EMS 283.

EMS 294 Field Clinical IV (A,SP) **0-10-2**
Vehicle clinical, observation and experience. Lab fee: $3.00. Prerequisite: EMS 293. Concurrents: EMS 214 and EMS 284.

English (ENGL)

(Also see Communication Skills and Technical Communication)

ENGL 100 Language Development (A,W,SP,SU) **5-0-5**
Students develop skills in reading and writing in preparation for ENGL 101 by analyzing the writing of students and professionals and by developing paragraphs and short essays using narration, description, and examplification and/or illustration. Lab fee: $3.00. Prerequisite: DEV 041 with a grade of "C" or higher plus successful completion of the DEV 041 exit examination, or DEV 042 with a grade of "C" or higher, placement by test. Credit will not count toward graduation in any degree program.

ENGL 101 Beginning Composition (A,W,SP,SU) **3-0-3**
Students compose clear, concise expository essays using various modes such as definition, exemplification, process, analysis, cause and effect, comparison and contrast. This course or its equivalent is required for all degrees. Lab fee: $3.00. Prerequisite: ENGL 100 with a grade of "C" or higher or placement by test.

ENGL 102 Essay and Research (A,W,SP,SU - DL) **3-0-3**
This course is a continuation of ENGL 101 expanded to include argumentation, logic, and research techniques. Research papers using MLA documentation are written. Lab fee: $3.00. Prerequisite: ENGL 101 with a grade of "C" or higher

ENGL 111 English Composition (A,W,SP,SU) **5-0-5**
This course is an accelerated combination of ENGL 101 and ENGL 102 . Students receive training in the fundamentals of exposition and argumentation through using the writing process. The course stresses critical reading of the students' own and professional writing. It includes units on library research and documentation. Lab fee: $3.00. Prerequisite: Placement test score.

ENGL 190 Freshman Experience in English (A,W,SP,SU) **2-0-2**
The Freshman Experience Seminar is designed to familiarize first time Arts and Sciences students at Columbus State Community College with the academic environment. Students will use various on site support systems, set personal academic goals, and map their course of study at Columbus State to meet those goals. Open to all students. Optional for students having completed ESL 100; required for all Associate of Arts or Associate of Science degree seeking students. Concurrent: ENGL 101 or 111. Lab fee: $4.00.

ENGL 200 Business Communications (A,W,SP,SU - DL) **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: $7.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher and at least two quarters or equivalent work experience in a technology .

ENGL 202 Writing for Health and Human Services (A,W,SP,SU) **3-0-3**
Students specializing in human services and health care fields practice the kinds of writing essential to record keeping and research in their professions. Legal and ethical interdisciplinary communication is emphasized. Using practice and real-life cases, students write descriptions, summaries, and evaluations. Job search techniques and letter, memo and report formats are covered. A short research paper using APA documentation is required. This course may substitute for ENGL 200 or ENGL 204 in certain technologies; check with your academic advisor. Lab fee: $7.00. Prerequisites: ENGL 102 or ENGL 111 with a grade of "C" or higher, admittance to a technical program, and current clinical/field placement.

ENGL 204 Technical Writing (A,W,SP,SU - DL) **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: $7.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher and at least two quarters or equivalent in the student's technology.

ENGL 206 Governmental Communications (W,SU) **3-0-3**
The course emphasizes the principles of effective writing done in government settings. The student learns to write various types of correspondence in a variety of formats in addition to researching and writing a report adhering to formatting guidelines. The student will also prepare selected components of a job application package. Lab fee: $7.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or better.

ENGL 208 Communication for the Mass Media (W,SP) **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 for the course. Lab fee: $7.00. Prerequisite: ENGL 102 or ENGL 111. Concurrent: COMM 105 or equivalent is recommended.

ENGL 210 Creative Writing (A,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. Lab fee: $3.00. Prerequisite: ENGL 101 or ENGL 111.

ENGL 215 Magazine Publication: Literary Criticism, Editing, and Design (W) **1-4-3**
Through hands-on practice with ***Springstreet***, students learn the processes and techniques involved in the production of a literary magazine. Lab fee: $3.00. Prerequisite: ENGL 101 or ENGL 111 with a grade of "C" or higher and instructor's permission.

ENGL 220 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 in the ENGL 250-253 series, is required for all Associate of Arts and Associate of Science degrees. Lab fee: $3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher.

ENGL 225 Introduction to Fiction (W,SU) **5-0-5**
English 225 is an intensive study of selected short stories and novels. Through critical reading, discussion, and writing, students will become familiar with important themes and methodologies of fiction. In both short stories and novels, emphasis will be placed upon identifying and analyzing authors' particular uses of the traditional elements of fiction (structure, setting, point of view, etc.) to develop plot and character. Lab fee: $1.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or better.

ENGL 230 Introduction to Dramatic Literature (W,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 and of plays attended. Lab fee: $1.00. Prerequisite: ENGL 102 or ENGL 111with a grade of "C" or better.

ENGL 235 Introduction to Poetry (A,SP) **5-0-5**
This course will introduce students to the critical process of reading and responding to poetry from historical, cultural, and gender-based perspectives. Emphasis will be upon traditional and nontraditional forms as well as mainstream and marginalized writers. Students will become familiar with appropriate terminology; however, they will also learn to encounter the poem as a whole piece of written discourse between poet and reader. Students will, therefore, conduct an on-going oral and written dialogue with the poet (who is the speaker? who is the audience?, what is the purpose?) and the poem (what is the message?). Students will articulate orally and in writing their own ideas of interpretation based upon a close reading of the text and an informed perspective concerning the historical and cultural circumstances of its origin. Lab fee: $1.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or better.

ENGL 240 Introduction to Science Fiction (A) **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. Lab fee: $3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher.

ENGL 245 Introduction to Film (W,SU) **5-0-5**
This course introduces students to cinema by analyzing the elements of film technique: literature, story, drama, editing, movement, acting, sound, photography, staging, and theory. Film as a cultural product is also discussed. Class activities include critical viewing, discussion, and writing assignments. Lab fee: $10.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher.

ENGL 250 Writing About the American Experience (A,W,SP,SU - DL) **5-0-5**
Students will read selected pieces of American literature and writings about the American experience in order to explore the variety of conflicts within individuals and within society as values, principles, and beliefs are defined, established, challenged, and defended. Student writing assignments include response journals, documented critical papers, and essay examinations. The course may substitute for ENGL 220 or meet elective requirements in the Associate of Arts or Associate of Science degree programs and transfer requirements in

composition or literature. Lab fee: $3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher. Not open to students who have credit for ENGL 251, ENGL 252, or ENGL 253.

ENGL 251 The American Identity (A,W,SP,SU - DL) 5-0-5
Students will read selected American writings to explore the multicultural experiences that define the American nation. Discussion will focus on how individual experience shapes the national character. Student writing assignments include response journals, documented critical papers, and essay examinations. The course may substitute for ENGL 220 or meet elective requirements in the Associate of Arts or Associate of Science degree programs and transfer requirements in composition or literature. Lab fee: $3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher. Not open to students who have credit for ENGL 250, ENGL 252, or ENGL 253.

ENGL 252 Images of Men and Women (A,W,SP,SU - DL) 5-0-5
Students will read selected American writings to explore the perceptions of men and women of various racial and ethnic backgrounds in American society. Discussion will focus on gender issues and conflicts as they arise within the individual and between the individual and society. Student writing assignments include response journals, documented critical papers, and essay examinations. The course may substitute for ENGL 220 or meet elective requirements in the Associate of Arts or Associate of Science degree programs and transfer requirements in composition or literature. Lab fee: $3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher. Not open to students who have credit for ENGL 250, ENGL 251, or ENGL 253.

ENGL 253 Regional American Writing (A,W,SP,SU) 5-0-5
Students will read selected American writings to explore the regional diversity that characterizes the American nation. Discussion will focus on how such regional differences as historic and ethnic backgrounds, social development, economics, politics, language and literary traditions are reflected in literature. Student writing assignments include response journals, documented critical papers, and essay examinations. The course may substitute for ENGL 220 or meet elective requirements in the Associate of Arts or Associate of Science degree programs and transfer requirements in composition or literature. Lab fee: $3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher. Not open to students who have credit for ENGL 250, ENGL 251, or ENGL 252.

ENGL 260 Survey of Modern U.S. Literature (SU) 5-0-5
This course examines the works of major writers in U.S. literature from 1865 to the present with attention to revision of the canon. Genres include essays, short fiction, drama, poetry, and the novel. Course activities include reading, discussion, writing assignments, and audience participation. Lab fee: $3.00. Prerequisite: ENGL 220 or equivalent.

ENGL 262 Survey of British Literature (SP - DL) 5-0-5
Students will study selected master works of nineteenth and twentieth century British literature. The course activities will include reading, discussion, writing assignments, and audience participation. Lab fee: $3.00. Prerequisite: ENGL 220 or equivalent.

ENGL 264 Introduction to Shakespeare (W,SU - DL) 5-0-5
This course will examine representative works selected from Shakespeare's History Plays, Comedies, Romances, and Tragedies, concentrating on a critical/analytical approach to both the plays and Elizabethan dramaturgy. Emphasis, therefore, will be placed upon Renaissance/ Elizabethan dramaturgy and conventions, upon language and style, upon the elements of History Plays, Comedies, Romances, and Tragedies, and upon analyses of fundamental human experience. Lab fee: $3.00. Prerequisite: ENGL 220 or equivalent.

ENGL 265 European Literature in Translation (A) 5-0-5
The course will examine the works of representative European writers and cultures for the purpose of developing an appreciation of the international nature of literary subjects, themes, and movements. Emphasis will be placed upon developing an understanding of the historical, philosophical, and social contexts of the various cultures within which European Romanticism, Realism, Naturalism, Existentialism, and modern movements developed. Lab fee: $3.00. Prerequisite: ENGL 220 or equivalent.

ENGL 270 African American Writers (W,SU) 5-0-5
This course is a survey of Black American literature from the eighteenth-century beginnings to the present; it includes a study of slave narratives, folklore, drama, poetry, and short fiction. Activities include reading and writing assignments, oral presentations, special performances, guest speakers, and field trips. Lab fee: $3.00. Prerequisite: ENGL 220 or equivalent.

ENGL 272 Introduction to Folklore (SU) 5-0-5
This course is a study of folklore; it looks at 1) ORAL FOLKLORE (i.e., proverbs, riddles, myths, motifs, legends, folktales), 2) CUSTOMARY FOLKLORE (i.e., superstitions, folk customs, folk festivals), 3) MATERIAL AND FOLK TRADITIONS (i.e., folk foods, architecture, costumes). Course activities include field work, reading and writing assignments, and a special project. Lab fee: $3.00. Prerequisite: ENGL 220 or equivalent.

ENGL 274 Introduction to Non-Western Literatures (A,SP) 5-0-5
This course introduces students to selected classic and modern literature of the non-Western world, including Asia, Africa, the Mid-East, and Latin America. Through several literary approaches, students will gain an understanding of the authors, the periods, and the cultures they represent and the various ways they have handled literary themes. Lab fee: $3.00. Prerequisite: ENGL 220 or equivalent.

ENGL 276 Women in Literature (A,SP) 5-0-5
This course will explore the history by and about women. The course uses a comparative approach to see how women have treated a variety of themes and how they have worked within the genres of fiction, poetry, and drama. Discussions will consider the literature from the perspectives of gender, history, politics, and culture. Writing assignments will include response journals, documented critical papers, and essay examinations. Lab fee: $3.00. Prerequisite: ENGL 220 or equivalent.

ENGL 278 The English Bible as Literature (W) 5-0-5
This course offers a literary approach to the Bible in English. Students read, in a modern English translation, much of the Old Testament and the New, as well as parts of the Apocrypha. This is not a course in religion. The approach is literary, historical , cultural. The Bible is read as an anthology of writings composed, compiled, translated, and edited over several centuries by many individuals and as a book that has had an enormous effect on our culture, art, and civilization. Lab fee: $3.00. Prerequisite: ENGL 220 or equivalent.

ENGL 280 Publishing Practicum (SP) 0-4-2
Students who have satisfactorily completed ENGL 215 or who have comparable training and experience from another context learn magazine production techniques using ***Springstreet*** or another college publication as a production laboratory. This practicum may be repeated once and normally taken immediately after completing ENGL 215. Lab fee: $3.00. Prerequisite: ENGL 215 or instructor's permission.

ENGL 281 Writing Fiction (A) 5-0-5
This course introduces students to the art and craft of writing fiction. Emphasis is on the student's own work; however, students will also be required to study the works and writing processes of established writers, male and female, traditional and nontraditional, ancient and modern, and from diverse cultures. Students will keep a writer's journal, respond critically to the works of other students, create and revise a final long work (or combination of shorter works) of at least 4,000 words by the end of the quarter. In addition, students will be required to participate in a public reading of their work at least once during the quarter. Course is repeatable to 10 credits. Lab fee: $5.00. Prerequisite: ENGL 210 with a grade of "B" or better or permission of the instructor.

ENGL 282 Writing Poetry (W) 5-0-5
This course introduces students to the art and craft of writing poetry. Emphasis is on the student's own work; however, students will also be required to study the works, writing processes, critical commentary on, and oral delivery of established poets, male and female, traditional and nontraditional, ancient and modern, and from diverse cultures. Students will keep a writer's journal, respond critically to me works of other students, create and revise a chapbook of 8-10 finished poems (12-20) pages by the end of the quarter. Students will present selected poems from the chapbook at a public reading. Course is repeatable to 10 credits. Lab fee: $5.00. Prerequisite: ENGL 210 with a grade of "B" or better or permission of the instructor.

ENGL 283 Writing Plays (SP) 5-0-5
This course introduces students to the art and craft of writing plays. Emphasis is on the student's own work; however, students will also be required to study the works and writing processes of established playwrights, male and female, traditional and non traditional, ancient and modern, and from diverse cultures. Students will keep a writer's journal, respond critically to the works of other students, create and revise a short play (or an Act or Acts of a longer work) complete enough to be produced by the end of the quarter. Students will present a public reading or performance of their work. Course is repeatable to 10 credits. Lab fee: $5.00. Prerequisite: ENGL 210 with a grade of "B" or better or permission of instructor.

ENGL 284 Writing Creative Nonfiction (SU) 5-0-5
This course introduces students to the art and craft of writing creative nonfiction (feature writing, travel writing, memoirs, personal profiles, biographies, public relations, etc.). Emphasis is on the student's own work; however, students will also be required to study the works, writing processes, critical commentary on, and oral delivery of established nonfiction writers, male and female, traditional and nontraditional, ancient and modern, and from diverse cultures. Students will keep a writer's journal, respond critically to the works of other students, create and revise a complete longer work (or a combination of shorter pieces) of at least 3,000-4,000 words by the end of the quarter. Students will present a public reading of their work during the quarter. Course is repeatable to 10 credits. Lab fee: $5.00. Prerequisite: ENGL 210 with a grade of "B" or better or permission of the instructor.

ENGL 285 Writing to Publish (SP) 5-0-5
This course introduces students to procedures for preparing a manuscript for marketing and publication. Students select a work or works for publication fro a genre (fiction, poetry, drama, literary nonfiction), submit manuscripts for peer review at least three times during the quarter, and revise and edit their work throughout the quarter. Students research a market for their work, write the appropriate query or cover letter, and prepare the manuscript for submission. Since length requirements for manuscripts vary according to genre and target market, the instructor will determine the length requirement for successful completion of the course. The final exam for the course is a completed and corrected manuscript package ready for mailing. Students will also have the opportunity to give a public performance of their work. Course is repeatable to 15 credits. Lab fee: $5.00. Prerequisites: ENGL 281, ENGL 282, ENGL 283, or ENGL 284 with a "B" or better or permission of the instructor.

ENGL 290 Capstone Experience in English (On Demand) 2-2-3
A capstone course focusing on English. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in a summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $10.00. Prerequisites: 75 hours completed toward the degree including 10 credits in ENGL courses beyond ENGL 220 or equivalent.

ENGL 297 - 298 - 299 Special Topics in English (On Demand) 1-5
Special topics in English language or literature designed to meet specific needs. Prerequisites vary.

English as a Second Language (ESL)

ESL 044 Fiction for Non-Native Readers 4-0-4
This course gives ESL students an opportunity to read various authentic (unedited) literary works in English including short stories, plays and short novels. The students will explore the settings, structures, plot and character development. Students will build vocabulary as well as analyze cultural settings. Analysis will come through journals, presentations, group discussions and class discussions. Lab fee: $4.00. Prerequisite: ESL 099 or placement into ESL 100.

ESL 090 Critical Skills for College Success 2-2-3
This course prepares non-native students to achieve their academic goals at a US college or university. They will examine US classroom procedures, professor-student interaction, thinking styles and learning styles. They will also be trained in techniques for effective reading, writing and critical thinking in a variety of academic fields. Student will demonstrate these techniques through the completion of mini-projects derived from a variety of courses currently offered at CSCC. Students' final project will be derived from an entry level course in their chosen field of study. Lab fee: $3.00. Prerequisite: ESL 099 or placement into ESL 100.

ESL 092 Basic Oral Communication 2-2-3
This course will introduce students to the American sound system and quickly expand their working oral vocabulary. It will also equip students to perform viral language-based functions on campus and in the community. The course will be based upon daily classroom participation and the satisfactory completion of each language function. Lab fee: $3.00. Prerequisite: ESL 097 (may be taken concurrently) or placement into ESL 097.

ESL 093 Intermediate Oral Communication 2-2-3
This course will help students to increase their effectiveness in social, academic and professional interactions in a U.S. setting. Students will expand their working oral vocabulary, master useful American idioms and improve their pronunciation. Students will examine and practice the conventions of contemporary American communication: both verbal and nonverbal. The course will be based upon daily class participation, oral presentations and also evidence of improvement found through a contrast of audiotaped readings. Lab fee: $3.00. Prerequisite: ESL 098 (may be taken concurrently) or placement into ESL 098.

ESL 094 Advanced Oral Communication 2-2-3
Students will increase their awareness of the values and beliefs that underlie cultural norms in the U.S. Readings on various aspects of contemporary American culture will provide the springboards to information gathering outside of class (through additional reading and interviews with native speakers) in-class discussions and four required oral presentations. Students will practice standard American pronunciation and intonation and will master useful vocabulary and idiomatic expressions. Lab fee: $3.00. Prerequisite: ESL 099 (may be taken concurrently) or placement into ESL 099.

ESL 095 Public Speaking for Non-Natives (A,W,SP,SU) 1-3-2
This course will prepare students whose first language is not English to participate effectively in COMM 105, Speech. Students will study and practice public speaking techniques, with particular emphasis on native pronunciation, intonation and delivery. Students will be required to conduct interviews and research in preparation for demonstration and persuasive speeches, presented individually and in groups. Students will receive feedback on their oral production from their instructor and their classmates regularly and will be audio/video taped on occasion. Lab fee: $5.00. Prerequisite: ESL 100 (may be taken concurrently) or placement into ESL 100.

ESL 097 Basic English as a Second Language (A,W,SP,SU) 10-0-10
Students who already have limited command of the English language build upon their vocabulary and begin to eliminate errors through the study of basic grammar, readings, guided discussions, and written and oral exercises. Lab fee: $5.00. Prerequisite: Placement test. Credit will not count toward graduation in any degree program.

ESL 098 Developmental English as a Second Language (A,W,SP,SU) 10-0-10
Students will continue to develop their reading, writing, listening and speaking skills through the study of intermediate grammar, readings, guided discussions, and written and oral exercises. Lab fee: $5.00. Prerequisite: "C" in ESL 097 or placement. Credit will not count toward graduation in any degree program.

ESL 099 ESL: Reading, Grammar, and Composition (A,W,SP,SU) 10-0-10
Students will prepare for academic course work through the study of advanced grammar, sentence structure, paragraph organization and pre-writing techniques and will respond to college level readings in guided discussions, oral presentations and paragraph length essays. Lab fee: $5.00. Prerequisite: "C" in ESL 098 or placement. Credit will not count toward graduation in any degree program.

ESL 100 English as a Second Language: Composition (A,W,SP,SU) 5-0-5
Students will polish their writing skill through grammar reviews, written exercises and the study of sentence structure, rhetoric and essay organization. Students will respond to both the content and technique of college level readings. Students will write essays using description, narration, cause and effect and comparison/contrast. Lab fee: $5.00. Prerequisite: "C" in ESL 099 or placement. Credit will not count toward graduation in any degree program.

Environmental Technology (ENVR)

ENVR 101 Environmental Technology (A,SP) 3-0-3
An introduction and overview of the environmental technology field. This includes environmental problem discovery and definition, the effects on humans and the natural environment, environmental investigation and response, the regulatory structure that guides environmental projects, and worker health and safety.

ENVR 110 Industrial Pollution Control (W,SU) 2-2-3
An overview of the treatment, disposal and management process utilized in industrial pollution control. An introduction to equipment technologies and other control technologies such as air pollution, control devices, wastewater treatment, solid and hazardous waste treatment, pollution prevention and recycling Lab fee: $8.00.

ENVR 111 Hazardous Materials Management (A,SP) 2-2-3
An overview of the management practices for hazardous materials and hazardous waste. This includes a review of science and technology, occupation health and safety concerns, regulatory compliance and management practices. Lab fee: $10.00.

ENVR 112 Environmental Computer Applications (W,SU) 2-3-3
Introductory course for Environmental Technology students. This course will provide basic information about computer hardware, software, data communications, operating systems, and popular application packages. Hands-on laboratory experience using the IBM PC and a popular integrated software package is emphasized in the course. Lab fee: $15.00. Prerequisite: MATH 102.

ENVR 120 Environmental Aspects of Soil (A,SP) 2-2-3
This course will include an introduction to the analysis of soils behavior and the soil classification methods used in the environmental industry. Soil characteristics will be explored by means of laboratory examination and elementary testing techniques. Lab fee: $10.00. Prerequisite: GEOL 101 or GEOL 121.

ENVR 130 Environmental Laws and Regulations (W,SU) 4-2-5
A study of American political institutions and a brief history of the American environmental movements and the resulting environmental regulations. A study of local, state, and federal codes and regulations as they apply to the handling, treatment, storage, and disposal of hazardous materials and wastes. Emphasis on NEPA, The Clean Water and Air Acts, the Resource Conservation and Recovery Act (RCRA), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund). Lab fee: $10.00.

ENVR 158 Environmental Analysis (A,SP) 2-2-3
A study of environmental site assessments, including Phase I ESA's for real estate transactions and environmental assessments for environmental impact statements. Environmental regulations and guidance documents will be applied in an analysis of a specific project site. Lab fee: $12.00.

ENVR 220 Environmental Chemistry (W,SU) 4-3-5
Effective solutions to environmental problems require an understanding of the chemical processes that occur in the environment. This course provides a basic knowledge of environmental chemistry including ground water chemistry, soil chemistry, analytical techniques, and the basics of chemical fate and transport, and quality assurance/quality control. Related laboratory work and demonstrations. Lab fee: $18.00. Prerequisite: CHEM 111 with a grade of "C" or higher.

ENVR 222 Water Treatment Techniques (W,SU) 2-2-3
This course is designed to permit the student to attempt the State of Ohio Class One Water Operator's exam. The course will emphasize water quality criteria, reasons for water treatment, and laboratory processes. Practical experience will be emphasized. Lab fee: $20.00. Prerequisite: High school chemistry or CHEM 100, MATH 102 or equivalent, or by permission of instructor.

ENVR 223 Wastewater Treatment Techniques (W,SU) 2-2-3
This course is designed to provide the training to permit the student to apply to the State of Ohio Class One Wastewater Operator exam. The course will emphasize types of treatment, equipment, hygiene and public health aspects, sewer systems, and laboratory processes. Practical experiences will be emphasized. Lab fee: $20.00. Prerequisites: High school chemistry or CHEM 100, MATH 102 or equivalent, or by permission of instructor.

ENVR 224 Environmental Hydrology (A,SP) 2-2-3
Study of the occurrence, movement, and behavior of water in the hydrologic cycle. Introduction to the concepts of controlling the movement of surface water and ground water, and the ways in which these resources can be exploited and/or contaminated. Lab fee: $15.00. Prerequisite: MATH 102.

ENVR 250 Subsurface Investigation Techniques (A,SP) 4-3-5
An introductory course covering methods of environmental field investigations. Topics include: soil, ground water, and surface water sampling protocol, health and safety monitoring, field equipment operation and calibration, materials management, and decontamination of field equipment. Lab fee: $20.00. Prerequisite: GEOL 101 or GEOL 121.

ENVR 252 Health and Safety Training for Hazardous Waste Operations (W,SU)2-3-3 (40-Hour OSHA Training)
Satisfies CFR Part 1910.120(e) under SARA. A health and safety training course for individuals who may be involved in the investigation, remediation and operation of hazardous waste sites. Topics include hazardous materials chemistry, toxicology, air monitoring

instrumentation, air purifying respirators, self-contained breathing apparatus, supplied air respirator systems, protective clothing, decontamination, simulated hazardous materials response incidents, and appropriate problem sets. Lab fee: $100.00

ENVR 253 Environmental Systems Analysis (A,SP) 2-2-3
A course introducing environmental control systems and practical applications of their operation and maintenance. Attention to piping and instrumentation diagrams, flow diagrams, reading strip charts, flow measurement and process control. Lab fee: $18.00. Prerequisite: ENVR 110 with a grade of "C" or higher.

ENVR 254 Subsurface Restoration Techniques (A,SP) 4-3-5
A follow-up course to the introductory Subsurface Investigation Techniques covering specific investigatory and remediation methods for various contaminant groups. These groups will include UST contaminants, heavy metals, and volatile organic compounds. In-situ and laboratory testing and analysis will be presented. Lab fee: $20.00. Prerequisites: ENVR 250 with a grade of "C" or higher.

ENVR 255 Air Monitoring (W,SU) 2-2-3
This course focuses on EPA methods for stack sampling of various air contaminants, operation and maintenance of contiguous emissions monitors, and industrial air pollution control options. An introduction to applicable permitting and reporting requirements will also be included. Lab fee: $23.00.

ENVR 256 Hazardous Materials Refresher Training (A,W,SP,SU) 1-0-1
This course provides refresher training for site workers and emergency operators who have completed the 24 or 40-hour courses. This course complies with the 29 CFR 1910.120(q) refresher training requirements for site workers and responders. Emphasis is placed on practical exercises and review of changes in the OSHA training requirements. Students attending this course will also be updated on new OSHA regulatory changes. Successful completion of the course is based on both classroom participation and completion of an emergency response plan to be submitted at the class meeting. Lab fee: $50.00.

ENVR 290 Work Experience Seminar (SU) 1-0-1
This class is a requirement for students working in the field co-op experience as an environmental technician. On the job experiences will be discussed. The student taking this class should have completed at least three quarters in the Environmental Technology program. Concurrent: ENVR 291

ENVR 291 Field Co-Op Experience (SU) 0-40-4
Off-campus work experience in environmental services 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. Concurrent: ENVR 290 and permission of instructor.

ENVR 297 Special Topics on Environmental Tech. (On Demand) 1-0-1
Special topics from the environmental industry designed to meet specific needs.

ENVR 298 Special Topics on Environmental Tech. (On Demand) 1-2-2
Special topics from the environmental industry designed to meet specific needs.

ENVR 299 Special Topics on Environmental Tech. (On Demand) 2-2-3
Special topics from the environmental industry designed to meet specific needs.

Executive Office Admin. Major
(See Office Administration)

Facility Management (FAC)

FAC 111 Introduction to Facility Management (A,W,SP,SU) 3-0-3
A course designed to familiarize the student with the fundamental areas of knowledge comprising facility management, including ethical and legal responsibilities, the relationship of the facilities unit with other organizational units, and the history, concepts, standards and responsibilities of the profession. Lab fee: $5.00.

FAC 150 Operations & Maintenance (W,SP,SU) 2-2-3
A course designed to convey to the student, an understanding of the importance, procedures, policies, and practices required to oversee acquisition, installation, operation, maintenance, and disposition of building systems, furniture, equipment, grounds, and other elements of a facility. Lab fee: $10.00. Prerequisite: FAC 111 or permission of instructor.

FAC 240 Telecommunications (A,SP) 1-2-2
A study of the techniques, theory, and devices used for communication in computer systems, network, and telecommunications, with an emphasis on facility needs and problems arising with communications and management of the systems. Lab fee: $12.00. Prerequisites: FAC 150, HRM 220, REAL 221, BMGT 211, or permission of instructor.

FAC 250 Computers in Facility Management (W,SU) 1-2-2
A study of the computer programs and techniques in current use for facility management. Lab fee: $15.00. Prerequisites: FAC 111, or permission of instructor.

FAC 260 Problems in Facility Management (W,SP) 2-6-4
A comprehensive capstone course for the facility management student, blending academic theory with practical skills. Problem solving and teamwork in reaching solutions to real problems is emphasized. Students will present their reports and findings to an academic panel and/or real clients. Lab fee: $10.00. Prerequisites: FAC 150, HRM 220, REAL 221, BMGT 211 or permission of instructor.

FAC 270 Programming and Space Planning (W,SU) 2-3-3
Students work with the analysis and translation of physical needs into space and resource requirements, becoming familiar with typical layouts, physical space constraints, code implications, costs, construction sequencing, procurement lead time, design goals, and working with consultants. Lab fee: $10.00. Prerequisites: ARCH 111, CMGT 121, ARCH 232, or permission of instructor.

Financial Mgmt. Technology (FMGT)

FMGT 101 Personal Finance (A,W,SP,SU - DL) 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 be able to write a basic personal financial plan. Lab fee: $3.00.

FMGT 105 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: $3.00. Prerequisite: FMGT 101.

FMGT 121 Introduction to Commercial Credit (A,SP) 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.

FMGT 130 Small Business Finance (A,SP) 3-0-3
A study of the financial aspects of small business entrepreneurship. Many of the techniques that are found in a traditional corporate finance course are applied in this course to the small business. Prerequisite: This course is open to Small Business Management majors only.

FMGT 201 Business Finance (A,W,SP,SU - DL) 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. Prerequisite: ACCT 101.

FMGT 202 Money and Banking (A,W) 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: $3.00.

FMGT 211 Investments (W,SP,SU) 3-0-3
This course examines the investments for the individual with emphasis on the securities markets. Topics presented include: risk and return trade-offs, sources of investment information, stocks, bonds, mutual funds, options, and tax considerations. Lab fee: $3.00.

FMGT 212 Advanced Credit Analysis (W) 3-0-3
This course is offered by the National Association of Credit Management and covers both commercial as well as consumer credit administration. Prerequisite: FMGT 121.

FMGT 221 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. Lab fee: $3.00.

FMGT 232 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.

FMGT 234 Trust Operations (+) 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.

FMGT 237 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.

FMGT 241 Estate Planning (SP) 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: $3.00. Prerequisite: FMGT 101 or advisor approval.

FMGT 251 Finance Research (A,W,SP,SU) 2-0-2
The student receives exposure to current developments in finance and economics through projects and research papers. Designed to serve as a capstone course for graduating students. Lab fee: $3.00.

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

Fire Science (FIRE)

FIRE 101 Introduction to Fire Protection **3-0-3**
Survey of fire protection; the role, history and development of the fire service. Other topics: fire equipment and apparatus, communications, records and reports, insurance rating systems, and the law as it pertains to the fire service.

FIRE 102 Prevention Practices **3-0-3**
An overview of inspection programs, with emphasis on fire protection procedures and practices. Relationships of prevention programs with government, private sector, codes and arson is discussed.

FIRE 104 Fire Investigation Methods (SP) **3-2-4**
A study of the principles of fire investigations including recognition, preservation, collection, and presentation of arson evidence. Arson laws, interrogation of witnesses, application of photography, preparation of reports and adjustment of insured losses. Estimation of loss due to fire, smoke and water. Lab fee: $5.00.

FIRE 106 Protection Systems **2-2-3**
The design and operation of fire protection systems, including water distribution, direction, alarm and watchman services and protection systems for special hazards. Carbon dioxide, dry chemical, foam and water spray systems studied in detail. Standpipes and sprinkler systems and methods of reestablishment after use.

FIRE 107 Fire Fighting Practices **4-0-4**
Techniques and procedures of fire fighting with emphasis on the role of the individual fire fighter. Methods of extinguishing fires, life saving procedures, special fire fighting equipment, salvage, prevention rekindling and overhauling. Experienced fire fighters having graduated from a fire department academy may receive credit for this course upon recommendation by the local fire department. Lab fee: $5.00. Concurrent: FIRE 212.

FIRE 108 Fire Fighting Command I **3-2-4**
Group operations and command strategy for fireground operations. The training of companies and officers to operate as a team. Methods of implementing plans and strategy into tactical operations. Prerequisite: FIRE 205.

FIRE 109 Fire Fighting Command II **0-6-3**
Group operations and command strategy at the chief officer level, Preplanning of fire fighting operations, employment of personnel and equipment. Specific tactical problems analyzed. Operations and tactics including mutual and outside aid in fire fighting. Lab fee: $3.00. Prerequisite: FIRE 108.

FIRE 110 Fire Safety Education **2-2-3**
A course designed to generate methods and techniques for providing an education program in fire safety for a community, for a school, or for a municipality. Lab fee: $5.00.

FIRE 115 Community Affairs I-local Government **3-0-3**
The role of local government in the community; its structure, organization, responsibility. Local government politics and the community. Methods and principles of local budgeting. Urban, suburban, rural and community structure.

FIRE 116 Personnel Training Methods (SP) **1-4-3**
Methods of instruction, application of audio visual equipment, testing and evaluation, and preparation of materials are introduced. Special emphasis is placed upon planning an organizational training program. Lab fee: $3.00.

FIRE 151 Fire Prevention Codes **3-2-4**
A study of important building construction and fire safety codes with emphasis on fire prevention and enforcement. Prerequisite: FIRE 102.

FIRE 153 Fire Hydraulics **3-2-4**
An introduction to hydraulic theory. Drafting of water, velocity and discharge, friction loss, engine and nozzle pressure, fire streams, and pressure loses in flowing hydrants. Practice in application of hydraulic principles. Flow and pump testing as well as study of water distribution. Lab fee: $2.00.

FIRE 202 Hazardous Materials II **3-2-4**
A study of the properties and behavior of various hazardous chemicals in our environment. An overview of the physical and chemical characteristics of toxic, flammable, and reactive substances in the forms of solids, liquids, and gases combined with practical application of methods for responding to emergencies involving such materials. Emphasis will be placed on safe approach to incident scenes, positive identification of materials, and accurate analysis of the hazards presented by hazardous materials. Simulation and tabletop emergency exercises will be utilized throughout the course. Lab fee: $6.00. Prerequisite: LAWE 268.

FIRE 203 Legal Aspects of Fire Protection (A) **3-0-3**
Introduction to law, civil and criminal actions, the judicial system. Municipal liability for acts of the fire department and its members. Pensions, salary and compensation and termination. Duty owned by the public to members of the fire department. The initiation, operation, and liability and legal aspects of mutual aid, primary response contracts, and private contracts. Lab fee: $5.00.

FIRE 204 Fire Service Rating System (Fire Insurance) **1-2-2**
The history of fire insurance. The principles and practices of inspections by the insurance services office. The rating system as used by I.S.O. to determine premium rates. Extensive study of methods used by I.S.O. to classify public protection and individual property fire suppression.

FIRE 205 Fire Service Company (Supervisory Methods) **3-0-3**
Supervision techniques applied to public service personnel. The study of the need for job descriptions and job procedures, reports, oral and written directions, work evaluation, meetings, discipline and conference leaders. Methods of instruction effective in teaching and motivating personnel.

FIRE 206 Administration of a Fire Department **3-0-3**
The contemporary fire protection agency, its functions, structure, and operational techniques. Principles of organization, staffing, budgeting, controlling, coordinating, planning, research in fire protection. The development and maintenance of liaison and cooperation between fire and police departments. Prerequisite: FIRE 107.

FIRE 207 Customer Services for the Fire Services (Public Relations) **3-0-3**
The psychology of relations between public service employees and the general population. Policies and practices of community relations as they apply to public service agencies. Current national and local community problems.

FIRE 208 Fire Code Blueprint Analysis **2-2-3**
A course designed to allow a fire prevention officer or safety officer to read, understand, and analyze construction blueprints so that they may be able to enforce fire safety and building codes. Prerequisite: FIRE 210.

FIRE 209 Fire Fighting Problems (W) **3-0-3**
Procedures of fighting aircraft fires. Procedures of fighting fires involving hydrocarbons, and lp gas. Hazards of electrical emergencies and proper procedures of handling them. Examples of disaster and stress involving emergency personnel. Lab fee: $3.00. Prerequisite: FIRE 107.

FIRE 210 Building Construction **4-0-4**
An introduction to the present and past practices of building construction. Tells of important standard elements of buildings, the hidden dangers of old and new buildings, what influences structural stability of walls in fires, and how to look for and judge hundreds of structural dangers. Relationships between construction materials and fire damage of a building. Lab fee: $2.00.

FIRE 212 Fire Fighting Practices Laboratory **0-4-2**
Laboratory to accompany 107 fire fighting practices. Lab fee: $2.00. Concurrent: FIRE 107.

Food Service/Restaurant Management Major
(See Hospitality Management)

French (FREN)

FREN 101 Elementary French I (A,W,SP,SU - DL) **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: $6.00. (Telecourse fee: $29.00.) Prerequisite: Placement into ENGL 101.

FREN 102 Elementary French II (A,W,SP,SU - DL) **5-0-5**
Continuation of FREN 101, 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: $6.00. (Telecourse fee: $29.00.) Prerequisites: FREN 101 with a grade of "C" or better or by placement exam.

FREN 103 Intermediate French I (DL) **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: $6.00. (Telecourse fee: $29.00.) Prerequisite: FREN 102 with a grade of "C" or better or by placement exam.

FREN 104 Intermediate French II (DL) **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: $6.00. (Telecourse fee: $29.00.) Prerequisite: FREN 103 with a grade of "C" or better or by placement exam.

FREN 290 Capstone Experience in French (On Demand) **2-2-3**
A capstone course focusing on French. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $5.00.

FREN 299 Special Topics in French (On Demand) **1-5**
Detailed examination of selected topics in French. Lab fee: $2.00. Prerequisites vary.

Geography (GEOG)

GEOG 200 World Regional Geography (A,W,SP,SU) **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: $6.00. Prerequisite: Placement into ENGL 101.

GEOG 290 Capstone Experience in Geography (On Demand) **2-2-3**
This course is designed for students completing the two-year Associate of Arts or Associate of Science degree who have a special interest in continuing a baccalaureate degree program in geography. Students will devise a research project that relates to their academic interests after reviewing research methodologies and findings in geography; complete a portfolio that covers their academic career at Columbus State Community College, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree with five credit hours in geography.

GEOG 293 Independent Study in Geography (On Demand) **1-5**
An individual student-structured course that examines a selected topic in geography through intensive reading or research. The independent study elective permits a student to pursue his/her interests within the context of a faculty-guided program. Lab fee: $5.00. Prerequisite: Permission of the instructor and the Chairperson.

GEOG 299 Special Topics in Geography (On Demand) **1-5**
A detailed examination of selected topics of interest in geography. Lab fee: $5.00. Prerequisites vary.

Geology (GEOL)

Students must complete 60% of the laboratories to receive course credit.

GEOL 101 Earth Systems I: Geologic Environment (A,W,SP,SU) **4-3-5**
A general geology course covering the materials of the Earth's crust, the processes that produce and modify them, and the development of the Earth and its life forms through time. Related laboratory and demonstrations. Lab fee: $21.00. Prerequisite: Placement into ENGL 101. Not open to students with credit for GEOL 121.

GEOL 121 Physical Geology (A,W,SP,SU) **4-3-5**
This course covers geologic processes and the development of land forms. Topics include the development of the Earth, the nature and origin of minerals and rocks, land forms and the agents that produce and modify them, structural features of the Earth's crust, and the environmental effects of changes in the Earth. Related laboratory and demonstrations. Lab fee: $20.00. Prerequisite: MATH 103 and placement into ENGL 101.

GEOL 293 Independent Study in Geology (A,W,SP,SU) **1-5**
Detailed examination of selected topics of interest in geology. Lab fee: $6.00. Prerequisite: permission of instructor.

GEOL 299 Special Topics in Geology (A,W,SP,SU) **1-5**
Detailed examination of selected topics of interest in geology. Lab fee: $3.00. Prerequisites vary.

Gerontology (GER) (Aging Studies)

GER 101 Social Gerontology (A,SP) **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: $3.00. Concurrent or Prerequisite: ENGL 100.

GER 103 Interpersonal Communication in Human Services (W,SU) **4-0-4**
This course teaches principles of interpersonal communication for individuals working in Human Services. This course is structured on the premise that the most important resource individuals bring to an helping relationship is their ability to remain self-aware and to communicate honestly and directly. Also taught are managing anger, conflict resolution, and assertive behavior. This course is participatory and interactive. Lab fee: $4.00. Prerequisite: ENGL 101.

GER 105 Human Services for the Elderly (W) **4-0-4**
This course provides the student with an in-depth knowledge of the informal and formal community resource systems. Current concepts of service delivery, planning and evaluations are covered. Available housing is analyzed from the perspective of person-environment fit. Lab fee: $3.00. Prerequisites: GER 101.

GER 109 Social Work with the Elderly (SP) **5-0-5**
This course teaches a problem solving method of social work. The history of social work with the elderly is presented. Values and ethical dilemmas are explored. Principles of casework are presented and applied to the aging individual. Diversity within the aging population is emphasized. Lab fee: $3.00. Prerequisites: GER 105, GER 103 and ENGL 102.

GER 201 Social Policy and Aging (SP) **3-0-3**
A study of the origins of public policy, the legislative process, insurance, financial planning/retirement income, protective services and legal issues. Lab fee: $3.00. Prerequisites: GER 294 and GER 209. Concurrents: GER 191 and GER 192.

GER 203 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.

GER 204 Death and Bereavement (SP) **3-0-3**
This course examines death and dying from social, cultural, and life span perspective. Medical ethics, suicide, legal issues, and the funeral industry are analyzed. The processes of bereavement and communicating with and about dying conclude the course. Lab fee: $4.00. Prerequisites: PSY 100 and ENGL 102.

GER 205 Activities Programming for the Elderly in Long Term Care (A,SP) **9-0-9**
This course is the ninety hour programming course accepted by the State of Ohio Health Department for activity training. This course uses the national curriculum published by the NCCAP. A certificate of completion from Columbus State Community College will be awarded after the successful completion of this course. Lab fee: $3.00.

GER 206 Senior Center Management (W) **5-0-5**
This course is designed to provide the information necessary to manage a Senior Center. The student will develop an overall administrative plan reflecting the broad range of seniors' needs in our complex and changing environment. Lab fee: $3.00.

GER 207 The Older Woman (W) **3-0-3**
This course presents the psychosocial, biological, and economic status of older women in our culture. Lab fee: $4.00. Prerequisites: GER 209 and GER 292.

GER 208 Adult Day Care Assistant Training (W) **3-0-3**
This course covers the characteristics and care needs of the target population, and the place of day care on the continuum of care. The national curriculum for day care assistant training developed by NADSA, a section of the National Council on Aging is used.

GER 209 Aging and Mental Health (A) **3-0-3**
This course provides an overview of mental health issues affecting older adults, assessment techniques and diagnostics criteria will be reviewed. Topics include functional disorders, organic disorders and substance abuse. Lab fee: $3.00. Prerequisites: GER 109, GER 192 and PSY 230.

GER 211 Counseling the Elderly (W) **3-0-3**
This course provides the student with an understanding of traditional counseling theories, theories specifically for the older adult, appropriate settings for counseling older adults, and the use of self within that relationship. Lab fee: $4.00. Prerequisites: GER 209, GER 292 and PSY 230.

GER 213 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: $3.00. Prerequisites: BIO 101, GER 101 and GER 192.

GER 191, 291, 293, 295 Seminar I, II, III, IV (A,W,SP, SU) **2-0-2**
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: $3.00. All Seminars are concurrent with Practicums.

GER 192, 292, 294, 296 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 settings. Lab fee: $20.00. Practicums are sequential. Prerequisite: GER 105. Concurrents: GER 109. All Practicums are concurrent with Seminars.

German (GERM)

GERM 101 Elementary German I (A,W,SP,SU) **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: $6.00. Prerequisite: Placement into ENGL 101.

GERM 102 Elementary German II (A,W,SP,SU) **5-0-5**
Continuation of GER 101 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: $6.00. Prerequisite: GERM 101 with a grade of "C" or better or by placement exam. Placement into ENGL 101.

GERM 103 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: $6.00. Prerequisite: GERM 102 with a grade of "C" or better or by placement exam.

GERM 104 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: $6.00. Prerequisite: GERM 103 with a grade of "C" or better or by placement exam.

GERM 290 Capstone Experience in German (On Demand) 2-2-3
A capstone focusing on German. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $5.00.

GERM 299 Special Topics in German (On Demand) 1-5
Detailed examination of selected topics in German. Lab fee: $2.00. Prerequisites vary.

Graphic Communications Technology (GRPH)

GRPH 110 Survey of Graphic Communications (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.

GRPH 111 Black and White Photography (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: $28.00.

GRPH 112 Introduction to Computer Graphics (A,W,SP,SU) 2-5-4
This course introduces basic hardware and software use for the Apple Macintosh computer. Software packages include Mavis Beacon and Clarisworks. Skills are developed in wordprocessing, drawing, painting, spreadsheets, and databases. Lab fee: $15.00.

GRPH 122 Electronic Publishing (W,SU) 3-4-5
This course introduces electronic publishing software "QuarkXPress" with typographical command sequences and manipulation application. This package is the chosen software of most typesetting shops and service bureaus when a high degree of accuracy is required on Macintosh hardware. In addition, XPress has certain imaging and color controls for scanned photographs and drawings. Lab fee: $20.00. Prerequisite: GRPH 112.

GRPH 125 Image Assembly (W) 2-5-4
The course acquaints students with the role of the pre-press technician in assembling images to be printed. Designed primarily to complement electronic pre-press courses, GRPH 125 allows students to learn the basics of pre-press functions by manually generating camera-ready art and film flats. Lab fee: $43.00. Prerequisite: GRPH 110.

GRPH 130 Press Operations (SP) 1-6-3
Techniques of press operation, press design, register systems, dampening systems, cylinder preparation and operational procedures. Lab fee: $23.00. Prerequisite: GRPH 110

GRPH 131 Design and Typography (SP) 1-6-3
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.

GRPH 132 Paper and Ink (SP) 4-0-4
A study of the two primary materials used in the printing industry, the course examines the history and manufacture of paper and ink, their raw materials, physical characteristics, applications, and their relationships with one another. Also covered are the classifications of and the procedures for estimating and purchasing these materials. Writing a research paper is a required component of the course. Prerequisite: ENGL 102.

GRPH 140 Printing Production Management (SP) 2-4-4
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. Prerequisites: GRPH 241 and BMGT 111.

GRPH 241 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. Prerequisites: GRPH 110, GRPH 121, GRPH 130, and MATH 102.

GRPH 242 Lithographic Camera (A,W) 1-6-3
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. Prerequisite: GRPH 110.

GRPH 243 Computer Graphic Illustration (A,SU) 1-6-3
This course presents software applications for technical illustration and typographic manipulation which may be used to generate technical publications. These products will be imported into electronic publishing software. Specifically, software such as "Illustrator" or "Freehand" are introduced and compared for their capabilities and limitations. Lab fee: $20.00. Prerequisites: GRPH 112 and GRPH 122.

GRPH 244 Quality Control in Graphic Communications (W) 3-3-4
An introduction to the Deming Philosophy of Management and its implementation in the printing process through the use of statistical process control. Techniques used to identify, measure, and reduce variability are examined with the goal of ensuring quality in both the press and the pre-press production areas. Lab fee: $5.00. Prerequisites: MATH 102.

GRPH 251 Electronic Imaging (W,SP) 1-6-3
This course combines the base skills formerly introduced in preliminary courses and brings together new technologies of desktop scanning and separation using Photoshop software. The course incorporates such ideals as color theory, color separation, color image assembly (stripping) and color proofing for print production. The course utilizes the desktop computer technology with desktop scanners, slide scanners, image manipulation software, Linotronic image setter output and color proofing techniques. Lab fee: $20.00. Prerequisites: GRPH 112 and GRPH 122.

GRPH 270 Advanced Black and White Photography (W,SU) 1-6-3
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: $28.00. Prerequisite: GRPH 111.

GRPH 271 Studio Photography (On Demand) 1-6-3
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: $28.00. Prerequisite: GRPH 111.

GRPH 273 Design II (On Demand) 1-6-3
Designed as a sequential follow-up to GRPH 131. 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: GRPH 131 or permission of instructor

GRPH 278 Photo Lab Practicum (A,W,SP,SU) 0-3-1
The photo lab practicum provides students the opportunity to enhance their film processing and printing technique skills. Lab fee: $50.00.

GRPH 279 Estimating II (On Demand) 1-6-3
A continuation of the study of estimating for lithographic printing with areas including multicolor 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. Lab fee: $10.00. Prerequisite: GRPH 241.

GRPH 281 Color Photography (On Demand) 1-6-3
An introduction to Color Photography with an emphasis on color printing. Students will examine color theory, color vision, light and color, filtration, color correcting and color balance. Through reading, practice and class discussion, students will learn some of the elements unique to color photography and its applications. Lab fee: $50.00. Prerequisite: GRPH 111 or permission of instructor.

GRPH 282 Electronic Publishing II (SP) 1-6-3
In this course, students participate in the workgroup advanced techniques production side of publications. Using Framemaker 3.0 or equivalent software, students participate in group publication exercises, incorporating the variables of publications, i.e., reformatting page layouts, updating page numbers, updating paragraph reference numbers, importing text and graphic images and multi-chapter cross-references. Typographic elements for use in such items as tables and graphic manipulation are also included in this course. Lab fee: $20.00. Prerequisites: GRPH 112 and GRPH 122.

GRPH 283 Multimedia Presentation Graphics (SP,SU) 1-6-3
This course introduces topics of presentation and programming principles that form a structure for computer graphic communications. This course presents concepts of sound recording, animation techniques and programming logic. The applications are introduced through such software as "Hypercard" and "Macromind Director", and "Adobe Premier". Lab fee: $20.00. Prerequisites: GRPH 112 and GRPH 122.

GRPH 297,298,299 Special Topics in Graphic Comm. (On Demand) 1-3
Detailed examination of selected topics in graphic communications.

Health Information Management Technology (HIMT)

HIMT 111 Introduction to Health Information Management Tech (A,SP) 2-0-2
The student will be introduced to the various roles of the health information management technician within the health care system and professional organizations in which the health information management technician is affiliated. The student will explore the various functions performed under the auspices of health information management and the technology used to perform these functions. Lab fee: $35.00. Prerequisite: Acceptance into the program.

HIMT 112 Internet Applications in Health Care (A,W,SP,SU) 1-2-2
This course will provide the student with hands-on experience navigating on the Internet, using electronic mail, posting resumes electronically, and searching data bases and other library resources on the Internet. The student will also use the Internet as a tool for locating information from professional associations/organizations. Lab fee: $10.00.

HIM 113 Managed Care Trends (A,W,SP,SU - DL) 2-0-2
This course will provide students will an understanding of various issues regarding managed care that have been instrumental in the redesign and remodeling of patient care delivery. Topics discussed include: types of plans, analysis of data to determine effects of managed care, evaluation of managed care plans, rules and regulations affecting managed care, implementation of plans, and clinical outcomes management.

HIMT 121 Advanced Medical Terminology (A,W,SP,SU - DL) 3-0-3
The student will study medical terminology with emphasis placed on anatomic, diagnostic, symptomatic, and pathologic terminology as used in the context of medical documents.

HIMT 123 Heath Data Management (A,SU) 2-2-3
The student will be introduced to manual and automated filing systems for active and inactive primary records, indexes, and secondary records as well as the computer based patient record (CPR) and the technology associated with the CPR. Emphasis will be placed on maintenance, filing, retrieval, retention, and destruction of records. The student will also be introduced to the internal and external requirements for establishing, operating, and maintaining various registries such as the following: cancer, trauma, cardiovascular, AIDS/HIV, diabetes, and birth defects. Lab fee: $35.00. Prerequisites: HIMT 111 and completed health statement.

HIMT 132 Introduction to Medical Transcription (W,SU) 1-2-2
The student will be introduced to word processing equipment used in the transcription of medical reports. The student will begin to master medical transcription using authentic physician dictations to transcribe various medical reports. Practice in English dictation with an emphasis on accuracy. Strongly suggest typing ability of 35 words per minutes. Lab fee: $35.00. Prerequisites: MCT 106, HIMT 121, and HIMT 141.

HIMT 133 Legal Aspects of the Health Record (A,SP) 2-2-3
The student will study the policies and procedures for processing health records for legal purposes. The importance of the maintenance of confidentiality of health information (both paper and electronic records and databases), the proper handling of requests for, and the transfer of health information will be discussed. The student will create a data base for release of information purposes while considering the procedures for the reporting of health information for use by legal, licensing, certifying, and accrediting agencies. Prerequisite: MCT 106.

HIMT 134 Analysis of the Health Record (W) 2-2-3
This course will focus on the polices and procedures required to collect and process health information. Abstracting and reporting procedures for various registries and health information systems (and the technology used for such abstracting) will be discussed. The student will compile health records, follow the flow of the health record within the institution, and apply JCAHO guidelines to various case studies. The student will develop a spread sheet for monitoring incomplete/delinquent medical records. Prerequisite: MCT 106.

HIMT 141 Pharmacology for HIMT (A,W,SU) 3-0-3
This course will survey the major classifications of drugs. The indications and contraindications for use will be presented. Emphasis will be placed on the correlation between drug therapy and disease. The student will be required to use various desk references efficiently. Prerequisites: BIO 122, HIMT 121.

HIMT 243 Ancillary Health Facilities (SP,SU) 3-0-3
The student will study health information systems in non-hospital health care facilities along with the sources of data for these systems and their uses and users. The appropriate technical aspects and functions within these various systems will be discussed along with the various reporting and accrediting requirements for each of the specific health care facilities discussed. Field trips to various health care facilities will be scheduled. Prerequisites: HIMT 111, HIMT 134.

HIMT 245 ICD-9-CM Coding (SP,SU) 3-4-5
The student will be introduced to the nomenclature and major classification and indexing systems in ICD-9-CM utilized in coding medical information. Laboratory experiences will emphasize the application of the related skills with accuracy and completeness. Other coding systems will be discussed. Lab fee: $35.00. Prerequisites: BIO 122, HIMT 121.

HIMT 255 CPT-4 Coding (A,SU) 3-4-5
The student will be introduced to ambulatory coding and payment systems emphasizing CPT-4 coding. Laboratory experiences will emphasize the application of the related skills with accuracy and completeness. Lab fee: $35.00. Prerequisites: BIO 122, HIMT 121.

HIMT 256 Clinical Data Analysis (W,SU) 3-0-3
The student will apply clinical knowledge as it pertains to health care data management in coding for reimbursement of health care services, the evaluation of practice patterns, the assessment of clinical outcomes, and the analysis of cost-effectiveness of services provided. Prerequisites: HIMT 245, HIMT 255.

HIMT 257 Introduction to Health Statistics (A,SU) 2-2-3
The student is introduced to procedures for property collecting, organizing, displaying, and interpreting health care data to meet the needs of various users while complying with the standards of the health care facility. The users of data can include: the patient, medical staff, nursing and allied health staff, state and federal regulatory agencies, JCAHO, and insurance companies. Prerequisites: MCT 106, HIMT 134.

HIMT 259 Quality and Resource Management (A) 3-2-4
The student will be introduced to the internal and external requirements for establishing, operating, and maintaining quality improvement and utilization management programs. Methods used in bench marking, credentialing, critical pathways, monitoring and evaluation, occurrence screening, peer review, and risk management will also be discussed. Prerequisites: MCT 106, HIMT 257.

HIMT 265 Medical Reimbursement (A,SP) 2-2-3
This course will provide students with an understanding of how coding systems used in outpatient and inpatient health care settings to obtain payment for health care services. Lab fee: $35.00. Prerequisite: HIMT 245 or HIMT 255. Concurrent: HIMT 245 or HIMT 255.

HIMT 267 Principles of Management (A,SP) 3-0-3
The student will be introduced to the functions related to planning, organizing, controlling, and evaluating human resources and health information management services. Other topics include the direction and documentation necessary for the supervision of personnel.

HIMT 270 Certified Case Manager (W,SU) 3-2-4
This course is designed to provide a review for students enrolled in the HIMT or practicing health care professionals and administrators/managers who wish to become certified as a case managers through the Commission for Case Manager Certification. The five major areas of discussion include: coordination and service delivery, physical and psychological factors, benefit systems and cost benefits analysis, case management concepts, and community resources. Concurrent HIMT 296 or permission from the instructor.

HIMT 271 Cancer Registries (W,SU) 3-2-4
This Course serves as the didactic study for students enrolled in the HIMT or credentialed Registered Record Administrators (RRAs) and Accredited Record Technicians (ARTs) seeking eligibility to write the exam for Certified Tumor Registrars. Concurrent: HIMT 296 or permission from the instructor.

HIMT 272 Advanced Medical Transcription Lab (W,SU) 1-6-4
The student will receive extensive practice of transcribing operative reports, diagnostic procedures, surgical discharge summaries, radiology, and pathology reports along with other medical reports. Topics discussed include: equipment, home-based transcription, outsourcing, and other management issues relating to medical transcription. Lab fee: $35.00. Prerequisite: HIMT 132.

HIMT 274 Issues in Health Information Management Technology 2-0-2
This course is a special topics course designed to allow the student to research and develop an understanding of health information management issues unique to the interests of the student and for which there is no other course available, the content of which will address such issues. This course is offered on an independent study basis only. Prerequisite: permission of instructor.

HIMT 291 Health Information Management Seminar (W,SU) 3-0-3
Group discussion of clinical experiences and analysis of the components of health information management services. Discussion of current trends, technology, and issues affecting the health information management profession. Preparation for the national certification exam. Prerequisite: HIMT 294. Concurrent: HIMT 296.

HIMT 292 Clinical Practicum I (W,SU) 0-14-2
Students are assigned to area health are facilities to work under the supervision of facility personnel. Students will obtain exposure to actual working conditions and gain experience in various aspects of health information management services. Prerequisites: MCT 106, HIMT 123, HIMT 133, HIMT 134. Concurrent: HIMT 245 or HIMT 255.

HIMT 294 Clinical Practicum II (A,SP) 0-14-2
Student are provided with practical applications of the knowledge and techniques needed to perform various functions in a health information environment. Prerequisites: HIMT 257, HIMT 292. Concurrent: HIMT 259 and HIMT 245 or HIMT 255.

HIMT 296 Clinical Practicum III (W,SU) 0-14-2
Continued clinical experience in health information services. Prerequisites: HIMT 294.

Heating, Ventilation and Air Conditioning Technology (HAC)

HAC 141 Principles of Refrigeration (A,W,SU) 3-3-4
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.

HAC 152 Instrumentation/Combustion Process (A,SP,SU) **2-4-4**
A course about basic combustion processes using all the fossil fuels and psychrometric 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 psychrometric chart procedures. Instruments used in energy auditing are then explained and preventative maintenance programs written. Lab fee: $15.00.

HAC 161 Hand Tools Laboratory (W,SP,SU) **2-4-4**
An entry-level course building elementary skills in 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.

HAC 183 HAC Wiring Circuits I (A,W,SP) **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.

HAC 222 Load Calculations I (SP,SU) **2-4-4**
This course is a comprehensive study of the fundamentals of environmental conditioning, energy consumption and operating cost analysis, the properties of air, insulation materials, heat loss and gain calculations, to include the methods of air-conditioning, heating and ventilation. Load calculations will be performed using the applicable ACCA manuals and the Right-J, Windows Version 2, computer software program. Lab fee $12.00. Prerequisite: MATH 102.

HAC 231 Load Calculations II (A,W) **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: HAC 222.

HAC 235 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: $15.00. Prerequisites: CMGT 290 and permission of instructor.

HAC 242 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: HAC 112, HAC 141 and HAC 152.

HAC 243 Air Conditioning Systems (SP,SU) **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 designed around hands-on training and testing of the various component parts of a vapor compression split system. Lab fee: $20.00. Prerequisites: HAC 141, HAC 161, HAC 112, HAC 183 and HAC 253.

HAC 244 Heat Pump Systems (A,W,SP) **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: HAC 112, HAC 141, HAC 161, HAC 183 and HAC 253.

HAC 253 Automatic Controls I (A,W) **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: HAC 141, HAC 152 and HAC 183

HAC 254 Heating Systems (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, electric and fuel oil type forced air furnaces, along with accessories such as humidifiers, air filtration systems, and set-back thermostats. Lab fee: $20.00. Prerequisites: HAC 152, HAC 161 and HAC 183.

HAC 256 Automatic Controls II (W,SP) **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: HAC 253.

HAC 258 Pneumatic Controls I (SP) **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. Prerequisite: HAC 152.

HAC 263 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: HAC 152 and HAC 231.

HAC 266 Advanced Problems (A,W,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.

HAC 284 HAC Wiring Circuits II (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: HAC 183.

HAC 285 HAC Electronic Controls I (A) **2-4-4**
This course uses basic electronic knowledge from EET 101 and EET 102, plus electrical knowledge from HAC 183 and HAC 284 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: EET 102 and HAC 284.

HAC 287 Boiler Systems (W) **3-2-4**
This course uses basic combustion knowledge from HAC 152 and piping system knowledge from HAC 112, along with codes from course HAC 242 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: HAC 112, HAC 152 and HAC 253.

HAC 288 Ammonia Systems (A) **3-2-4**
This course uses basic piping knowledge from HAC 112, refrigeration cycle theory from HAC 141, codes from HAC 242 and control knowledge from HAC 253 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 HAC 161 course content or proficiency credit before enrolling in this class. Lab fee: $10.00. Prerequisites: HAC 112, HAC 141, HAC 242 and HAC 253.

HAC 299 Special Topics in Heating and Air Conditioning (On Demand) **1-5**
A refresher maintenance training class covering refrigeration systems, mechanical tools and methods, heating and boilers, electrical, air handling and ventilation, controls and safety.

Please see your advisor before scheduling for this course.

Histology Degree Track
(See Multi-Competency Health)

Hospitality Management (HOSP)
Dietetic Technician Major (DIET)

DIET 191 Dietetic Technician Practicum I (A) **1-4-1**
Practical application of information presented in the classroom from MLT 100, HOSP 102 and HOSP 122 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. Lab fee: $55.00. Concurrents: MLT 100, HOSP 102, and HOSP 122.

DIET 192 Dietetic Technician Practicum II (W) **1-7-2**
Practical application of information presented in the classroom from HOSP 107 and HOSP 109 in related health care facilities. Skills are developed through supervised learning situations to operate and maintain foodservice equipment, to assist in food production and service, and to maintain food quality and portion control. Lab fee: $20.00. Prerequisite: DIET 191 with a grade of "C" or higher. Concurrents: HOSP 107 and HOSP 109.

DIET 193 Dietetic Technician Practicum III (SP) **1-7-2**
Practical application of information presented in classroom from HOSP 121, HOSP 123 and HOSP 153 in 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, to develop and/or test products and to provide the nutritional needs of the customers. Lab fee: $15.00. Prerequisite: DIET 192 with a grade of "C" or higher. Concurrents: HOSP 123, HOSP 121 and HOSP 153.

DIET 265 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. Information about professional organizations and the ethical practice of dietetics will be discussed. A written exam to assess knowledge attained throughout the seven quarter program will be administered. Lab fee: $2.00. Prerequisite: DIET 298. Concurrents: DIET 299 and HOSP 219. A grade of "C" or higher is required for graduation.

DIET 275 Diet Therapy I (A) **4-2-5**
An introduction to the study of nutritional assessment, diet modification, and nutritional care plans. The rationale for nutritional intervention and related medical conditions and terminology is presented. Calorie controlled, and consistency and nutrient modified diets for a variety of medical and/or lifecycle-related conditions are studied. The student will identify and utilize

appropriate nutritional assessment tools and techniques for specific medical and/or lifecycle-related conditions. The student will plan, prepare and/or evaluate menus, meal plans, meals, and nutritional supplements related to these diet modifications. Lab fee: $10.00. Prerequisites: HOSP 153 with a grade of "C" or higher and completion of BIO 101. Concurrent: BIO 169.

DIET 276 Diet Therapy II (W) 4-2-5
A continuation of the study of nutritional assessment, diet modification, and nutritional care plans. The rationale for nutritional intervention and related medical conditions and terminology is presented. Calorie and protein supplemented, and nutrient modified diets for a variety of medical conditions are studied. The student will identify and utilize appropriate nutritional assessment tools and techniques for specific medical conditions. The student will plan, prepare and/or evaluate menus, meal plans, meals, and nutritional supplements related to these diet modifications. Lab fee: $10.00. Prerequisites: DIET 275 with a grade of "C" or higher and BIO 169.

DIET 297 Dietetic Technician Practicum IV (A) 2-7-3
Practical application of information presented in the classroom from HOSP 153 and DIET 275 in community health programs. Skills are developed through supervised learning situations to understand the services offered by community based organizations, to develop the ability to utilize their services, to meet and serve clients, to obtain and evaluate nutritional data from individuals, and to establish good working relationships with clients and other personnel. Lab fee: $45.00. Prerequisite: DIET 193 with a grade of "C" or higher. Concurrents: DIET 275 and HOSP 205.

DIET 298 Dietetic Technician Practicum V (W) 1-7-2
Practical application of information presented in classroom from HOSP 225, DIET 275 and DIET 276 to clients in related health care facilities. Skills are developed through supervised learning situations to interview clients, to evaluate nutritional data collected, to understand the rationale for dietary modification for nutrient and consistency modification, to understand associated medical terminology and to assist in the planning, preparation and service of modified diet meals. Lab fee: $10.00. Prerequisite: DIET 297 with a grade of "C" or higher. Concurrents: HOSP 225 and DIET 276.

DIET 299 Dietetic Technician Practicum VI (SP) 1-10-3
Practical application of information presented in the classroom from all technical courses to clients in related health care facilities. Opportunities are provided through supervised learning situations to demonstrate proficiency in client interviewing, to evaluate nutritional data, to understanding associated medical terminology and the rationale for dietary intervention, and to assist in the planning, preparation and service of modified diet meals. Lab fee: $10.00. Prerequisites: DIET 276 and DIET 298 with grades of "C" or higher. A grade of "C" or higher is required for graduation.

Dietary Manager (DMGR)

DMGR 101 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: DMGR 194 and employment in a health care facility with a qualified preceptor on the staff. A grade of "C" or higher is required for graduation.

DMGR 102 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 operation. Nutrient requirements, functions and sources of nutrients and the digestion and absorption of food are studied. 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. Prerequisite: DMGR 101 with a grade of "C" or higher. Concurrents: DMGR 195 and employment in a health care facility with a qualified preceptor on the staff.

DMGR 103 Dietary Manager Seminar III (SP) 4-0-4
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. Management principles, employee development and supervisory characteristics are discussed. Facility evaluation and planning for improvements is presented. Prerequisite: DMGR 102 with a grade of "C" or higher. Concurrents: DMGR 196 and employment in a health care facility with a qualified preceptor on the staff.

DMGR 194 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 DMGR 101. Lab fee: $12.00. Prerequisite: Employment in a health care facility with a qualified preceptor on the staff. Concurrent: DMGR 101.

DMGR 195 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 DMGR 102. Lab fee: $12.00. Prerequisite: DMGR 194 with a grade of "C" or higher, and employment in a health care facility with a qualified preceptor on the staff. Concurrent: DMGR 102.

DMGR 196 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 DMGR 103. Lab fee: $12.00. Prerequisites: DMGR 195 with a grade of "C" or higher, and employment in a health care facility with a qualified preceptor on the staff. Concurrent: DMGR 103.

Hospitality Management (HOSP)

HOSP 101 Survey of the Hospitality/Tourism Industry (A,W,SP,SU) 3-0-3
An introduction to management of restaurants, clubs, 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.

HOSP 102 Foodservice Equipment (A,W,SP) 1-2-2
A laboratory course in which students will learn to operate, clean, and describe preventive maintenance of commercial foodservice equipment. Construction features required by the National Sanitation Foundation, and American Gas Association and Underwriter's Laboratories requirements will be emphasized. Appropriate uses for equipment and general principles of equipment layout for safety, sanitation, and efficiency will be discussed. Lab fee: $17.00.

HOSP 106 Food Laboratory I (W,SU) 1-4-3
A laboratory course for chef apprentices. The course includes introduction to basic laboratory skills and basic preparation of vegetables, salad, breakfast items, dairy products, fruits, meats, seafood and poultry. Students will develop recipes and requisition, prepare and evaluate foods. Lab fee: $60.00. Prerequisites: HOSP 102, HOSP 107 and HOSP 122.

HOSP 107 Food Principles (A,W,SP) 5-0-5
A lecture course in basic food preparation including the terminology and definitions used and the scientific principles involved in preparing food products. The course includes a detailed study of the principles of preparation and selection criteria for all categories of foods served in foodservice operations. Lab fee: $5.00.

HOSP 109 Food Production (W) 1-7-3
A laboratory course in which students will produce and serve marketable food products according to standardized recipes using food production equipment in a commercial kitchen environment. The products will be served in a cafeteria and in a dining room setting. The principles of sanitation and safety will be applied. Lab fee: $60.00. Prerequisites: HOSP 102 and HOSP 122 Concurrent or prerequisite: HOSP 107.

HOSP 121 Computer Applications in Foodservice (W,SP,SU) 1-2-2
A course designed to apply the basic skills acquired in Computer Literacy 1 to foodservice operations. Hands-on lab experience expands the student's knowledge of basic business applications as they apply to foodservice operations using word processing, spreadsheet and data base management software and specialized application software packages. Lab fee: $15.00. Prerequisite: CPT 101.

HOSP 122 Sanitation and Safety (A,W,SP,SU) 3-0-3
A detailed study of the HACCP (Hazard Analysis Critical Control Points) procedures which include the control of bacteria, materials handling, and safety practices to maintain a safe and health environment for the consumer in the food and lodging industry. Examination of laws and regulations related to safety, fire, and sanitation. Upon successful completion of an examination from the Educational Foundation of the National Restaurant Association, students will receive certificates from the Educational Foundation and the Ohio Department of Health. Lab fee: $2.00.

HOSP 123 Food Purchasing (A,SP) 3-0-3
Provides a working knowledge of procurement methods and procedures and record keeping (manual methods and computer applications) 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, and wholesale food markets. Lab fee: $5.00. Prerequisites: HOSP 107 and placement in DEV 031.

HOSP 143 Hospitality and Travel Law (A,SP) 3-0-3
Provides a general knowledge of the law as it applies to the hospitality and tourism industry. Lab fee: $3.00.

HOSP 145 Lodging Operations (SP) 3-2-4
This course provides students with a basic understanding of the lodging industry. It covers the activities of various hotel operating departments: front office, housekeeping, food-beverage, marketing, engineering, security and accounting. Emphasis will be placed on handling guest needs. Lab fee: $25.00.

HOSP 153 Nutrition (A,W,SP,SU - DL) 5-0-5
Independent study course is available. 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. Prerequisites: Placement into ENGL 101 and DEV 031.

HOSP 154 Destination Geography (A) 5-0-5
Geographical and cultural study of all major regions of the world with emphasis on the most popular travel destinations. Includes lodging, points of interest, customer profile and transportation types for each destination. Lab fee: $5.00.

HOSP 157 Travel and Tourism Operations (W) 4-2-5
This course provides students with a basic understanding of the travel and tourism industry. The principles of air transportation, rail, and rental car services are included along with the travel product distribution system and the role of travel agencies. The government agencies and organizations that affect the industry are described, as is the use of a variety of reference materials. Developing itineraries, assessing tariffs, calculating fares, preparing travel documents, processing reservations and tickets for tours, lodging, cruises and related services needed by domestic and international travelers are course components. Lab fee: $25.00. Prerequisite: HOSP 154.

HOSP 203 Beverage Management (A,SP) 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: $25.00.

HOSP 205 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: $15.00.

HOSP 216 Food Laboratory II (W,SP) 1-4-3
A laboratory course to follow Food Production I (HOSP 109) for chef apprentices. The course includes preparation of stocks, soups, sauces, vegetables, and fruits. Also includes butchery, fish, fileting, and poultry de-boning. Students will develop recipes, plan menus, requisition food, and prepare and serve large quantity meal functions. Lab fee: $60.00. Prerequisites: HOSP 106 and HOSP 107.

HOSP 217 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, gelantines 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.

HOSP 218 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 hygenic work habits are emphasized. Lab fee: $50.00. Prerequisite: Registered Chef Apprentice or permission of instructor.

HOSP 219 Food Production Management (SP) 1-8-4
A laboratory course in the final quarter of the student's curriculum in which application of foodservice management will occur in a simulated restaurant. Students will serve the public to gain experience in various managerial positions in the front and back of the house while supervising student work groups. Lab fee: $60.00. Prerequisite: Final quarter or permission of instructor. A grade of "C" or higher is required for graduation.

HOSP 224 Hospitality Personnel Management (W,SU) 5-0-5
Supervisory techniques applied specifically to hospitality and travel operations. A study of organizational structure, performance standards, 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. A grade of "C" or higher is required for graduation. Lab fee: $5.00. Prerequisite: BMGT 101.

HOSP 225 Menu Planning (A,W) 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; equipment utilization, and computer application. Lab fee: $5.00. Prerequisites: HOSP 153 and HOSP 107.

HOSP 246 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: $5.00.

HOSP 257 Computer Reservations Systems (A) 1-5-3
This course is designed to combine student reading materials with hands-on computer experience. Students will develop skills in the utilization of airline computer reservation systems (namely, American Airlines' SABRE CRS) to make car, lodging, and airline reservations. Lab fee: $50.00. Prerequisites: HOSP 157 and OADM 131.

HOSP 271 Meeting Planning & Catering Services (A,SP) 2-3-3
Principles of and practice experiences in meeting planning and catered functions. Students will plan, organize, execute and evaluate meeting and catering functions to meet the needs of clients and guests. Lab fee: $20.00.

HOSP 286 Apprenticeship Final Project (SU) 2-0-2
A capstone course required for students registered in the three year American Culinary Federation Educational Institute National Apprenticeship Training Program. Preparation for and completion of national practical and written examinations. Evaluation of 6000 hours on-the-job training and documentation of completion of all required training objectives. Lab fee: $50.00. Prerequisite: HOSP 295.

HOSP 293 Hospitality Cooperative Work Experience I (A,W,SP,SU) 1-20-3
Work experience in the hospitality/tourism industry. A minimum of 200 hours will be spent in cooperative work experience, with one classroom hour per week in an on-campus seminar. Lab fee: $10.00.

HOSP 294 Hospitality Cooperative Work Experience II (A,W,SP,SU) 1-20-3
A continuation of HOSP 293. Work experience in the hospitality/tourism industry. A minimum of 200 hours will be spent in cooperative work experience, with one classroom hour per week in an on-campus seminar. Lab fee: $10.00. Prerequisite or concurrent: HOSP 293.

HOSP 295 Hospitality Cooperative Work Experience III (A) 1-20-3
A continuation of HOSP 293 and HOSP 294 required for third year chef apprentices. On-the-job training in the foodservice industry following guidelines of American Culinary Federation Education Institute National Apprenticeship Training Program for Cooks. One classroom hour per week will be spent in an on-campus seminar. Lab fee: $50.00. Prerequisites: HOSP 294 and Chef Apprenticeship major.

Human Resources Management Technology (HRM)

121 Human Resources Management (A,W,SP,SU - DL) 4-0-4
An introductory course in Human Resources Management, including the philosophy, principles, and legal aspects of human resources management; and the roles of the manager and the human resources professional/department in this management function. The course focuses on the laws governing policy making, recruiting, selection, training, evaluation, wage and salary administration, benefit programs, representation and safety; and the employer's obligations and the employee's rights under these laws. Lab fee: $5.00. Prerequisites: BMGT 111 or LAW 252, and ENGL 102.

HRM 122 Human Resource Policy and Procedure Writing (W,SU) 2-5-4
The course provides an in-depth study of employment law, the recruiting process, and the selection process; a review of business grammar through the use of a programmed learning text; a transition from "term paper writing" to formal policy writing; and the application of employment law, business grammar, and policy writing skills through the development of an employment policy, procedure, and an employee handbook summary of the policy. Lab fee: $10.00. Prerequisites: HRM 121, MCT 106, and ENGL 102.

HRM 124 Personnel Interviewing (A,W,SP,SU) 3-2-4
The course provides an in-depth study of the legal aspects of interviewing, the various types of interviews conducted in business, and interviewing techniques. Students participate, as both an interviewer and an interviewee, in selection, counseling, disciplinary, exit, and performance appraisal interview simulations. Interviewing techniques and skills are evaluated using videotape playback. Lab fee: $10.00. Prerequisites: HRM 121 and COMM 105 or COMM 110.

HRM 220 Labor Relations (A,W,SP,SU - DL) 3-4-5
The course provides a study of labor relations including: the history of the labor movement, the legislative history, and in-depth study of the four major pieces of private sector collective bargaining legislation; a discussion of the State of Ohio collective bargaining law; and the union organizing process and management responses, the collective bargaining process, the grievance process, the arbitration process, and the differences in these processes in the public and private sectors. Students participate, as members of labor and management teams, in contract negotiations, third step grievance meeting, and grievance arbitration simulations. Lab fee: $10.00. Prerequisites: HRM 121 and MATH 101 or MATH 103.

HRM 221 Staffing Under the Law (A,SP) 5-0-5
The course provides an in-depth study of the laws governing discrimination in employment, affirmative action, sexual harassment, discipline, termination, safety, and a drug free work environment; and the application of these laws through the development of employer policies, procedures, rules, regulations, and summary postings. Lab fee: $10.00. Prerequisites: HRM 121, HRM 122, MCT 106, and MATH 135.

HRM 222 Monetary Compensation (A,SP) 4-0-4
The course provides an in-depth study of the history, principles and theories of a compensation package; the laws governing monetary compensation, and the application of these principles, theories and laws through the development of internal and external equity in monetary compensation, and the development of monetary compensation policies and procedures. Lab fee: $10.00. Prerequisites: HRM 121, HRM 122, MCT 106, MATH 135. Concurrent: HRM 223.

HRM 223 Benefits/Non-Monetary Compensation (A,SP) 4-0-4
The course provides an in-depth study of the history, principles, and theories of benefits and non-monetary compensation; the development of external equity in benefit packages, the value of benefit programs to an organization; and the laws governing benefits. Students learn the application of these principles, theories, and laws through the development of plan descriptions for benefit programs such as health, life, disability, pension/retirement, pay for time not worked, and policies and procedures for the implementation of benefits required by law. Lab fee: $10.00. Prerequisites: HRM 121, HRM 122, MCT 106 and MATH 135. Concurrent: HRM 222.

HRM 224 Human Resources Information Systems (W,SU) 2-3-3
The course provides an in-depth study of the records required by the federal and state laws governing the employment relationship, and the legal aspects of those records; the relationships between data, information, records, employees, managers, and the human resources department; approaches to developing manual and automated records and information management systems that meet the professional and industry standards. Students are required to demonstrate skills through the development and/or design of both manual and automated systems. Lab fee: $10.00. Prerequisites: HRM 121, HRM 122, and MCT 106.

HRM 225 Alcohol and Drugs in Workplace (W,SU) 4-0-4
The course provides the student in the Human Resources technology and the community with an overview of alcohol and drugs as it relates to historical and contemporary workplace issues. The impact of drugs of abuse on the individual, family and society, models to define chemical dependency, signs and symptoms indicative of alcohol and drug use and resources available to persons with chemical dependency and their families are explored. There is emphasis on the Drug Free Workplace Act and the American with Disabilities Act, and developing a Drug Free workplace policy. Employee Assistance Programs will be discussed as well as the drug testing and legal and ethical issues involved. Prerequisites: HRM 121 and HRM 122.

HRM 240 Administration of Human Resources Management (W,SU) 0-10-5
As a course in the capstone sequence for the Human Resources Management Technology, the course provides a hands-on application laboratory wherein students serve as a "Board of Directors," developing the full range of human resources policies, procedures, and programs. To demonstrate the depth and breadth of their knowledge, understanding, and skill, students are assigned two to four individual projects, in the major topic areas (employment, compensation, benefits, performance appraisal, discipline, safety, and training), in the form of

presentations, the development of policies and/or procedures as appropriate to the presentation, and the development/securing of documents as appropriate to the presentation. As a group students review, revise, and approve or reject policy, procedure, and program recommendations made by the presenter. Lab fee: $5.00. Prerequisites: HRM 124, HRM 220, HRM 221, HRM 222, HRM 223, MCT 211, and MHCR 245.

HRM 242 Human Resources Management Practicum (A,W,SP,SU) 0-28-4
As a course in the capstone sequence for the Human Resources Management Technology, the course provides a guided work experience in a human resources office or work environment providing human resources services. Exact duties are determined by the student and the employer/placement site supervisor. Students are responsible for securing their own practicum position. Lab fee; $2.00. Prerequisites: HRM 124, HRM 220, HRM 221, HRM 222, HRM 223, MCT 211, and MHCR 245.

HRM 243 Human Resources Management Practicum Seminar (A,W,SP,SU) 0-4-2
As a course in the capstone sequence for the Human Resources Management Technology, the course provides for a seminar discussion of the work experience; and demonstration of the ability to transfer program skills to a real world work environment through the development of work related projects and assignments. Lab fee: $1.00. Prerequisite: Completion of all Human Resources Management technical courses and permission of the Human Resources Management Technology Program Coordinator two (2) quarters in advance. Concurrent: HRM 242.

Humanities (HUM)

STUDENTS WHO ENROLL IN HUMANITIES COURSES MUST HAVE PLACED IN ENGL 101 AND ARE ENCOURAGED TO EITHER HAVE COMPLETED ENGL 101 OR BE ENROLLED IN THAT COURSE WHEN SCHEDULING A HUMANITIES COURSE.

HUM 111 Civilization I (A,W,SP,SU - DL) 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: $7.00. Prerequisite: Placement into ENGL 101.

HUM 112 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: $7.00. Prerequisite: Placement into ENGL 101.

HUM 113 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: $7.00. Prerequisite: Placement into ENGL 101.

HUM 151 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: $7.00. Prerequisite: Placement into ENGL 101.

HUM 152 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: $7.00. Prerequisite: Placement into ENGL 101.

HUM 205 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: $4.00. Prerequisite: Placement into ENGL 101.

HUM 222 Classical Mythology (On Demand) 5-0-5
An introduction to the world of mythology, the human and the supernatural, the real and the fantastic through a study of myths from Greece and Rome. The course explores some of the religious ideas, traditions and values that distinguish one civilization from another, while also indicating universally shared themes. Attention will be given to cultural expressions of mythical themes in literature and art. Lab fee: $2.00. Prerequisite: Placement into ENGL 101.

HUM 224 African-American History from Emancipation to Present 5-0-5
A survey of African-American History from the Civil War to present. Emphasis will be placed on the struggle for political, social and economic freedom as well as the contributions of African-Americans to the music, art, and literature of the United States. Meets Humanities requirement for AAS students. Lab fee: $2.00. Prerequisite: Entry into ENGL 101.

HUM 245 Music and Art Since 1945 (On Demand) 5-0-5
A survey of the styles and subject matter of important contemporary works of music and visual art. Students will examine the wide spectrum of aural and visual expression that has developed since the Second World War such as aleatoric music, electronic music, abstract expressionism, performance art, pop and op art, minimalism, etc. Students will also examine the major intellectual and social issues of the day and the relationship between these issues and the styles and expressive content of contemporary music and art. Lab fee: $8.00. Prerequisite: Placement into ENGL 101.

HUM 251 Latin American Civilization (On Demand) 5-0-5
A general introduction to the history and cultures of Latin America through the study of literature, film and primary historical texts. The course will employ an interdisciplinary approach to explore the relationship between culture and the major historical, political, and socio-economic developments in Latin America from 1492 to the present. Lab fee: $2.00. Prerequisite: Placement into ENGL 101.

HUM 252 The Islamic World and the Middle East (On Demand) 5-0-5
A survey of Islamic civilization from the birth of Mohammad 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 ENGL 101.

HUM 253 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 ENGL 101.

HUM 254 Introduction to African Literature (On Demand) 5-0-5
A general survey of sub-Saharan African literature including the oral traditions that formed its background. Students will examine traditional African artistic expressions such as dance, drama, poetry and short story as well as novels produced by European-educated writers. Students will read literary texts originally written in English or in English translation. Lab fee: $2.00. Prerequisite: Placement into ENGL 101.

HUM 270 Comparative Religions (A,SP) 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 ENGL 101.

HUM 299 Special Topics in Humanities (On Demand) 1-5
Special topics from the Humanities discipline designed to meet specific needs. Lab fee: $2.00.

Interpreting/Transliterating (ITT)

ITT 110 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. Lab fee: $5.00. Prerequisite: Interview with ITT coordinator and application process. Concurrent: ITT 141.

ITT 111 Introduction to the Deaf Community (A) 5-0-5
This course is designed to provide students with an overview of the deaf community. It focuses on the following areas: social, cultural and education experiences. This course also examines employment, local services available to the d/Dead community, and majority culture's myths and misconceptions of the d/Deaf community. Lab fee: $5.00.

ITT 120 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. Lab fee: $5.00. Prerequisite: ITT 110 with a grade of "C" or better. Concurrents: ITT 143 and ITT 201.

ITT 121 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. Prerequisites: ITT 203 and ITT 212 with a grade of "C" or better.

ITT 123 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 artistic interpreting, interpreting for deaf/blind persons, interpreting in medical settings, and oral interpreting. Lab fee: $5.00. Prerequisite: ITT 110 , 202, 211.

ITT 130 Fingerspelling (W) 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. Prerequisite: ITT 110 and ITT 141 with a grade of "C" or better. Concurrent: ITT 142.

ITT 141 American Sign Language I (A,SP) 4-2-5
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: $10.00.

ITT 142 American Sign Language II (W,SU) 4-2-5
ASL II, as a continuation of ITT 141, 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 ITT 141, while receptive/ comprehension skills continue to be emphasized. Additional information about the Deaf Community is introduced via outside readings and class discussions. Lab fee: $10.00 Prerequisite: ITT 141 with a "C" or better.

ITT 143 American Sign Language III (A,SP) 4-2-5
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: $10.00. Prerequisite: ITT 142 with a grade of "C" or better.

ITT 144 American Sign Language IV (W,SU) 4-2-5
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: $10.00. Prerequisite: ITT 143 with a grade of "C" or better.

ITT 145 American Sign Language V (A,SP) 4-2-5
As the final course in this five (5) course series, ITT 145 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: $10.00. Prerequisite: ITT 144 with a grade of "C" or better.

ITT 150 Linguistics of American Sign Language (ASL) (SP) 2-2-3
This course offers an introductory to general linguistics, as well as providing an in-depth analysis of the major grammatical features of American Sign Language. Comparisons are made between English and American Sign Language, noting how grammatical functions are performed differently in the two languages. Lab fee: $5.00. Concurrent: ITT 143.

ITT 201 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. Prerequisite: ITT 110 with a grade of "C" or better. Concurrent: ITT 120 and 143

ITT 202 Interpreting II (SU) 1-5-3
This course is a continuation of ITT 201. 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 into ASL. This course places more emphasis on the practical "hands-on" dialogue setting; and increasing the speed, accuracy, and complexity of the interpreting process. Lab fee: $10.00. Prerequisite: ITT 201 with a grade of "C" or better. Concurrent: ITT 144.

ITT 203 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 ASL/English interpretation process. Increased focus is placed on "real life" situational experiences involving complex interpreting settings. Lab fee: $10.00. Prerequisite: ITT 202 and ITT 145 with a grade of "C" or better.

ITT 211 Transliterating I (SU) 2-2-3
This course is a theoretical and practical "hands-on" approach to the process of sign language transliterating. Students will be actively learning how to render contact varieties and signed English messages into spoken English, as well as render a spoken message in English into contact varieties and signed English. Lab fee: $10.00. Prerequisite: ITT 120 and 201. Concurrent: ITT 144.

ITT 212 Transliterating II (A) 1-5-3
This course is a continuation of ITT 211. As such, the students continue the process of actively learning how to render a signed message in a contact variety and signed English into spoken English, as well as how to render a spoken message into a contact variety and signed English. This course places more emphasis on practical "hands-on" dialogue settings; and increasing the speed, accuracy, and complexity of the transliteration. Lab fee: $10.00. Prerequisite: ITT 211 with a "C" or better.

ITT 213 Transliterating III (SP) 1-1-3
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 complex transliteration settings, increasing speed, and decreasing process time. Lab fee: $10.00. Prerequisite: ITT 212 with a grade of "C" or better.

ITT 220 Sign to Voice Interpreting/Transliterating (W) 4-0-4
This course provides students with additional experience with the process of sign to voice interpreting and transliterating. Students will practice with a variety of Deaf, deaf, and hard of hearing individuals to enhance team and solo voicing skills. Lab fee: $10.00. Prerequisite: ITT 212. Concurrent ITT 203.

ITT 230 Introduction to Teaching American Sign Language (SP) 3-0-3
This course is an introduction to the basic principles and practices of teaching adult learners, with a focus on teaching American Sign Language. Topics include: the adult learner, curriculum development, lesson planning, testing procedures, and other issues common to teaching adults. Lab fee: $10.00. Prerequisite: Acceptance into program via portfolio or approved tests. Concurrent: ITT 150.

ITT 231 American Sign Language for Native Signers (SU) 2-0-2
This course is designed to help native and near-native signers particularly Deaf, deaf, and hard of hearing individuals, understand the linguistic and sociolinguistic structure of American Sign Language. Lab fee: $10.00. Prerequisites: ITT 150 and ITT 230 with a grade of "C" or better. Concurrent: ITT 232.

ITT 232 Teaching Basic American Sign Language (SU) 3-0-3
This course will prepare native and near-native signers to teach introductory-level American Sign Language classes to adult populations. Course content from ITT 150, 230, and 231 are expanded, and added to, with a focus on applying knowledge and skills to classroom teaching settings. Lab fee: $10.00. Prerequisites: ITT 150 and ITT 230 with a grade of "C" or better. Concurrent: ITT 231.

ITT 233 Teaching Advanced American Sign Language (W) 3-0-3
This course will prepare native and near-native signers to teach advanced-level American Sign Language classes to adult populations. Course content from ITT 150, 230, 231, and 232 are expanded, and added to, with a focus on applying knowledge and skills to classroom teaching settings. Lab fee: $10.00. Prerequisite: ITT 232 with a grade of "C" or better. Concurrent: ITT 242

ITT 241 Teaching American Sign Language Practicum I (AU) 0-25-5
This course is designed to provide learners with an opportunity to apply skills and knowledge by teaching basic ASL courses under supervision. This practicum supervisor will discuss issues regarding learners' skills and experiences, provide feedback, and suggest strategies to improve. Lab fee: $5.00. Prerequisite or concurrent: ITT 232

ITT 242 Teaching American Sign Language Practicum II (W) 0-25-5
This course is designed too provide learners with additional opportunities to apply skills and knowledge by teaching basic ASL courses under supervision. The practicum supervisor will discuss issues regarding learners' skills and experiences, provide feedback, and suggest strategies to improve. Lab fee: $5.00. Prerequisite: ITT 241 with "satisfactory" grade. Concurrent: ITT 233.

ITT 243 Teaching American Sign Language Practicum III (SP) 0-25-5
This course is designed to provide learners with an opportunity to apply skills and knowledge by teaching advanced ASL courses under supervision. The practicum supervisor will discuss issues regarding learners' skills and experiences, provide feedback, and suggest strategies to improve. Lab fee: $5.00. Prerequisites or concurrents: ITT 233 with a grade of "C" or better, ITT 242 with "satisfactory" grade.

ITT 244 Teaching American Sign Language Practicum IV (SU) 0-25-5
This course is designed to provide learners with an opportunity to apply skills and knowledge by teaching advanced ASL courses under supervision. The practicum supervisor will discuss issues regarding learners' skills and experiences, provide feedback, and suggest strategies to improve. Lab fee: $5.00. Prerequisite or concurrent: ITT 243 with "satisfactory" grade.

ITT 290 Interpreting/Transliterating Practicum Seminar I (W,SU) 1-0-1
This course supplements the practicum experience by providing opportunities for sharing experiences via recordings in journals and group discussions. Prerequisite: Complete all first through fifth quarter courses as per the ITT Plan of Study and ITT 145 with a grade of "C" or better. Concurrent: ITT 292.

ITT 291 Interpreting/Transliterating Practicum Seminar II (A,SP) 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: ITT 290 with a grade of "satisfactory" and completion of all sixth quarter courses. Concurrents: ITT 121, ITT 213, ITT 293.

ITT 292 Interpreting/Transliterating Practicum I (W,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 staff interpreters. Prerequisite: 2.0 tech. average; completion of the first five quarters of the ITT Plan of Study . Concurrent: ITT 290.

ITT 293 Interpreting/Transliterating Practicum II (A,SP) **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 staff interpreters. Prerequisite: ITT 292 with a grade of "satisfactory" and 2.0 tech average. Concurrent: ITT 291.

Italian (ITAL)

ITAL 101 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: $6.00. Prerequisite: Placement into ENGL 101.

ITAL 102 Elementary Italian II (On Demand) **5-0-5**
Continuation of ITAL 101, 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: $6.00. Prerequisite: ITAL 101 with a grade of "C" or better.

ITAL 103 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: $6.00. Prerequisite: ITAL 102 with a grade of "C" or better.

ITAL 104 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: $6.00. Prerequisite: ITAL 103 with a grade of "C" or better.

ITAL 299 Special Topics in Italian (On Demand) **1-5**
Detailed examination of selected topics in Italian. Lab fee: $2.00. Prerequisites vary.

Japanese (JAPN)

JAPN 101 Elementary Japanese I (A) **5-0-5**
Elements of standard modern colloquial Japanese grammar, with emphasis on oral communications and culture. Students will learn to hear and reproduce the sounds of modern Japanese accurately; handle basic interactive skills such as greetings, invitations and apologies; learn about cultural factors that are reflected in the language. Lab fee: $6.00. Prerequisite: Entry into ENGL 101.

JAPN 102 Elementary Japanese II (W) **5-0-5**
Continuation of JAPN 101. Lab fee: $6.00. Prerequisite: "C" or higher in JAPN 101.

JAPN 103 Elementary Japanese III (On Demand) **5-0-5**
Continuation of JAPN 102. Lab fee: $6.00. Prerequisite: "C" or higher in JAPN 102.

JAPN 104 Elementary Japanese IV (On Demand) **5-0-5**
Continuation of JAPN 103. Lab fee: $6.00. Prerequisite: "C" or higher in JAPN 103.

JAPN 299 Special Topics in Japanese (On Demand) **1-5**
Detailed examination of selected topics in Japanese. Lab fee: $2.00. Prerequisites vary.

Landscape Design/Build (LAND)

LAND 101 Landscape Principles (A,W,SP,SU) **2-3-3**
Landscape principles will study the basic components of landscape design and those elements, that when combined together create such designs.

LAND 102 Residential Landscape Design (A,W,SU) **2-6-4**
This course will study the application of landscape design principles to construction situations, design vs. style, perform site inventory and analysis and draft basic projects. Lab fee: $20.00. Prerequisites: ARCH 111 and LAND 101.

LAND 104 Specialty Gardens (W) **2-3-3**
This course will study the history, development and basic design of gardens including Estate, Victorian, Colonial Patio, Water, etc., gardens. The class will combine both in-class and field experience. Lab fee: $15.00. Prerequisite: LAND 102.

LAND 105 Spring Landscape Plants (SP,SU) **3-3-4**
This course will study the identification parameters, landscape features and growing conditions of trees and shrubs indigenous to the midwest climate zone. This class will combine both in-class and field experience.

LAND 107 Landscape Maintenance (W,SP) **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 include soil structure and amendments. Lab fee: $10.00.

LAND 108 Herbaceous Plants (W, SP,SU) **2-3-3**
This course will study the identification parameters, landscape features and growing conditions of herbaceous flowering plants such as annuals, perennials, bulbs and herbs. Design of perennial gardens will also be covered. Lab fee: $15.00.

LAND 109 Landscape Arboriculture (A,W) **2-2-3**
This course introduces the basic principles of tree biology and care. Arboricultural practices will be discussed and performed. Lab fee: $15.00. Prerequisite: LAND 205.

LAND 110 Landscape Computer Applications (W,SU) **2-3-3**
This course will explore current computer applications as they relate to the landscape industry. Lab fee: $10.00. Prerequisites: LAND 102 and CPT 101 or permission of instructor.

LAND 152 Site Planning (A,SP) **2-6-4**
This course identifies the elements of a site and influences, methods and examples of site planning for environmental design projects. Emphasis on interdisciplinary nature of site planning. Regulatory and technical requirements. Creation and evaluation of prototypical site planning projects. Lab fee: $20.00. Prerequisites: LAND 102 or ARCH 161 or SURV 141 or permission of instructor.

LAND 200 Landscape Practicum (SU) **2-4-4**
Students will be exposed to many working methods of the landscape industry. Through actual hands-on experience the following areas will be taught: skid steel operation, maintenance equipment operation, irrigation line assembly, paver construction, wood construction, retaining wall construction and trencher operation. Lab fee: $40.00.

LAND 201 Landscape Pest Control (A,SU) **2-3-3**
This course will study basic control methods as they apply to insects, fungi, bacteria, abiotic and other pests in the landscape. Identification of pests as well as mechanical, cultural, biological and chemical controls will be discussed. Lab fee: $5.00. Prerequisite: LAND 105, LAND 205 or permission of instructor.

LAND 202 Planting Design (W,SP) **2-6-4**
This course builds on skills learned in LAND 102 and emphasizes graphic representations of plant materials and landscape structures. Lab fee: $20.00. Prerequisites: LAND 102, LAND 206 and LAND 105 and/or LAND 205.

LAND 203 Landscape Irrigation (A,W) **2-3-3**
This course will study the design principles of landscape irrigation and lighting systems. Cost/estimation factors will also be discussed. Lab fee: $12.00. Prerequisites: LAND 102 and MATH 104.

LAND 204 Turfgrass Management (A,W) **2-3-3**
To teach the student basic principles of turfgrass science and culture, specifically turfgrass identification, turf disease diagnosis, turf insect pest control, turf weed control and specific turfgrass cultural and management practices. Lab fee: $10.00. Prerequisites: LAND 101, LAND 201 and BIO 125.

LAND 205 Autumn Landscape Plants (A,SU) **3-3-4**
The plants in this course are not the same as those covered in LAND 105. This course will study the identification parameters, landscape features and growing conditions of trees and shrubs indigenous to the midwest climate zone. This class will combine both in-class and field experience.

LAND 206 Landscape Graphics (A,SP) **2-4-4**
This course will study the graphic symbols used to create landscape drawings. Included will be such information as color renderings, graphic representation of trees and shrubs, and shadowing. Lab fee: $15.00.

LAND 207 Landscape Structures (SP,SU) **2-3-3**
This course will study the design and construction principles of landscape decks, patios, etc., and design projects of each will be drafted. Lab fee: $15.00. Prerequisites: LAND 102.

LAND 208 Interior Plants (W,SU) **2-3-3**
This course will study the features and growing conditions of indoor plant materials and maintenance procedures for same. Lab fee: $10.00.

LAND 210 Evergreen Landscape Plants (W) **3-3-4**
This course will study the identification parameters, landscape features and growing conditions of evergreen trees and shrubs indigenous to our climate.

LAND 214 Landscape Lighting (SP,SU) **1-2-2**
This course will cover landscape lighting design concepts. The student will be able to size wire and electrical circuits, installation, maintenance, and trouble shooting practices.

LAND 222 Landscape Operations (W,SP) **3-3-4**
This is a capstone course in the Landscape Major; students will receive an overview of the technical operations of a landscape design/build firm. Students will work on group and individual class projects simulating the day to day business operations of a landscape firm. Lab fee: $15.00. Prerequisites: LAND 202, LAND 203, and LAND 207.

LAND 291 Landscape Co-op Experience (SU) **0-40-4**
Off-campus work experience in the landscape industry. Co-op experience reinforces formal education received in the landscape program, with actual work conditions and job experience. "N" credit will not be allowed for this course. Lab fee: $15.00. Prerequisite: permission of instructor.

Latin (LATN)

LATN 101 Elementary Latin I (On Demand) **5-0-5**
Introduction to the fundamentals of Latin with practice in reading and writing. Includes selected studies in culture. Meets elective requirements in the Associate of Arts and Associate of Sciences Degree programs and transfer requirements in foreign languages and literature. Lab fee: $6.00. Prerequisite: Placement into ENGL 101.

LATN 102 Elementary Latin II (On Demand) **5-0-5**
Continuation of LATN 101 with further development of reading and writing skills and further study of culture. Meets elective requirements in the Associate of Arts and Associate of Sciences Degree programs and transfer requirements in foreign languages and literature. Lab fee: $6.00. Prerequisite: LATN 101 with a grade of "C" or better.

LATN 103 Intermediate Latin I (On Demand) **5-0-5**
Continuation of LATN 102. Meets elective requirements in the Associate of Arts and Associate of Sciences Degree programs and transfer requirements in foreign languages and literature. Lab fee: $6.00. Prerequisite: LATN 102 with a grade of "C" or better.

LATN 104 Intermediate Latin II (On Demand) **5-0-5**
Continuation of LATN 103. Meets elective requirements in the Associate of Arts and Associate of Sciences Degree programs and transfer requirements in foreign languages and literature. Lab fee: $6.00. Prerequisite: LATN 103 with grade of "C" or better.

Law Enforcement Technology (LAWE)

LAWE 101 Introduction to Criminal Justice (A,SP) **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.

LAWE 102 Patrol Procedures (A,SP) **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.

LAWE 103 Academy Orientation (W,SU) **2-0-2**
This course will serve as an orientation to the law enforcement profession and the Columbus State Police Academy.

LAWE 104 Government and the Law (A,W, SP, SU) **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.

LAWE 107 Introduction to Security (TBA) **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 prevention, 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.

LAWE 110 Criminal Investigation I (A,SP) **3-2-4**
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. Lab fee: $5.00.

LAWE 111 Criminalistics I (A,SP) **1-4-3**
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: $10.00.

LAWE 112 Criminal Investigation II (W,SU) **3-2-4**
A continuation of LAWE 110. Emphasis will be placed on the scientific analysis of evidence and proper methods for collection and preservation of trace evidence. Lab fee: $5.00. Prerequisite: LAWE 110.

LAWE 113 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: $10.00.

LAWE 115 Community and Personal Relations (W,SU) **2-2-3**
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.

LAWE 120 Criminology (A,SP) **3-0-3**
An exploration of the crime problem in the United States. Theories of the causation of crime will be analyzed and critiqued.

LAWE 121 Juvenile Delinquency (SP) **3-0-3**
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.

LAWE 122 Criminal Law (On Demand) **2-2-3**
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.

LAWE 124 Penology (A,SP) **3-0-3**
An introduction to the field of corrections. The history and goals of corrections will be explored, as well as an overview of the processing of offenders from arrest through final release.

LAWE 125 Traffic Accident Investigation (A,SP) **2-2-3**
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: $3.00.

LAWE 128 Special Category Offenders **3-0-3**
This course will focus on six subject areas; treatment of sex offenders, mentally disordered offenders, mentally retarded offenders, inmates with Aids, inmates with disabilities and the substance abuse offender. Further attention will be directed to correctional personnel, impact of political influences, perceptions, training, problems and corrective actions.

LAWE 145 Self Defense for Women (TBA) **1-2-2**
Students will learn to recognize threatening behavior, situations, and appropriate responses. Simple to learn, basic physical defense techniques are taught. In addition, defensive devices will be discussed and demonstrated.

LAWE 150 The Administration of Justice (A) **3-0-3**
The major institutions and processes in the administration of justice will be covered. The role and function of the courts, the progress of criminal and civil cases and methods for development of cooperative arrangements with other criminal justice professionals are discussed.

LAWE 153 Civil Liability in Law Enforcement (SP) **4-0-4**
Coverage of potential areas of liability such as: tort law, vicarious liability, and civil rights legislation.

LAWE 155 Managing Police Operations (W) **4-0-4**
Managing police operational units such as: investigations, patrol, internal investigations and traffic.

LAWE 201 Emergency Dispatching (TBA) **2-2-3**
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.

LAWE 204 Juvenile Procedures (A,SP) **2-2-3**
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.

LAWE 208 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.

LAWE 210 Crisis Intervention (A,SP) **3-0-3**
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: $10.00.

LAWE 211 Institutional Corrections (A) **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.

LAWE 212 Ohio Criminal Code (A,SP) **3-2-4**
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.

LAWE 213 Techniques of Instruction (On Demand) **3-0-3**
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.

LAWE 218 Supervision of Public Service Personnel (A,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.

LAWE 219 Correctional Law (W) **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.

LAWE 220 Constitutional Law (A,SP) **3-2-3**
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.

LAWE 221 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.

LAWE 223 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.

LAWE 231 Criminal Justice Planning and Analysis (W) **2-2-3**
Decision making and analysis, using research, police resource allocation, project management.

LAWE 232 Task Force/Major Case Management (A) **2-2-3**
The management of groups of people in concentrated effort to effectively handle all facets of a major case or in dealing with emergencies.

LAWE 241 Correctional Internship I (TBA) **0-10-1**
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: LAWE 205. Concurrent: LAWE 249.

LAWE 242 Community Policing (SP) **4-0-4**
Contemporary community policing issues such as crime prevention, community education, and police deployment strategies will be explored. Internal departmental changes and methods of obtaining cooperation and commitment by department personnel will also be examined.

LAWE 243 Forensic Science for Law Enforcement Managers (TBA) **2-2-3**
Managing a forensic laboratory and/or crime scene search unit. Advanced forensic techniques will be explored.

LAWE 244 Budgeting and Grant Writing for Criminal Justice Admin. (TBA) **2-2-3**
This course examines the various frameworks for budgeting and budget management in criminal justice agencies. Students will learn a process for obtaining and managing state, federal, or foundation grants. A sample grant application will be developed.

LAWE 245 Media and the Police (TBA) **3-0-3**
This course will examine the difficult relationship of the media to the police. The development of a departmental media policy, and the utilization of the media for departmental advantage will be explored.

LAWE 249 Corrections Seminar I (TBA) **1-0-1**
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: LAWE 205. Concurrent: LAWE 241.

LAWE 252 Police Administration (A) **3-0-3**
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.

LAWE 253 Criminal Procedure (W,SU) **2-2-3**
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: LAWE 220.

LAWE 254 Correctional Internship II (TBA) **0-10-1**
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: LAWE 241. Concurrent: LAWE 255.

LAWE 255 Corrections Seminar II (TBA) **1-0-1**
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: LAWE 249. Concurrent: LAWE 254.

LAWE 256 Law Enforcement Practicum I (A,W,SP,SU) **0-14-2**
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: LAWE 257.

LAWE 257 Law Enforcement Practicum Seminar I (A,W,SP,SU) **1-0-1**
Seminar discussions of work experience, and development strategies to improve work performance. Prerequisite: Permission of the chairperson. Concurrent: LAWE 256.

LAWE 258 Law Enforcement Practicum II (On Demand) **0-14-2**
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: LAWE 259.

LAWE 259 Law Enforcement Practicum Seminar II (On Demand) **1-0-1**
Seminar discussions of work experience, and development of strategies to improve work performance. Prerequisite: Permission of the chairperson. Lab fee: $5.00. Concurrent: LAWE 258.

LAWE 260 Criminal Evidence and Trial (A,SP) **2-2-3**
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. Lab fee: $5.00.

LAWE 261 Defensive Driving and Emergency Response (SP) **0-4-2**
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. The student will also learn the skills necessary to administer emergency aid until assistance can be obtained. Lab fee: $25.00.

LAWE 263 Unarmed Self Defense (SU) **1-6-4**
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. Prerequisite: LAWE 102.

LAWE 264 Police Firearms (SU) **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: $25.00.

LAWE 265 Police Physical Fitness (A) **1-4-3**
This course will utilize the proven methods developed by the Aerobic Institute in measuring and attaining fitness. A baseline of fitness will be established for each student and an individual exercise program will be decided upon. Class activities may include aerobics, jogging, and if needed, weight training.

LAWE 266 High Rise Safety (A) **1-2-2**
Discussions of the particular problems related to the fire safety in high rise buildings. Students will research and establish life-safety plans for a building. Information gained from previous incidents in high rise buildings will be utilized. Lab fee: $5.00.

LAWE 268 Hazardous Materials I (A) **2-2-3**
An introduction to the properties and behaviors of hazardous chemicals in our environment. A study of the physical and chemical characteristics of toxic, flammable, and reactive substances in the forms of solids, liquids, and gases combined with overview of methods for safely responding to emergencies involving such materials. Emphasis will be placed on safe approach to incident scenes, positive identification of materials, and accurate analysis of the hazards presented by hazardous materials. Lab fee: $6.00.

LAWE 271 Contemporary Issues in Law Enforcement (SP, A) **3-0-3**
A review of important facts in modern law enforcement along with an examination of current topics and trends.

LAWE 273 Legal Computing **2-1-2**
Course is designed to focus on legal style microcomputing for law enforcement and legal assisting personnel. Emphasis is on the legal history, copyright, computer crimes, computer security and legal computer systems. Prerequisite: CPT 101/Optional LEGL 251.

LAWE 275 Police Management Assessment (SP) **3-2-4**
A capstone course in which students participate in typical assessment center evaluation techniques. These techniques include: in-basket/out-basket, written problem solving, structured oral exercise, leaderless group, and subordinate counseling.

LAWE 299 Special Topics in Law Enforcement **3-0-3**
Special Topics in Law Enforcement is a course that utilizes a variety of instructional techniques to meet the needs of the constantly changing law enforcement, corrections, and legal community. The course will be designed with the advice of the particular group requesting the course and/or the Law Enforcement faculty, and Department Chairperson.

Legal Assisting (LEGL)

LEGL 101 Introduction to Legal Assisting (A, W, SP, SU) **4-0-4**
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: ENGL 101 or placement into ENGL 101. Lab fee: $5.00.

LEGL 102 The Legal System (A, W, SP, SU) **2-0-2**
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 or concurrent: LEGL 101. Lab fee: $5.00

LEGL 103 Law Office Procedures and Management (A, W, SP, SU) **3-0-3**
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. Lab fee: $5.00. Prerequisite or concurrent: LEGL 101.

LEGL 111 Legal Research and Writing I (A, W, SP, SU) 3-2-4
An introduction to conducting legal research and the proper methods of preparing briefs, 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. Lab fee: $5.00. Prerequisite: LEGL 101.

LEGL 112 Legal Research and Writing II (A, W, SP, SU) 3-2-4
A continuation of LEGL 111, 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: LEGL 111.

LEGL 113 Legal Research and Writing III (A, SP) 4-2-5
This course is an intense production-oriented research and writing course designed to prepare the student to function under the requirement of rapid completion of research and writing assignments commonly made in law offices, and other legal environments. The student will encounter a variety of opportunities including motions, pleadings and briefs the production of which will require both speed and accuracy, and incorporate both printed and computer-based research strategies. Lab fee: $5.00. Prerequisites: LEGL 112, and LEGL 251.

LEGL 114 Family Law (A, W, SU) 3-0-3
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. Lab fee: $5.00. Prerequisite: LEGL 101.

LEGL 119 Real Estate Transactions (W, SP, SU) 3-0-3
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. Lab fee: $5.00. Prerequisite: LEGL 101.

LEGL 201 General Practice (A, W) 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. Lab fee: $5.00. Prerequisite: LEGL 101.

LEGL 205 Litigation Practice and Procedure I (A, SP, SU) 2-2-3
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. Lab fee: $5.00. Prerequisite: LEGL 101.

LEGL 210 Criminal Law and Procedure (A, W, SU) 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. Lab fee: $5.00. Prerequisite: LEGL 101.

LEGL 215 L.A. Practicum I (A, W, SP, SU) 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.

LEGL 216 L.A. Practicum Seminar I (A, W, SP, SU) 1-0-1
Seminar discussion of work experiences and the development of strategies to improve work performance. Prerequisite: Permission of instructor

LEGL 220 Business Organizations (A, W, SP) 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. Lab fee: $5.00. Prerequisite: LEGL 101.

LEGL 224 Probate Law and Practice I (W, SU) 3-0-3
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. Lab fee: $5.00. Prerequisite: LEGL 101.

LEGL 226 Administrative Law (A, SP) 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. Lab fee: $5.00. Prerequisite: LEGL 101.

LEGL 227 L.A. Practicum II (A, W, SP, SU) 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

LEGL 228 L.A. Practicum Seminar II (A, W, SP, SU) 1-0-1
Seminar discussion of current work experiences and the development of further strategies for improvement. Prerequisite: Permission of instructor

LEGL 229 Certified Legal Assistants Exam Review (A, W, SP) 2-0-2
This course is designed as a review course for the student/graduate wishing to take the Certified Legal Assistant Exam. It will examine all areas of procedural and substantive law included on the CLA exam as well as the ethics section of the test. Students taking the course must successfully pass a mock CLA exam to complete the course. Lab fee: $10.00. Prerequisite: LEGL 228.

LEGL 230 Special Problems in Legal Assisting (on demand) 2-0-2
This course is a special topics course designed to allow the student to research and develop an understanding of legal assisting issues unique to the interests of the student and for which there is no other course available, the content of which will address such issues. This course is offered on an independent study basis only. Prerequisites: Permission of chairperson.

LEGL 232 Taxation (W, SP) 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. Lab fee: $5.00. Prerequisite: LEGL 101.

LEGL 234 Litigation II (W) 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. Lab fee: $5.00. Prerequisite: LEGL 205.

LEGL 236 Probate Law II 3-0-3
The law of guardianship and trusts with emphasis on guardianship administration, land sales and trust accounting. Lab fee: $5.00. Prerequisite: LEGL 224

LEGL 238 Insurance Law (SP, SU) 3-0-3
An introduction to insurance law. The course will include principles of indemnity, interests protected, the transfer of risk and claims processes. Lab fee: $5.00. Prerequisite: LEGL 101.

LEGL 240 Professional Malpractice (A, SP) 3-0-3
An examination of the law of malpractice with an emphasis on malpractice in health professions and an examination of risk management methods in health care. The course will focus on informed consent, vicarious liability of health professionals and health care facilities, negligence, the doctrine of *res ipsa loquitur*, mandatory arbitration, defenses, and medicolegal ethics. Lab fee: $5.00. Prerequisite: LEGL 201.

LEGL 243 Alternative Dispute Resolution Issues Seminar (A, SP, SU) 3-0-3
This course is designed to examine legal, ethical, and policy issues that arise in the use of mediation, arbitration, minitrials, summary jury trial and conciliation and to help you develop mediation skills. Lab fee: $5.00. Prerequisite: LEGL 205.

LEGL 244 Creditor Debtor Relations (A, W) 3-0-3
Insure that the student is aware of the respective rights of creditors and debtors. An introduction to the pre-legal and legal procedures of debt collection. Lab fee: $5.00. Prerequisite: LEGL 220.

LEGL 245 Legal Aspects of Real Estate Title (A, SP) 4-0-4
This course is an in-depth examination of the development of a contract effecting the transfer of real estate, the interests and types of title and ownership, and the methods of title transfer process is emphasized. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 246 Real Estate Title Insurance (A, SP) 4-0-4
This course is designed to define and explore title insurance as a protective instrument for the purchaser of real estate. Both commercial and residential binders will be discussed along with the impact of continuations of abstracts of title, local zoning ordinances, real estate commercial and residential development on the liability of title insurers. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 247 Civil Litigation in Real Estate (W, SU) 4-0-4
This course is an examination of common types of civil litigation relating to real estate transactions. Identification of causes of action will be emphasized along with the practice and procedure to complete the cause. Defenses and ADR will also be discussed. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 248 Searching and Closing the Real Estate Title (W, SU) 4-0-4
This course is designed to examine the process of real estate title searches, and to prepare the student, in detail, to perform commercial and residential real estate title closings. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 251 Computer Assisted Legal Research (A, W, SP, SU) 2-1-2
An elective course designed to give the Legal Assisting student exposure to the ever expanding and utilized area of computer assisted research, an alternative to traditional, manual legal research. The student will be required to complete a series of projects within the different libraries of LEXIS in which the student will become proficient with the various uses and functions of electronic legal information retrieval. Lab fee: $25.00.

LEGL 252 Survey of Advanced Legal Technology (W, SP) 2-1-2
The course will introduce and provide the student with computer training in document management, litigation support, billing, the Internet and Advanced computer assisted legal research. The student will be acquainted with Internet user groups where questions are asked and answered via e-mail and list servs. Legal software that supports legal administration, case management and internal network applications will be emphasized. The course will use cd-roms, extensive computer lab sessions and each student will manage a complete case on an automated platform. The goals of the course will be to provide the student with certain computer competencies that go beyond the basics and allow them to be proactive in the use of technology while at the same time utilizing creative thinking skills. Lab fee: $25.00. Prerequisite: LEGL 112, LEGL 251 or by permission of Chairperson.

LEGL 253 Legal Assisting Law Journal (A, SP) 2-0-2
This course is an opportunity for selected students to participate in the publication of the Columbus State Community College Legal Assisting Law Journal. Students selected will become part of an editorial team, the responsibility of which is to write, edit and publish the Law Journal which is produced two times each year and includes scholarly articles contributed by students, faculty and members of the local legal community. Lab fee: $5.00. Prerequisite: by permission of Chairperson.

LEGL 255 Introduction to Workers' Compensation Law (A,SP) 4-0-4
This course is an introduction to the Bureau of Workers' Compensation. The focus of the course is the structure of the Bureau, with an emphasis on the purpose of the agency, the hierarchy, the authority under which it operates, and basic concepts of Workers' Compensation benefits. Lab fee: $5.00. Prerequisite: LEGL 228 or permission of instructor.

LEGL 256 Introduction to BWC Claims Processing (A,SP) 4-0-4
This course is designed to acquaint the student with how the Bureau of Workers' Compensation process claims made including self-insured of state fund (BWC) claims, the calculation of wages and compensation, payment of medical bills, authorization of medical treatment, as well as how the Bureau addresses motions made, application to reactivate, and permanent partial disability settlements, from injury to resolution. Lab fee: $5.00. Prerequisite: LEGL 228 or permission of instructor.

LEGL 257 Workers' Compensation Adjudication (A,SP) 4-0-4
This course is designed to acquaint the student with how to deal with state agencies, in particular the Bureau of Workers' Compensation from the claimant position. The emphasis of this course is how to acquire information available through state files and computer systems. Violations of specific safety requirements, applications for permanent total disability and the hearing process will be examined. Lab fee: $5.00. Prerequisite: LEGL 228 or permission of instructor.

LEGL 258 Workers' Compensation Rating System (W,SU) 4-0-4
This course is designed to acquaint the student with the different rating plans available through the Bureau of Workers' Compensation to establish appropriate premiums. The emphasis is on the underwriting process of the Bureau. Lab fee: $5.00. Prerequisite: LEGL 228 or permission of instructor.

LEGL 259 Workers' Compensation Practice and Procedure (W,SU) 4-0-4
This course is designed to acquaint the student with the procedures to complete the hearing process in a claim against the Bureau of Workers' Compensation from both the Bureau and claimant perspective. Lab fee: $5.00. Prerequisite: LEGL 228 or permission of instructor.

LEGL 260 Debt Collection Practice and Procedure (A, SP) 4-0-4
This course is an examination of the various legal tools available to creditors to successfully collect delinquent obligations or accounts which are in default. Both formal and informal methods will be explored with an emphasis on resolution mutually beneficial to both debtor and creditor, including Consumer Credit Counseling. Development of records, pleadings, discovery, motions and entries filed in appropriate jurisdictions will be included. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 261 Business Law I (A,W,SP,SU - DL) 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.

LEGL 262 Business Law II (A,W,SP,SU - DL) 3-0-3
A continuation of LEGL 261. Exploring the law of agency, corporation, partnerships, and property. Lab fee: $1.00. Prerequisite: LEGL 261.

LEGL 263 Business Law III (A,W,SP,SU) 3-0-3
An advanced examination of law as it pertains to business with 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: LEGL 262.

LEGL 264 Legal Environment of Business (A, W, SP, SU - DL) 4-0-4
An overview of the American legal system with an introduction to the legal concepts and principles that form its foundation. The course will examine the judicial system and methods of dispute resolution, while focusing on business crimes and torts, including product liability, ethics, contract formation and enforcement, consumer protection, employment law, environmental regulations, business organizations, particularly sole proprietorship, partnerships, and corporations. Students will be able to understand the legal ramifications of their business decisions. Lab fee: $2.00.

LEGL 265 Business Law for Accountants (A, W, SP, SU) 4-2-5
An in-depth examination of business law as it applies to the accounting discipline with an emphasis on those topics directly relating to the Business Law section of the Certified Public Accountants Examination, including Professional Responsibility of the C.P.A. Lab fee: $5.00.

LEGL 266 Liability Issues in Health Occupations (On Demand) 3-0-3
An examination of liability concerns in health occupations; examination of risk management methods in health care. The course will focus on informed consent, medical malpractice and vicarious liability issues. Lab fee: $5.00. Prerequisite: ENGL 101.

LEGL 267 Legal Medical Consulting Practicum 0-4-2
The practicum is a cumulative class in which the student will demonstrate proficiency and competency in the substantive medicolegal course work completed in an actual employment environment working in the field, supervised by the sponsor and the instructor. Taken with permission only. Prerequisite: LEGL 112 and LEGL 205. Concurrent: LEGL 268.

LEGL 268 Legal Medical Consulting Seminar 1-0-1
The practicum seminar in a class in which the students participating in the practicum program will meet as a group, once per week, to discuss the experiences of the practicum and collectively explore methods and strategies of improving work performance in the practicum. Taken with permission only. Prerequisite: LEGL 112 and LEGL 205. Concurrent: LEGL 267.

LEGL 269 Consumer Law (W, SU) 4-0-4
This course is an examination of the various state and federal statutes and regulations that govern the relationship of debtor and creditor. Statutes discussed include, but are not limited to the Fair Debt Collection Act, Uniform Consumer Credit Code (UCCC) and Article 9 of the Uniform Commercial Code (UCC). Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 270 Current Trends in Alternate Dispute Resolution (A, SP) 4-0-4
The course is designed to provide the student an in-depth examination of the origins, historical basis and statutory/judicial decisions regarding the establishment of ADR procedures and its growth and impact on American jurisprudence and everyday society. It is assumed that the student has a basic knowledge of ADR procedures. The student will complete a major research project on future trends of ADR and its impact on law, business, society and its use in the global economy. Class lecture, independent research and class debates discussing the advantages and disadvantages of the ADR process will be held. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 272 Mediation (W, SU) 4-4-4
This course is an intensive overview of the mediation process. Students will study, in-depth, both statutory and private mediation processes. Students will review domestic relations mediation, employment fact-finding and labor mediation processes. Additionally, the student will learn the different models of mediation with particular emphasis on the Seven Step model. Each student will be involved in preparing and conducting several mediation role playing sessions as both mediator and participants. The fundamentals of researching Arbitration decisions and legal resources in arbitration will be examined with special emphasis on Internet resources. Each student will conduct a mediation in class and prepare a mediation notebook as a final project. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 273 Conflict Resolution and Negotiation (W, SU) 4-0-4
This course will introduce and provide the student with the mechanics of client interviewing, nonverbal cues, descriptions of conflicts. Methods of resolving conflicts, a study of various negotiation strategies with the "Getting To Yes" (Win-Win) model emphasized. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 274 Survey of Miscellaneous ADR Procedures (W, SU) 4-0-4
The course will focus on several ADR methods and procedures which are statutorily created and privately contracted in the resolution of business disputes. Hire-A-Judge, Summary Jury Trial, mini-trails and international ADR methods will be examined and compared. Each student will prepare the necessary forms and summaries needed to complete these ADR processes. The goals of this course will to be emphasize the role of the paralegal in researching, investigating, compiling, and preparing for the ADR process. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 275 Overview of Bankruptcy Law and Practice (A, SP) 4-0-4
This course is designed to acquaint the student with the statutory and regulatory structure, location and jurisdiction of bankruptcy law and bankruptcy courts and their non-judicial officers. Parties and proceedings will be discussed as well as an overview of the bankruptcy chapters. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 276 Liquidation Proceedings: Chapter 7 Bankruptcy (A, SP) 4-0-4
This course is in-depth examination of Chapter 7 of the Bankruptcy Code and the proceedings for liquidation of a debtors assets pursuant to Chapter 7. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 277 Reorganization Under Chapter 11 Bankruptcy (A, SP) 4-0-4
This course will introduce and intensively examine Chapter 11 (Reorganization Process). The course is designed to provide the student with the abilities to complete the necessary forms and an understanding of the statutory requirements of this legal action. A comparison of Chapter 11 with Chapters 7 and 13 and the advantages and disadvantageous of each. Strategies and negotiation with creditors will be explored and each student will write several plans and analyze the chances of being confirmed by the court. Research and drafting of the necessary documents and responding to motions will be emphasized. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 278 Adjustment of Debts Under Chapter 13 Bankruptcy (W, SU) 4-0-4
This course is an in-depth examination of Chapter 13 of the Bankruptcy Code and the proceedings for the reorganization of debt pursuant to Chapter 13.

LEGL 279 Alternatives to Bankruptcy (W, SU) 4-0-4
The course emphasizes workouts and other alternatives to bankruptcy from both the debtor's perspective and the creditor. Case studies in successful workouts will be analyzed. Negotiating strategies and different solutions to resolve credit problems will be highlighted. Federal and Ohio Consumer Protection Statutes are examined with an emphasis on the Fair Debt Collection Practices Act. The student will draft the necessary documents to complete a workout and research key legal issues regarding consumer rights and protection. In addition, future trends in bankruptcy law, courts, and practices are studied. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 280 Introduction to Elder Law (A, SP) 3-0-3
This course is designed to introduce the student to various social and legal issues relevant to the elder person and the methods available to such persons to resolve common legal issues confronted by the same. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 281 Social Security Practice and Procedure (A, SP) 4-0-4
This course is designed to introduce the student to the origination of Social Security, its jurisdiction and regulation, and the practice and procedure within the Social Security Administration. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 282 Medicare/Medicaid and the Elder Person (W, SU) 4-0-4
This course is designed to introduce the student to the origination of Medicare and Medicaid, the jurisdiction and regulation of the same, and appropriate practice and procedure for the resolution of Medicare and Medicaid issues. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 283 Asset Protection for the Elder Person (W, SU) **4-0-4**
This course is an examination of various methods appropriate for designing protective measures for the preservation of assets of the elder person as they encounter either catastrophic or long term medical or nursing care. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 285 Estate Administration (A, SP) **4-0-4**
This course id designed to familiarize the student with the various methods of estate administration including full administration of testate and intestate estates and the process of completing the same, including introduction to tax forms, and relief from administration. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 286 Guardianships (A, SP) **4-0-4**
This course is designed to introduce the student to the law of guardianship and the application of the same within the jurisdiction of probate courts. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 287 Wills, Trusts and Powers of Attorney (W, SU) **5-0-5**
This course is an in-depth examination of the law relating to wills, trusts, and powers of attorney, the development and execution of the same, and the application of these probate tools to development and protection of estates. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 288 Civil Issues in Probate (W, SU) **4-0-4**
This course is designed to introduce the student to the variety of matters addressed by the probate court other than will, trusts and estates, including the resolution of petitions for name changes, legitimation, marriages, ancillary administration, adoptions, land sale proceedings, and the involvement of the court in wrongful death actions.

LEGL 289 Probate Taxation (W, SU) **3-0-3**
This course is designed to introduce the student to the aspects of state and federal taxation as the law applies to estates. The student will examine the state and federal tax codes, conduct research and complete applicable tax forms to complete the state. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 290 Legal Aspects of Credit and Debt (A, SP) **4-0-4**
This course is an overview of the creation and development of the various relationships created and developed by debtors and creditors, including but not limited to secured and unsecured debt, mortgages, credit reporting, and the rights and obligations of each under state and federal law and common law. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

LEGL 291 Arbitration (A, SP) **4-0-4**
The course is an intensive overview of the Arbitration Process. Students will study in-depth both court annexed arbitration and private arbitration processes. The fundamentals of researching Arbitration decisions and legal resources in arbitration will be examined with special emphasis on Internet resources. Each student will conduct an arbitration in class and prepare an arbitration notebook as a final project. Lab fee: $5.00. Prerequisite: LEGL 228 or by permission of Chairperson.

Legal Office Administration Major
(See Office Administration)

Literature
(See English)

Logistics (LOGI)

LOGI 100 Principles of Logistics (A,W,SP,SU) **5-0-5**
A study of the basic concepts included in the field of logistics with particular emphasis on the economic significance of distribution to business and the U.S. economy. The interrelationship between logistics and other areas of business will be covered with particular emphasis on how logistics can significantly impact customer loyalty by adding value. Other topics include distribution and distribution terminology and an overview of transportation regulations, traffic management, inventory control, warehousing and global distribution issues. Lab fee: $3.00.

LOGI 110 Transportation & Traffic Management (A,SP) **3-0-3**
Introduction to traffic management function including mode and carrier selection, Lab fee: $3.00. Prerequisite: LOGI 100.

LOGI 151 Purchasing Principles I (A) **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 knowledge. Topics covered include: the challenge of purchasing and materials management, objectives and organization, function, specification, quality control and inspection, computerization, and quality considerations. Lab fee: $3.00.

LOGI 152 Purchasing Principles II (W) **3-0-3**
This course is a continuation of Purchasing Principles I and focuses on how the basis of good buying can be used effectively to meet the challenges and responsibilities of the constantly changing business climate. Topics include: forward buying, international purchasing, buying capital assets and purchasing transportation services. Lab fee: $3.00. Prerequisite: LOGI 151.

LOGI 205 Freight Claims (W) **3-0-3**
A study of freight loss, damage claims, and adjustment of claims in various modes of transportation including carrier and shipper liability, transportation document, and claim filing procedures. Lab fee: $3.00. Prerequisite: LOGI 100.

LOGI 208 Production and Inventory Control (A,SP) **4-0-4**
A study of inventory problems as they relate to manufacturing and service firms. Lot sizing and order management techniques will be studied. Lab fee: $3.00. Prerequisites: LOGI 100, MATH 135 or permission of instructor.

LOGI 209 Quantitative Methods for Logistics (W) **5-0-5**
A study of quantitative tools helpful to the logistics professional. This course is recommended for the advanced student or the working professional. Lab fee: $13.00. Prerequisite: LOGI 100 and permission of instructor.

LOGI 210 Warehouse Management (W,SU) **3-0-3**
Analysis of warehousing functions and management. Topics covered include facility location and operation, labor relations, financial analysis and productivity improvement and measurement. Lab fee: $3.00. Prerequisite: LOGI 100.

LOGI 225 Export/Import (A) **3-0-3**
A study of global logistics with emphasis on the requirements for importing and exporting. Laws, regulations, paperwork and international billing terms will be discussed. Lab fee: $3.00. Prerequisite: LOGI 100.

LOGI 240 Transportation Law/Regulations (W) **2-0-2**
A study of transportation law and regulation, with emphasis on shipper responsibilities. Claims, undercharge avoidance, contracting, and the shipper's bill of lading are discussed. Lab fee: $3.00. Prerequisite: LOGI 100.

LOGI 241 Logistics Practicum I (A,W,SP,SU) **0-28-4**
Supervised on-the-job application of knowledge and skills acquired in the classroom. Lab fee: $3.00. Prerequisite: Advisor approval required. Open to Logistics Management Technology students only. Concurrent: LOGI 242.

LOGI 242 Logistics Seminar I (A,W,SP,SU) **0-4-2**
Application of logistics knowledge to specific areas of on-the-job experience. Prerequisite: Advisor approval required. Open to Logistics Management Technology students only. Lab fee: $3.00. Concurrent: LOGI 241.

LOGI 245 Transportation Rates & Pricing (SP) **2-0-2**
A course of transportation rates and pricing, including carrier cost structures and industry economics. Emphasis will be on negotiation of favorable rates from carriers and proper preparation for same. Lab fee: $3.00. Prerequisite: LOGI 100.

LOGI 256 Advanced Purchasing Seminar (SP) **3-0-3**
A capstone course designed for the Purchasing Management major. A comprehensive case study approach will be used to understand purchasing as the primary materials procurement activity while integrating purchasing with other materials management activities. Topics cover include: legal consideration, public purchasing, the planning process, and control functions such as inventory control, budgeting, and production. Lab fee: $3.00. Prerequisite: LOGI 152.

LOGI 271 Advanced Logistics (SP,SU) **5-0-5**
A capstone course designed to develop an overall appreciation of the logistics function and its relationship to business strategy. Lab fee: $3.00. Prerequisites: Completion of at least 12 credit hours in logistics or advisor approval and MATH 135.

LOGI 297 Special Topics in Logistics (On Demand) **1-3**
Detailed examination of special topics of interest in logistics. Topics vary. Lab fee: $3.00.

Marketing (MKTG)

MKTG 111 Marketing Principles (A,W,SP,SU - DL) **5-0-5**
The fundamentals of product planning, pricing, promotion and distribution of goods and services with emphasis on the impact of a global economy and technology on marketing activities. Additional attention is given to consumer behavior, market research and market strategies. Lab fee: $3.00.

MKTG 122 Business & the Internet (A,SP) **2-2-3**
An overview of how to use the Internet to gather and evaluate primary and secondary sources of business information for production development, market research, sales, advertising and promotion and customer service/retention. Lab fee: $13.00.

MKTG 131 Market Research Principles (A,SU) **3-0-3**
An introduction to the field of market research with particular emphasis on how to use research data to make better marketing decisions. Topics covered include the market research process, research design and data sources, data collection and the analysis of marketing research data. Lab fee: $3.00. Prerequisites: MKTG 111 and MATH 101 or instructor approval.

MKTG 140 Advertising and Promotion (A,SP) **5-0-5**
An introduction to the critical role that advertising and promotion play in marketing activities. Topics covered include promotional program development and analysis, the communications process and evaluating an integrated marketing communications program. Lab fee: $3.00. Prerequisite: MKTG 111 or instructor approval.

MKTG 221 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. Lab fee: $3.00. Prerequisite: MKTG 111 or instructor approval.

MKTG 223 Sales (A,SP) **3-0-3**
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 of the sale will be taught. Lab fee: $3.00. Prerequisite: MKTG 111 or instructor approval.

MKTG 224 Public Relations (A,SP) **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: $3.00. Prerequisite: MKTG 111 or instructor approval.

MKTG 226 Customer Service Principles (A,W,SP,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: $3.00. Prerequisite: MKTG 111 or instructor approval.

MKTG 227 Customer Service Case Studies (W,SP) **3-0-3**
A study of the process for achieving excellence in customer service. Key quality characteristics will be explored and techniques will be developed for measuring and delivering excellent service. Lab fee: $3.00. Prerequisite: MKTG 226 or instructor approval.

MKTG 228 Advanced Sales (W) **3-0-3**
This course is designed to help students understand the thought processes, motives and attitudes that impact the selling process. Topics covered include the 'system' used by sellers and buyers, the visual perception of behavior, the success triangle and self management. Case studies, role playing and team projects are an integral part of this course. Lab fee: $3.00. Prerequisite: MKTG 223 or instructor approval.

MKTG 229 Business-to-Business Marketing (A) **3-0-3**
A comprehensive overview of the marketing principles and practices utilized in business-to-business marketing. An empirical approach is taken to analyzing marketing strategy in business to business environments. Additional emphasis is placed on organizational marketing, future trends and the impact of technology on business-to-business marketing. Lab fee: $3.00. Prerequisite: MKTG 111 or instructor approval.

MKTG 230 Small Business Marketing (SP) **3-0-3**
The course provides the student a set of management techniques that will be applied directly to the marketing challenges faced by a small business in such areas as sales, public relations, distribution and market research. Students will develop a comprehensive marketing plan. Lab fee: $3.00. Prerequisites: MKTG 111 or permission of instructor.

MKTG 236 Direct Marketing (A,SP) **3-0-3**
A survey of the direct marketing process including the theory and practice of direct marketing, its function and organization. Topics covered include direct response television/radio, database marketing, list selection and evaluation, direct marketing media and planning. Special emphasis is placed on how to integrate direct marketing into the overall marketing mix. Lab fee: $3.00. Prerequisite: MKTG 111 or instructor approval.

MKTG 237 Database Marketing (W) **3-0-3**
An overview of the use of databases in consumer and business-to-business marketing to both acquire and retain customers. Particular emphasis is placed on developing in-house databases, list purchase and managing a marketing database. Lab fee: $3.00. Prerequisite: instructor approval.

MKTG 241 Marketing Practicum I (A,W,SP,SU) **0-28-4**
Supervised on-the-job application of knowledge and skills acquired in the classroom. Lab fee: $3.00. Prerequisite: 12 hours in technology or permission of instructor. Concurrent: MKTG 242.

MKTG 242 Marketing Seminar I (A,W,SP,SU) **0-4-2**
Application of marketing knowledge to specific areas of on-the-job internship. Lab fee: $3.00. Prerequisite: Open to Marketing Technology students only, permission of instructor. Concurrent: MKTG 241.

MKTG 251 Marketing Practicum II (A,W,SP,SU) **0-28-4**
Continuation of MKTG 241. Lab fee: $3.00. Prerequisites: MKTG 241 and advisor approval required the quarter before the student actually begins the internship. Open to Marketing Technology students only. Concurrent: MKTG 252.

MKTG 252 Marketing Seminar II (A,W,SP,SU) **0-4-2**
Application of marketing knowledge to specific areas of on-the-job internship. Lab fee: $3.00. Prerequisite: MKTG 242. Open to Marketing Technology students only. Concurrent: MKTG 251.

MKTG 260 Direct Marketing Using Electronic Media (SP) **2-2-3**
An overview of electronic marketing media and how to integrate marketing strategies using these media with traditional marketing plans. Special emphasis is placed on promotional opportunities and market research that are possible using electronic media. Lab fee: $13.00. Prerequisite: MKTG 236 or permission of instructor.

MKTG 261 Financial Analysis of Direct Marketing Results (SU) **3-0-3**
Overview of the bases and uses of financial and decision-making methods in consumer and business-to-business direct marketing. Particular emphasis on list database acquisition and maintenance costs, costs of creative and production, and overall assessment of program using ROI. Lab fee: $3.00. Prerequisite: MKTG 236 or permission of instructor.

MKTG 262 Telemarketing (W) **3-0-3**
An overview of both outbound and inbound telemarketing activity and its role as part of a comprehensive direct marketing effort. Topics covered include developing marketing objectives, script preparation and implementation, customer list acquisition, and measuring results. Lab fee: $3.00. Prerequisite: MKTG 236 or permission of instructor.

MKTG 263 Direct Marketing Creative (A) **3-0-3**
Overview of how to create and evaluate effective direct response materials. Topics covered include: establishing a "unique selling proposition", copywriting guidelines, how to use graphic support, offer development, and the inclusion of token/stamps to increase audience interaction. Special attention is given to how to select appropriate formats including computerized letters, self-mailers, broadsides, and brochures. Lab fee: $3.00. Prerequisite: MKTG 236 or permission of instructor.

MKTG 264 Call Center Operations (SP) **3-0-3**
Introduction to the concepts and skills needed to be an effective telephone call service center supervisor. Topics covered include call center theory, impact of technology on operations, interpersonal communications, telecommunications techniques and supervisor techniques. Lab fee: $3.00. Prerequisite: MKTG 227 or permission of instructor.

MKTG 271 Advanced Marketing (A,SP) **5-0-5**
A capstone course designed to develop a broader understanding of the marketing function and its relationship to business strategy. Students will use the case method to determine appropriate marketing strategies and plans for existing organizations. Lab fee: $3.00. Prerequisite: Completion of at least 12 credit hours in technology and ACCT 106 or advisor approval.

MKTG 281 Advanced Direct Marketing (SP) **5-0-5**
A capstone course for direct marketing majors designed to provide a comprehensive understanding of direct marketing activities. Students will use the case method to determine appropriate direct marketing strategies and plans for various existing organizations. Lab fee: $3.00. Prerequisites: Completion of at least 12 credits in technology. Open to Direct Marketing majors only.

MKTG 291 Advanced Customer Service (SP) **5-0-5**
A capstone course for customer service majors designed to provide a comprehensive understanding of customer service and consumer affairs, particularly as they impact corporate goals and strategies. Students will use the case method to determine appropriate customer service strategies and plans for various organizations. Lab fee: $3.00. Prerequisites: Completion of at least 12 credits in technology. Open to Customer Service majors only.

MKTG 297-298 Special Topics in Marketing (On Demand) **1-3**
Detailed examination of various topics in marketing. Prerequisites vary.

Mathematics (MATH)

MATH 100 Calculations and Dosages (A,W,SP,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; children's dosages; intravenous calculations. Lab fee: $1.00. Prerequisite: DEV 030 with a grade of "C" or higher, or by placement. Meets degree requirement for the Veterinary and Medical Assisting Technologies.

MATH 101 Business Mathematics (A,W,SP,SU - DL) **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: $4.00. Prerequisite: DEV 031 with a grade of "C" or higher, or by placement. Meets degree requirement for the AAS degree in Business Management and several other technologies.

MATH 102 Beginning Algebra I (A,W,SP,SU) **4-0-4**
Review of structure and properties of real numbers; distance between two points on the number line; interval notation; numerical expressions with grouping symbols and exponents; evaluating and simplifying algebraic expressions; properties of exponents applied to monomial expressions; solving linear equation algebraically; formulas; problem solving using linear equations; introduction to the Cartesian coordinate system; graphing on the TI-82/83 calculator; linear equations in two variables; slope of a line; writing the equation of a line. Lab fee: $1.00. Prerequisite: DEV 031 with a grade of "C" or higher, or by placement. Not open to students with credit for MATH 103 or above. A TI-82/83 graphing calculator is required. Computer-based learning: Some sections of MATH 102 will be taught each quarter providing a multimedia learning opportunity, with coursework offered on a computer. A $65.00 la fee is charged which covers the cost of all software and textbooks.

MATH 103 Beginning Algebra II (A,W,SP,SU) **4-0-4**
Review of linear equations in two variables and slope, writing the equation of a line; relations and functions; function notation and evaluation; solving linear equations algebraically and graphically; solving systems of equations in two variables, problem solving using systems of equations; operations with polynomials; factoring polynomials; solving polynomial equations using zero-factor principal; operations with rational expressions; complex fractions. The TI-82/83 graphics calculator will be used to enhance problem solving and critical thinking skills. Lab fee: $1.00. Prerequisite: MATH 102 with a grade of "C" or higher, or by placement. Not open to students with credit for MATH 104 or above. A TI-82/83 graphing calculator is required. Computer-based learning: Some sections of MATH 103 will be taught each quarter providing a multimedia learning opportunity, with coursework offered on a computer. A $65.00 la fee is charged which covers the cost of all software and textbooks.

MATH 104 Intermediate Algebra (A,W,SP,SU) **5-0-5**
Interval notation; function notation and evaluation; absolute value, rational, radical and quadratic equations; analytical and graphical approaches to solving equations; linear inequalities and systems of inequalities in two variables; double and compound inequalities in one variable; operations with rational and irrational expressions; introduction to non-real numbers; applications using inequalities, rational models, and quadratic models. Lab fee: $1.00. Prerequisite: MATH 103 with a grade of "C" or higher, or by placement. Not open to students with credit for MATH 110, 111, 112, 113, 125, 130, or 148 and above. A TI-82/83 graphing calculator is required. Computer-based learning: Some sections of MATH 104 will be taught each quarter providing a multimedia learning opportunity, with coursework offered on a computer. A $65.00 la fee is charged which covers the cost of all software and textbooks.

MATH 105 Mathematics for Elementary Teachers I (A,SP) **5-0-5**
Development of basic concepts of arithmetic and algebra as appropriate for elementary school teachers. Instruction will focus on the development of these concepts through the use of hands on manipulatives, calculators, computers and computer software programs. The role of technology in the teaching and learning mathematics will be demonstrated. Lab fee: $1.00. Prerequisites: MATH 104 or MATH 110 with a grade of "C" or higher, or by placement.

MATH 106 Mathematics for Elementary Teachers II (W,SU) **5-0-5**
A continuation of MATH 105. Development of basic concepts of geometry and statistics as appropriate for elementary school teachers. Instruction will focus on the development of these concepts through the use of hands on manipulatives, calculators, computers, and computer software programs. The role of technology in the teaching and learning of mathematics will be demonstrated. Lab fee: $1.00. Prerequisite: MATH 105 with a grade of "C" or higher.

MATH 107 Intensified Algebra I (A,W,SP,SU) **5-0-5**
This course is intended for those students who need a quicker review of algebra than what is provided in MATH 102 and 103. A brief review of the Real Number System; interval notation; simplifying algebraic expressions; properties of integer exponent; the coordinate plane; function notation and evaluation; solving linear equations and inequalities; applications of linear equations and inequalities; compound inequalities; absolute value equations and inequalities and their applications; properties of linear functions: slope, ex- and y-intercepts; equations of lines: slope-intercept and point-slope; special equations of horizontal and vertical lines. Lab fee: $1.00. Prerequisite: By Compass placement or department chairperson approval. Not open to students with credit for MATH 110, 111, 112, 113, 125, 130 or 148 and above. A TI-82/83 graphing calculator is required.

MATH 110 Intensified Algebra II (A,W,SP,SU) **5-0-5**
This course is intended for those students who need a quicker review of algebra than what is provided in MATH 103 and 104. Systems of linear equations and inequalities; operations on polynomials; factoring polynomials; solving quadratic equations using the zero-factor property, completing the square method, and the quadratic formula; solving rational and radical equations; simplifying rational and radical expressions; properties of radicals and rational exponents; applications of quadratic and rational equations; complex fractions; introduction to the Complex Number System; solving equations in quadratic form; quadratic functions. Lab fee: $1.00. Prerequisite: MATH 107 with a grade of "C" or higher, or by placement, or by permission of department chairman. Not open to students with credit for MATH 111, 112, 113, 125, 130 or 148 or above. A TI-82/83 graphing calculator is required.

MATH 111 Technical Mathematics I (A,W,SP,SU) **3-2-4**
A brief review of scientific notation, roots and radicals, and other algebraic concepts; 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. A TI-85/86 graphing calculator is required. Lab fee: $1.00. Prerequisite: MATH 103 or MATH 107 with a grade of "C" or higher, or by placement. Meets degree requirement for several technical programs.

MATH 112 Technical Mathematics II (A,W,SP,SU) **3-2-4**
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. A TI-85/86 graphing calculator is required. Lab fee: $1.00. Prerequisite: MATH 111 with a grade of "C" or higher. Not open to students with credit for MATH 150. Meets degree requirement for technical programs.

MATH 113 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. A TI-85/86 graphing calculator is required. Lab fee: $1.00. Prerequisite: MATH 112 with a grade of "C" or higher. Not open to students with credit for MATH 150. Meets degree requirement for Electronic Engineering Technology and Mechanical Engineering Technology.

MATH 121 Computer Science Math (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; a comparison of decimal, binary, octal, and hexadecimal numeration systems, conversions, and arithmetic in those systems; definitions, symbols, and operations in set theory; logical operators with truth tables and flowcharts and Boolean Algebra. Lab fee: $1.00. Prerequisite: MATH 103 with a grade of "C" or higher, or by placement. Meets degree requirement for the Computer Programming Technology, the Computer Electronics major of the Electronic Engineering Technology, and the EDP Auditing major of the Accounting Technology.

MATH 125 Mathematics in a Modern World (A,W,SP,SU) **5-0-5**
Mathematics will be used to examine real world data.. Topics will include linear, quadratic, exponential, and logarithmic functions, and their inverses, systems of equations and inequalities, matrices, and graphing solutions to linear programming. Problems from a variety of disciplines will be studied through mathematical modeling. A TI-82/83 graphing calculator is required. Lab fee: $1.00. Prerequisite: MATH 104, MATH 107 or MATH 111 with a grade of "C" or higher, or by placement. This course is designed for the student who does not intend to take additional courses in mathematics. Meets the general education requirement for the AA degree. Not open to students with credit for MATH 130 or 148 or above.

MATH 130 Mathematical Analysis for Business I (A,W,SP,SU) **5-0-5**
A review of algebra fundamentals including rational expressions, exponential rules, solving quadratic equations, and solving linear inequalities. A review of function notation. An introduction to modeling of linear, quadratic, exponential, and logarithmic functions. The mathematics of finance including compound interest, annuities, amortization and sinking funds. Arithmetic and geometric progressions. Business applications throughout. A TI-82/83 graphing calculator is required. Lab fee: $1.00. Prerequisite: MATH 104 or MATH 110 with a grade of "C" or higher, or by placement. Not open to students with credit for MATH 148 or MATH 150. Meets general education requirement for the AA degree for a student planning to transfer to a business college at a four-year university.

MATH 131 Mathematical Analysis for Business II (A,W,SP,SU) **5-0-5**
An introduction to finite mathematics; matrices; determinants; linear programming; simplex method; interpretation of graphs; applications. A TI-82/83 graphing calculator is required. Lab fee: $1.00. Prerequisite: MATH 130 or MATH 148 with a grade of "C" or higher, or permission of Mathematics Department. Not open to students with credit for MATH 151. Meets general education requirement for the AA degree for a student planning to transfer to a business college at a four-year university.

MATH 132 Business Calculus (A,W,SP,SU) **5-0-5**
An introduction to differential and integral calculus: Limits, continuity, derivatives, curve sketching, anti-differentiation, definite integrals, the Fundamental Theorem of Calculus, area, and calculus applications for business and economics. A TI-82/83 graphing calculator is required. Lab fee: $1.00. Prerequisite: MATH 131 with a grade of "C" or higher. Meets general education requirement for the AA degree for a student planning to transfer to a business college at a four-year university. Not open to students with credit for MATH 151 or MATH 152.

MATH 135 Elementary Statistics (A,W,SP,SU) **5-1-5**
Descriptive statistics; percentiles and z-scores; probability; binomial and normal distributions; Central Limit Theorem; sampling statistics; statistical inference, estimation; testing hypothesis; linear correlation and regression. Microcomputers will be used. A TI-82/83 graphing calculator is required. Lab fee: $5.00. Prerequisite: MATH 103 with a grade of "C" or higher, or by placement. Not open to students with credit for MATH 233. Meets basic related requirements for several AAS Degree technical programs. MATH 135 may be available as an honors class.

MATH 147 Trigonometry Module (On Demand) **1.2-0-1.2**
Right triangle and unit circle trigonometry is studied along with related trigonometric applications. A TI-82/83 graphing calculator is required. Calculators that can do symbolic manipulations are not allowed. Prerequisite: Permission from the Mathematics Department Chairperson. This module is intended to prepare students who have an adequate algebra background but lack the necessary trigonometry to succeed in Physics 117, Physics 181, or Physics 183.

MATH 148 College Algebra (A,W,SP,SU) **5-0-5**
The concept of function is used to analyze quadratic, higher degree polynomial, and rational functions. The function concept is applied to solving related equations and inequalities. Right triangle and unit circle trigonometry is included, along with related triangle applications. Conic sections are defined and analyzed. A TI-82/83 graphing calculator is required. Calculators that can do symbolic manipulations are not allowed. Lab fee: $1.00. Prerequisite: MATH 104, MATH 110, or MATH 111 with a grade of "C" or higher, or by placement. Meets general education requirement for AA degree. Not open to students with credit for MATH 150 and above. MATH 148 may be available as an honors class or as an honors contract.

MATH 150 PreCalculus (A,W,SP,SU) **5-0-5**
A continuation of the study of functions, including the exponential, logarithmic, and trigonometric functions; triangle trigonometry, analytic trigonometry; applications of trigonometry; the trigonometric form of complex numbers; vectors; parametric equations; and polar coordinates. A TI-82/83 graphing calculator is required. Calculators that can do symbolic manipulations are not allowed. Lab fee: $1.00. Prerequisite: MATH 148 with a grade of "C" or higher. Meets general education requirement for AA degree. Not open to students with credit for MATH 151 or above.

MATH 151 Calculus and Analytic Geometry I (A,W,SP,SU) **5-0-5**
An introduction to differential calculus: functions; limits, continuity, derivatives, differentiation rules, derivatives of the trigonometric functions; related rates, extrema, curve sketching, optimization, antiderivatives; applications to problems in science and engineering. Lab fee: $1.00. Prerequisite: MATH 113 or MATH 150 with a grade of "C" or higher, or permission of the Mathematics Department. Meets general education requirement for AS and AA degrees. MATH 151 may be available as an honors class or as an honors contract.

MATH 152 Calculus and Analytic Geometry II (A,W,SP,SU) 5-0-5
Introduction to integral calculus: definite integral, area under a curve, Fundamental Theorem of Calculus, integration of exponential, logarithmic, trigonometric, inverse trigonometric, and volume and surface area of solids of revolution, arc-length, and methods of integration. Applications to problems in science and engineering. Lab fee: $1.00. Prerequisite: MATH 151 with a grade of "C" or higher. Meets general education requirement for AS and AA degrees.

MATH 153 Calculus and Analytic Geometry III (A,W,SP,SU) 5-0-5
Continuation of differential and integral calculus: L'Hopital's Rule and indeterminate limits, improper integrals, infinite sequences and series, conic sections, plane curves and polar coordinates, vectors in the plane and in space, and analytic geometry in space. Applications to problems in science and engineering. Lab fee: $1.00. Prerequisite: MATH 152 with a grade of "C" or higher. Meets general education requirement for AS and AA degrees.

MATH 233 Statistics for Business (A,W,SP,SU) 5-1-5
Numerical and graphical descriptions of sample data; measures of central tendency and dispersion; probability; Bayes' Theorem; the binomial, Poisson, uniform, exponential, and normal distributions; sampling distributions, the Central Limit Theorem. Applications to the business sciences. Microcomputers will be used. Lab fee: $5.00. Prerequisite: MATH 132 or MATH 152 with a grade of "C" or higher. Meets general education requirement for AS and AA degrees.

MATH 254 Multivariable Calculus (A,W,SP,SU) 5-0-5
Introduction to multivariable calculus; vector valued functions and motion in the plane and in space, functions of several variables, partial derivatives, directional derivatives, gradients, extrema, multiple integrals, line integrals and Green's Theorem; applications to problems in science and engineering. Lab fee: $1.00. Prerequisite: MATH 153 with a grade of "C" or higher. Meets general education requirement for the AS and AA degrees.

MATH 255 Elementary Differential Equations I (A,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. Lab fee: $1.00. Prerequisite: MATH 254 with a grade of "C" or higher. Meets general education requirements for AS and AA degrees.

MATH 256 Elementary Differential Equations II (W,SP,SU) 5-0-5
Partial differential equations; boundary value problems; Bessel Functions; orthogonality relations; Fourier series; vibrating string; steady state heat; LaPlace transforms; with applications. Lab fee: $1.00. Prerequisite: MATH 255 with a grade of "C" or higher. Meets general education requirements for the AS and AA degrees.

MATH 266 Discrete Mathematical Structures (A,W,SP,SU) 5-0-5
Mathematical formalization and reasoning: logic; Boolean algebra; sets, relations, and functions; recursive definitions; mathematical induction; probability theory and counting principles. Lab fee: $1.00. Prerequisite: MATH 152 with a grade of "C" or higher. Meets general education requirements for the AS and AA degrees.

MATH 268 Elementary Linear Algebra (W,SP) 5-0-5
Linear systems, matrices, and determinants; vector spaces, R^N and its subspaces; Eigenvalues, Eigenvectors, and applications; orthogonal matrices; linear transformations; and complex scalars; with applications. Lab fee: $1.00. Prerequisite: MATH 254 with a grade of "C" or higher, or permission of Mathematics Department. Meets general education requirement for the AS and AA degrees.

MATH 285 Ordinary and Partial Difference Equations (A,W,SP) 6-0-6
Ordinary and partial linear and nonlinear differential equations; Fourier series; boundary value problems. Applications to engineering and the physical sciences. Lab fee: $1.00. Prerequisite: MATH 254 with a grade of "C" or higher, or permission of the Mathematics Department. Not open to students with credit for MATH 255. Meets general education requirement for the AS and AA degrees.

MATH 290 Capstone in Mathematics 2-2-3
A capstone course focusing on mathematics. This course is intended to provide the student with an introduction to a baccalaureate major in the mathematical sciences. Topics include the historical and philosophical developments of mathematics and how they affect the advancements of mathematics; the interdependence of science, technology, and mathematics; mathematical methods and how they are used in modeling problems in science and engineering; majoring in mathematics and professional career opportunities. The laboratory utilizes a scholarly approach to reviewing research in mathematics or the history of mathematics, taking students through the process of identifying a research topic, conducting a literature review, writing a paper, and presenting the results. This course is required of all students in the AA or AS degree program preparing for a major in one of the mathematical sciences. Lab fee: $10.00. Prerequisite: MATH 152.

Mechanical Engineering (MECH)

MECH 110 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 blueprint reading, manufacturing organizations, employment opportunities and career paths to jobs in the engineering technology professions.

MECH 111 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 include casting, separating, forming, conditioning, assembling, and finishing. Lab fee: $5.00.

MECH 112 Computer Applications in Manufacturing 2-3-3
An introductory course for Mechanical Engineering Technology students. The course covers knowledge required for successful studies in CAD, CAM, and other computer programming coursework in the Mechanical program. Computer terminology relating to all computers is covered as well as computer hardware and operating system software. Disk operating systems past and present and significant exploration into current operating systems is presented. Lab fee: $10.00.

MECH 120 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 working detail drawings. Lab fee: $10.00. Prerequisite: MECH 110.

MECH 130 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: MATH 112 and PHYS 181.

MECH 131 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 controlled machines. This course will emphasize the principals of system design and practical uses of hydraulic 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.

MECH 240 Machine Tools (A,SU,) 2-6-4
This course features hands-on operation of mills, lathes, shapers, and grinders 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.

MECH 241 Mechanical Drafting II (A) 1-5-3
This course is a continuation of MECH 120, including advanced drafting practices, industrial standards, and the drawing of machine elements. Lab fee: $10.00. Prerequisite: MECH 120.

MECH 242 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: MECH 130.

MECH 243 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 hands-on experience in robotics programming, interfacing and operation. Lab fee: $10.00. Prerequisites: MECH 112 and MATH 111.

MECH 244 Statistical Process Control (W,SP) 2-3-3
This course provides a broad overview of statistical process control practices 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: Placement into MATH 103 or higher; QUAL 240.

MECH 250 Materials Science (W) 2-3-3
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. Prerequisite: Placement into MATH 102 or higher.

MECH 251 Computer Aided Drafting I (W,SP) 1-5-3
Introduces students to the basic terminology and fundamental concepts of computer aided drafting. Presents commands and functions applicable to all computer aided drafting systems. Students apply this knowledge to generate orthographic and other two-dimensional mechanical drawings using AutoCAD software. Lab fee: $20.00. Prerequisites: MECH 112 and MECH 120.

MECH 252 Computer Programming for Technicians (W) 1-5-3
A course designed to instruct students in the use of QBasic in solving engineering problems. Students will design, flowchart, code, compile, and debug programs in this course. Hands-on experience is gained through interfacing digital I/O boards to QBASIC. Lab fee: $10.00. Prerequisites: MECH 112 and placement into MATH 103 or higher.

MECH 253 Numerical Control (W) 1-5-3
This course is designed for the beginning student and covers manual computer numerical control programming. Each student will prepare numerical control programs 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, debug programs, and setup/operate Computer Numerical Controlled equipment in the lab. Lab fee: $15.00. Prerequisite: MATH 112 and MECH 240.

MECH 260 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, as well as exposure to bearing requirements and lubrication. Lab fee: $6.00. Prerequisites: MATH 112 and MECH 120.

MECH 261 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: MECH 131, MECH 241, MECH 242 and EET 102.

MECH 262 Computer Aided Drafting II (SP,SU) **1-5-3**
This course is an extension of MECH 251. Course includes the study of practical applications of computer graphics with isometric and three dimensional drawing and solids modeling techniques to graphically solve mechanical related problems and to produce mechanical drawings. Lab fee: $20.00. Prerequisites: MECH 251 and MECH 241.

MECH 263 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 EZ-CAM computer aided manufacturing language. Lab fee: $15.00. Prerequisites: MECH 251, MECH 252 and MECH 253.

Medical Assisting Technology (MAT)

MAT 100 Introduction to Medical Assisting (A,SP) **1-2-2**
This course provides an overview of the medical assisting profession. Topics to be presented include the roles and responsibilities of a medical assistant in different environments, medicolegal issues, and professional organizations. Lab fee: $25.00. Prerequisite: Acceptance into program. Concurrents: BIO 101 and MULT 101.

MAT 110 Clinical Procedures (W,SU) **3-3-4**
This course introduces the student to common clinical procedures routinely performed in physician's offices. Lab fee: $25.00. Prerequisite: MAT 100. Concurrents: MAT 112, MULT 102 and HIMT 121.

MAT 112 Diseases of the Human Body (W,SU) **3-0-3**
This course focuses on human diseases that are frequently first diagnosed or treated in the medical office or clinical setting. Consideration as to what disease is, how the physician might diagnose and treat disease, and the likely consequences of the disease for the person experiencing it are included. Specific areas discussed are disease process, infectious diseases, neoplasms, and congenital diseases, the coverage of major conditions as organized by body system. Prerequisite: BIO 101.

MAT 120 Office Procedures (A,SP) **3-3-4**
This course introduces the student to the administrative aspects of the medical office through both theoretical and practical presentations. Topics to be covered include: communications, computer concepts, medical records management, screening and processing mail, scheduling and monitoring appointments, operating office equipment and managing practice finances. Also included is a medical office software package. Students will complete simulations of medical computer programs. Lab fee: $25.00. Prerequisite: MCT 106.

MAT 130 Pharmacology (A,SP) **3-3-4**
This course is an introduction to the pharmacology of commonly used drugs. Topics to be covered include procedures for administering drugs, components of a prescription and drug actions and uses. The laboratory section will include demonstration, technique and theory of administration of medications in the medical office setting; included will be intradermal, subcutaneous, and intramuscular routes as well as oral, topicality, sublingual, vaginal and rectal administration. The principals of recording medications in the medical record are also covered. Concurrent: MATH 100.

MAT 140 Physician's Office Laboratory (A,SP) **3-3-4**
This course is designed to provide the student with an overview of the procedures utilized to collect and process specimens in a physician's office setting. Emphasis is placed on methods of collections, processing of specimens and quality control. Additionally, the student is introduced to the microscope, minor surgery in the medical office, radiological procedures, the process of the capillary puncture, urinalysis, blood typing, microbiology procedures and understanding the normal ranges and the various laboratory reports. Lab fee: $25.00. Prerequisites: MAT 110 and MULT 116.

MAT 150 Advanced Clinical Procedures (A,SP) **2-3-3**
This course will instruct the advanced medical assistant student in the skills beyond the basic entry-level. These advanced skills will include: minor surgery in the medical office, rehabilitation and physical therapy care, radiology in the medical office, nutrition and diet therapy and the importance of accurate patient education. An overview of supervisory skills in the medical office will also be studied. Prerequisite: MAT 110. Concurrent: MAT 140.

MAT 190 Practicum I (W,SU) **0-7-1**
Practical experience in a physician's office combining the administrative and clinical aspects of patient care under the supervision of a licensed physician or certified medical assistant. Students will be placed into various health care facilities. Lab fee: $25.00. Prerequisite: MULT 108. Concurrent: MAT 140.

MAT 192 Practicum II (W,SU) **0-14-2**
A continuation of Practicum I with students gaining additional experience in health care facilities. Lab fee: $25.00. Prerequisite: MAT 190.

MAT 195 Seminar **2-0-2**
Group discussion of topics related to practicum experiences as well as current trends and topics in the medical assisting profession. Students will also be responsible for projects and simulations of daily medical office activities. Prerequisite: MAT 192.

Medical Laboratory Technology (MLT)

MLT 100 Introduction to Health Care (A,W,SP,SU) **2-2-3**
This course is designed to provide the student with an overview of the structure and organization of the current health care system and their role as a future health care practitioner in an integrated system. Students interested in health care as a profession and/or consumers will benefit from this course. The student will utilize numerous campus and community resources, including computer search systems and the Internet, to access a variety of information pertaining to health care issues as well as to investigate various health care professions. Each student will have the opportunity to visit clinical settings and network with practicing professionals in their area of interest. Legal and ethical issues, professional standards of behavior, communication skills and safety issues will be addressed. Lab fee: $15.00. Prerequisite: Placement into ENGL 101.

MLT 120 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 actual clinical settings and meet with practicing laboratory personnel. In addition, students will be introduced to basic laboratory equipment, specimen processing techniques, the application of laboratory math, and the techniques of phlebotomy. Prerequisites: MLT 100 and MLT 141.

MLT 130 Immunology (W,SU) **3-4-5**
This course provides 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 the clinical practicum. Lab fee: $80.00. Prerequisite: MLT 141. Concurrent: MLT 120.

MLT 141 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: $80.00. Prerequisite: Admission to the program.

MLT 180 Special Topics in Medical Laboratory (A,W,SP,SU) **1-0-1**

MLT 181 Special Topics in Medical Laboratory (A,W,SP,SU) **2-0-2**

MLT 182 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 Coordinator.

MLT 220 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 the clinical practicum. Lab fee: $80.00. Prerequisite: MLT 130 or permission of Coordinator. Open to Medical Laboratory Technology students only.

MLT 240 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. 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: $80.00. Prerequisites: MLT 141 and previous technical courses. Concurrent: MLT 242.

MLT 242 Body Fluids (W,SU) **1-3-2**
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: Previous technical courses. Concurrent: MLT 240.

MLT 244 Medical Laboratory Case Studies **1-3-2**
This course provides students with the opportunity to review major technical areas of the curriculum. It is a capstone course in which students demonstrate their abilities to complete work assignments and examinations in each of the major laboratory sections. Students take examinations similar to the Registry Exam and must meet minimum scores. Prerequisite: All technical courses.

MLT 250 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: $80.00. Prerequisites: BIO 115 and previous technical courses.

MLT 260 Clinical Chemistry (A,SP) **3-9-6**
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: $80.00. Prerequisites: CHEM 113 or CHEM 111 and previous technical courses.

MLT 270 Clinical Practicum **0-35-5**
Practical experience in area health care facilities in which students are given the opportunity to practice in a laboratory setting under the guidance of laboratory professionals. Students will be placed in one of several clinical affiliates within an approximate 60 mile radius of Columbus. Students will be required to provide their own transportation. Lab fee: $45.00. Prerequisite: all technical courses. Concurrent: MLT 271.

MLT 271 Clinical Seminar **2-0-2**
This course is an informal seminar that provides the students with an opportunity to meet and share selected case studies and other problem solving experiences they have encountered during their practicum. In addition, guest speakers are provided to help students better prepare for the credentialing examinations and other anticipated postgraduate activities such as employment selection and further education. Concurrent: MLT 270.

Medical Office Admin. Major
(See Office Administration)

Mental Health/Chemical Dependency/Mental Retardation (MHCR)

MHCR 101 HIV/AIDS in Human Service Practice **4-0-4**
This is an introductory course covering HIV/AIDS as an epidemic, its origins, disease progression, medical information, drugs and treatment, psychosocial factors affecting the patient, caregivers and professionals, ethical and legal considerations impacting the patient and others, and the role of human service professionals in helping clients and families. Students will be exposed to cultural sensitivity issues of race, ethnicity and sexual orientation. Psychosocial stages of the disease will be explored with the focus on the role of the human service worker. Lab feel $4.00. Prerequisites: SSCI 101 and MHCR 191.

MHCR 111 Introduction to Mental Health (A,W,SP,SU) **3-0-3**
This entry level course provides the student with a comprehensive overview of the mental health field as it relates to: historical and contemporary issues impacting the mental health field, mental health service delivery provisions, providing clinical base mental health skills, and assessing familial, environmental, and community adjustment needs for the mentally ill consumer. Lab fee: $4.00. Prerequisite: DEV 031. Concurrent: ENGL 101 and PSY 100.

MHCR 112 Introduction Mental Retardation (A,W,SP,SU) **3-0-3**
This entry level course provides the student with a comprehensive overview of the mental retardation field as is relates to: sociocultural, psychosocial, political and economic variables that impact the field of mental retardation and its overall service delivery to the mentally retarded and/or individuals with disabilities and their families. Lab fee: $4.00. Prerequisite: DEV 031. Concurrents: ENGL 101 and PSY 100.

MHCR 114 Introduction to Chemical Dependency (A,W,SP,SU) **4-0-4**
This entry level course provides the student with a comprehensive overview of the chemical dependency field as it relates to: historical and contemporary issues impacting the chemical dependency field, state and local, public and private service delivery systems, the impact of drugs of abuse on the individual, family, and society, models to define chemical dependency, signs and symptoms indicative of chemical dependency and resources available to persons with chemical dependency and their families. Lab fee: $4.00. Prerequisite: DEV 031. Concurrents: ENGL 101 and PSY 100.

MHCR 115 Interviewing in Human Services (A,W,SP,SU) **2-2-3**
This introductory course focuses on the development of basic interviewing, rapport building and active listening skills for 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: $10.00. Prerequisite: Completion of DEV 031. Prerequisites or concurrents: PSY 100 and ENGL 101.

MHCR 117 Documentation Skills (A,W,SP,SU) **2-0-2**
This core course focuses on the use of behavioral observations and writing to document client interactions and behavior. Students will learn beginning skills needed to maintain records necessary for rendering professional services to clients. Lab fee: $4.00. Prerequisites or concurrents: MHCR 111, MHCR 112, MHCR 114 and MHCR 115.

MHCR 135 Intervention Strategies (A,W,SP,SU) **3-0-3**
This core course focuses on understanding client behavior. Students will learn to apply positive intervention skills with a varied client population. Lab fee: $4.00. Prerequisites: MHCR 111, MHCR 112, MHCR 114, MHCR 115 and MHCR 117. Concurrent: MHCR 191.

MHCR 191 Fundamentals in Human Service Practice **6-14-8**
This is a core course which focuses on the planning process used to deliver service to clients. The steps studied in the helping process are data collection, assessment, treatment planning, implementation, and evaluation. The student will become knowledgeable in specific methods to collect data, assess and prioritize client needs, develop 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 any agency which provides a range of services. The students will also practice basic skills under close supervision. Lab fee: $30.00. Prerequisites: MHCR 111, MHCR 112, MHCR 114 and MHCR 117.

MHCR 222 Alcohol and Drugs in the Workplace **4-0-4**
This course provides the student in the Human Resources Technology and the community with an overview of alcohol and drugs as it relates to historical and contemporary workplace issues. The impact of drugs of abuse on the individual, family, and society, models to define chemical dependency, signs and symptoms indicative of alcohol and drug use and resources available to persons with chemical dependency and their families are explored. There is emphasis on the Drug Free Workplace Act and the Americans with Disabilities Act, and developing a Drug Free workplace policy. Employer response including Employee Assistance Programs and drug testing and legal and ethical issues are explored. Lab fee: $4.00. Prerequisites: HRM 121 and HRM 122.

MHCR 241 Counseling Skills (A and On Demand) **4-0-4**
This core course focuses on 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 emphasizes practicing skills in small study groups, and in role play/simulations. Lab fee: $4.00. Prerequisites: MHCR 191, ENGL 102 and PSY 240.

MHCR 242 HIV/AIDS in Human Service Practice **4-0-4**
This course covers HIV/AIDS as an epidemic, its origins, disease progression, medical information, drugs and treatment, psychosocial factors affecting the patient, caregivers and professionals, ethical and legal considerations impacting the patient and others, and the role of human service professionals in helping clients and families. Students will be exposed to cultural sensitivity issues of race, ethnicity and sexual orientation. Psychosocial stages of the disease will be explored with the focus on the role of the human service worker. Lab fee: $4.00. Prerequisites: SSCI 101 and MHCR 191.

MHCR 245 Chemical Dependency I (A) **3-0-3**
This course offered as part of the Chemical Dependency Track only. Course content includes historical/cultural overview and various philosophies and approaches to treatment of addictions. Physical, mental, emotional and social impact of drugs of abuse. Assessment procedures, developing a diagnostic impression, identifying levels of care and referral procedures, issues with families and special populations. Students will develop and demonstrate a didactic presentation. Legal and ethical issues in the field will be explored. Lab fee: $4.00. Prerequisite: MHCR 191. Concurrents: MHCR 241 and MHCR 293.

MHCR 247 Teaching and Supporting People with Disability (A) **3-0-3**
This advanced course provides the student a comprehensive overview of the principles and techniques for teaching and supporting people with disabilities. Skills related to job coaching and habilitation programming are practiced. Particular attention is paid to the concepts of person centered planning and inclusion. Lab fee: $4.00. Prerequisites: MHCR 191. Concurrent: MHCR 291.

MHCR 251 Social Policy and Programs **4-0-4**
Social policy and its relationship to the work of the human services professional. An overview of U.S. social welfare institutions: family, church, government, and economical institutions is presented. This second level 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. Prerequisites: MHCR 191 and ENGL 102.

MHCR 253 Therapeutic Group Work Skills (W,SP) **4-0-4**
This course offered as a part of all three tracks in the technology, is focused on knowledge and experiential learning using group as the unit of attention. Course content includes process, stages of development, leadership skills, therapeutic factors and problematic issues of groups for mentally ill, mentally retarded, chemically dependent and dually diagnosed clients. The student will participate as a member in a peer group to compliment classroom theoretical constructs. Lab fee: $4.00. Prerequisite: MHCR 241 and ENGL 102. Concurrent: MHCR 295.

MHCR 258 Service Coordination/Case Management (SP) **3-0-3**
This advanced course provides the human service student with a comprehensive overview as well as an in-depth investigation and assessment of newly defined skills, treatment approaches and contemporary issues impacting the service coordination/case management field. Lab fee: $4.00. Prerequisite: MHCR 191. Concurrent: MHCR 298.

MHCR 265 Chemical Dependency II (SP) **3-0-3**
This is an advanced course offered as part of the Chemical Dependency track only. Course content includes specialized settings and services and approaches to treatment of addictions. Motivation for recovery and service/recovery resistance issues. Developing a diagnostic summary from an assessment and developing a comprehensive treatment plan. Issues with dial diagnosis and relapse. Exploration of patterns of behavior in the workplace and prevention of burnout for helping professionals. Legal and ethical issues in the field will be explored as well as the credentialing process for chemical dependency counselors. Lab fee: $4.00.

Prerequisite: MHCR 241. Concurrent: MHCR 296.

MHCR 274 and 284 Special Studies in MH/CD/MR (On Demand) **4-0-4**
These two courses are 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: $10.00.

MHCR 291 Field Practicum in Teaching and Supporting People w/Disabilities **2-14-4**
A clinical experience for the student specializing in the Mental Health/Mental Retardation track which takes place in a community agency matching the students interest and training needs. The student will practice the skills needed to teach and support people in a variety of settings, vocational residential and community with an emphasis on inclusion. The student is expected to assume the role of service provider and is responsible for professional conduct and acceptable work habits. Lab fee: $5.00. Prerequisite: MHCR 191. Concurrent: MHCR 247.

MHCR 293 Field Practicum in Chemical Dependency I (A) **2-14-4**
This is a required clinical experience for the student majoring in Chemical 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 setting which provides chemical dependency treatment and becomes involved in assessments and on-going work with clients when applicable. 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. Prerequisite: MHCR 191. Concurrent: MHCR 245.

MHCR 295 Field Practicum in Group Work (W,SP) **2-14-4**
This is a clinical experience for the student in all three tracks in the MH/CD/MR department. The student will lead and/or co-lead a group using skills learned in the classroom. The student will assume the role of service provider and demonstrate professional conduct. Lab fee: $40.00. Prerequisites: MHCR 241 and MHCR 293. Concurrent: MHCR 253.

MHCR 296 Field Practicum in Chemical Dependency II (SP) **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 data, making assessments and developing treatment plans, facilitating groups, and making referrals. Emphasis on dual-diagnosis and relapse prevention throughout the field experience. Lab fee: $25.00. Prerequisite: MHCR 253. Concurrent: MHCR 265.

MHCR 298 Service Coordination/Case Management (SP) **2-14-4**
A clinical experience for the Mental Health/Mental student specializing in the field of Mental Health/Mental Retardation and Chemical Dependency tracks which takes place in a community agency matching the students interest, skill level and training needs. The mental health student will practice case management skills in order to deliver effective services. The mental health student is expected to assume the role of service provider and is responsible for professional conduct and acceptable work habits. Lab fee: $4.00. Prerequisite: MHCR 191. Concurrent: MHCR 258.

Microcomputing Technology (MCT)

For other required and elective courses in this curriculum see Computer Programming Technology and Office Administration.

MCT 091 Computer Concepts (A,W,SP,SU) **0-2-1**
This one-credit-hour course provides students with an introduction to computer technology, computer hardware and software, and how computers can be used to produce meaningful information. Lab fee: $10.00. Not open to students who have taken CPT 101, MCT 106, CPT 105.

MCT 094 Internet Basics (A,W,SP,SU) **0-2-1**
This one-credit-hour course provides students with an introduction to the Internet. Students will learn how to find information and explore the World Wide Web using Netscape Navigator. An e-mail account is required. Lab fee: $10.00. Not open to students who have taken MCT 231.

MCT 095 Introduction to Windows 95 (A,W,SP,SU) **0-2-1**
This one-credit-hour course is an introductory course on the Windows 95 operating system. The objective of the course is to teach fundamental skills in working with the Desktop, Drives, Folders, Files, and Applications. Lab fee: $10.00. Not open to students who have taken MCT 121.

MCT 096 Information Presentation (A,W,SP,SU) **0-2-1**
This one-credit-hour course is an introductory course teaching the fundamentals of creating and enhancing a presentation using PowerPoint. Lab fee: $10.00. Not open to students who have taken MCT 106 or CPT 105.

MCT 097 Introduction to Database (A,W,SP,SU) **0-2-1**
This one-credit-hour course introduces the student to creating, modifying, and enhancing a Database using Access. Lab fee: $10.00. Not open to students who have taken MCT 106, CPT 101 and CPT 105.

MCT 098 Introduction to Spreadsheets (A,W,SP,SU) **0-2-1**
This one-credit-hour course teaches the student how to create a Worksheet, modify a Worksheet and work with Charts using Excel. Lab fee: $10.00. Not open to students who have taken CPT 101, CPT 105 or MCT 106.

MCT 099 Introduction of Word Processing (A,W,SP,SU) **0-2-1**
This one-credit-hour course gets the student started with Word for Windows creating and editing a document, formatting a document, and arranging text and graphics. Lab fee: $10.00. Not open to students who have taken CPT 101, CPT 105 or MCT 106.

MCT 106 Computer Literacy 2 (A,W,SP,SU - DL) **2-2-3**
A continuation of CPT 101. This course will introduce the non-computer programming majors to software application packages for word processing, spreadsheets, database management and presentation graphics for the 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 who have taken CPT 105. Lab fee: $20.00. Prerequisite: CPT 101. (Note: some sections are offered on the Internet.)

MCT 121 PC Operating Systems (A,W,SP,SU) **2-3-3**
This course covers operating systems used with microcomputer systems. Students will learn to use MS/PC-DOS, and Windows. Lab fee: $25.00. Prerequisites: CPT 101 and MATH 102.

MCT 131 Advanced Spreadsheets (A,W,SP,SU) **2-3-3**
A continuation of spreadsheets from MCT 106. Basic functions ar reviewed and advanced features and formats are presented including the use of graphics and macros. Lab fee: $25.00. Prerequisites: MCT 106, MCT 121 and MATH 102. Not open to Computer Programming Technology students.

MCT 141 Advanced Database Systems (A,W,SP,SU) **2-3-3**
This course presents an overview of Database software, including file creation, screen and report generators. Not open to students in Computer Programming Technology. Computer Programming Technology students should take CPT 221 and CPT 225 instead. Lab fee: $25.00. Prerequisite: MCT 106 and MCT 121.

MCT 205 Page Design and Electronic Publishing (A,W,SP,SU) **2-3-3**
Learn to create effective, high-impact publications and Web sites. Activities create awareness of design and layout by developing brochures, newsletters, flyers, business forms, business cards, logos, and more using Microsoft Publisher software. Lab fee: $25.00. Prerequisites: MCT 106 and MCT 231.

MCT 211 Information Presentation (A,W,SP,SU) **2-3-3**
A continuation of information presentation from MCT 106. This course presents how computer graphics are used to communicate information effectively. Computer lab assignments include chart format and data content. Students will learn how to create pie, line, area, multiple, text, and organization charts, researching a topic and developing a presentation. The student will integrate these skills into a computerized slide show. Lab fee: $25.00. Prerequisite: MCT 131.

MCT 215 Microcomputer Fundamentals (A,W,SP,SU) **2-3-3**
This is the capstone course for the PC Hardware/Software Installation & Maintenance Certificate which focuses on maintaining, troubleshooting, and upgrading PCs. Discussion is focused on emphasizing the analysis and design of PC systems as well as installation of expansion cards, hard drives, video cards, memory upgrades, loading drivers, disk maintenance, and loading application and system software. Lab fee: $25.00. Prerequisite: MCT 121.

MCT 221 Local Area Networks (A,W,SP,SU) **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: MCT 121 for Microcomputing Technology students, CPT 105 for Computer Programming Technology students.

MCT 231 Introduction to the Internet (A,W,SP,SU - DL) **1-4-3**
Students will learn how to: use electronic mail (email), to send and receive messages, find information on the Internet, explore World Wide Web (WWW) sites , transfer files, and create a simple home page. Hands-on experience using the Internet will be emphasized. An Internet email account is required. The course is taken entirely on the Internet with two exceptions (1) the student must attend the first class to get syllabus and other instructions, and (2) to take the final examination. Lab fee: $10.00. Prerequisite: CPT 101, MCT 121 is recommended.

MCT 241 Intranet for Business Applications (A,W,SP,SU) **2-3-3**
This course provides students with knowledge on the automation of office functions. The student will receive practical experience in document management (word processing and document filing/retrieving); electronic transfer of data (graphs & documents); and administrative support (time management, calendars, schedules, directory management and reminders). Lab fee: $25.00. Prerequisites: MCT 121 and MCT 106. An e-mail account is required.

MCT 251 Introduction to Systems Analysis (A,W,SP,SU) 2-3-3
Covers basic concepts of systems analysis and design with an emphasis on small business systems. Not open to students in the Computer Programming Technology. Computer Programming students should take CPT 211 and CPT 212 instead. Lab fee: $25.00. Prerequisite: MCT 141.

MCT 255 Integrated PC Applications (A,W,SP,SU) 2-3-3
This advanced course presents extensive integration tasks among programs, which enables users to combine documents of different types for the purposes of printing and transporting. It also covers high-level features in each application, including styles, headers, footers, and tables and high-level integration tasks, including updating, reconnecting and breaking links between documents; and embedding a PivotTable in an electronic application. Lab fee: $25.00. Prerequisites: MCT 131, MCT 141, MCT 221 and OADM 192.

MCT 261 Introduction to Visual BASIC (A,W,SP,SU) 2-3-3
Emphasizes building graphical user interfaces (GUI) from a microcomputing aspect. Students will use macros to call objects relating to business applications and integrate Excel and Access applications with Visual Basic. Lab fee: $25.00. Prerequisites: MCT 121, MCT 131 and MCT 141.

MCT 265 Multimedia Concepts for the Internet (A,W,SP,SU) 2-3-3
This course extends concepts related to document design and presentation introduced in MCT 205 and MCT 211. This course will allow students to integrate multimedia concepts using scanners, color printers, video, CD-ROM, sound and Internet resources to enhance presentation materials. Lab fee: $25.00. Prerequisites: MCT 106, MCT 211, and MCT 231.

MCT 281 Final Project (A,W,SP,SU) 2-8-5
This is the capstone course for the Microcomputing Technology. Students will work in small groups or individually to design and develop a typical business system. Not open to students in Computer Programming Technology. Computer Programming students should take CPT 281. Lab fee: $40.00. Prerequisite: MCT 251.

Multi-Competency Health (MULT)

MULT 101 Medical Terminology (A,W,SP,SU - DL) 2-0-2
This course includes the presentation of 350 medical terms using the Dean Vaughn system. Students are taught to spell, pronounce and define using an audionym technique. Lab fee: $10.00.

MULT 102 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 Course C. Lab fee: $15.00. Offered as flexibly scheduled in one weekend.

MULT 103 Responding to Emergencies (A,W,SP,SU) 1-2-2
Requirements for Red Cross Certification including artificial respiration, bleeding control, treatment of shock, and care of fractures are presented. Lab fee: $23.00.

MULT 108 Twelve Lead Electrocardiography 1-2-2
This course provides students with theory and procedure for performing a twelve lead EKG. Discussion of the instrument and review of anatomy and physiology are included. Lab fee: $10.00. Prerequisites: Admission to a health and human services technology, CPR certification.

MULT 110 Basic Electrocardiography (EKG) (A,W,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. Lab fee: $38.00. Prerequisite: Placement into ENGL 101.

MULT 112 Identifying Cardiac Rhythms (A,SP) 2-0-2
This course provides students with the necessary information to correctly identify cardiac dysrhythmias, recognize potentially life threatening dysrhythmias and complications which may follow, along with appropriate treatment, cardiac anatomy, physiology, electrophysiology, monitoring equipment, lead placement, and steps in analyzing a rhythm strip are all addressed. Lab fee: $5.00. Prerequisite: Permission of instructor.

MULT 114 Phlebotomy Practicum II (A,W,SP) 0-5-1
This course is designed to be a continuation of MULT 115 by providing an additional 50 hours clinical phlebotomy experience and requiring an additional 50 successful collections. Phlebotomy Practicum II is designed for students who intend to be a professional phlebotomist and will be arranged individually during the first five weeks of the quarter. MULT 114 and MULT 115 completes the NAACLS approved program. Lab fee: $10.00. Prerequisite: Completed health record.

MULT 115 Phlebotomy (A,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. Lab fee: $55.00. Prerequisite: Completed health record.

MULT 116 Venipuncture for Health Care Providers 1-4-2
Basic blood collection techniques using vacuum tubes and syringes will be covered and practiced in a laboratory and clinical setting. Emphasis is on basic skills, safety and infection control. Not open to students who have credit for MULT 114 and MULT 115. Lab fee: $28.00. Prerequisite: Completed health record and be enrolled in Medical Laboratory Technology or Medical Assisting Technology.

MULT 120 Nurse Aide Training Program (A,W,SP,SU) 2-6-5
The Nurse Aide Training Program (NATP) is designed to instruct prospective long-term care nurse aides in preparation for State of Ohio testing. The 76 hour NATP course includes 60 hours of classroom and 16 hours of clinical preparation, which meets the requirements for nurse aide training in Ohio. Lab fee: $38.00. Prerequisite: Completed health record.

MULT 121 Nurse Aide to Home Health Aide (A,W,SP,SU) 2-0-2
This course will prepare students who have taken the Nurse Aide Training program to transition into home care and work as home health aides. Lab fee: $30.00. Prerequisites: State Tested Nursing Aide or eligible.

MULT 122 Home Health Aide (A,SP) 4-1-5
This course uses the curriculum published by the National Home Caring, 1990 Edition. This course contains a generic body of knowledge including home management and personal care information are presented through lecture and lab practicum hours. Lab fee: $28.00. Prerequisite: Completed health record.

MULT 123 Waived Laboratory Tests for Health Care Providers 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. Lab fee: $38.00. Prerequisite: Completed health record.

MULT 125 Information Processing Assistant in Health Service Org. 5-0-5
This course is designed to create the knowledge base necessary to permit an individual to function as an information processing assistant. The focus is on knowledge, comprehension, application, analysis, synthesis, and evaluation of the role of the information processing assistant in the health service organizations. Lab fee: $30.00.

MULT 126 Patient Care Skills I (A,W,SP,SU) 2-6-4
Presentation of skills commonly used by patient care technicians in an acute care setting, utilizing both lecture and laboratory. Major topics include: wound care, specimen collection, airway care, oxygen administration, enteral tubes and elimination assistance. Lab fee: $35.00. Prerequisite: MULT 120.

MULT 127 Patient Care Assistant (A,SP,SU) 3-6-5
This course provides the student with knowledge and skills to function as a patient care assistant at Mount Carmel Health Systems. Lab fee: $30.00.

MULT 128 Patient Care Assistant (A,W,SP,SU) 2-6-5
This course provides the student with knowledge and skills to function as a patient care assistant in the Mount Carmel Health Systems. Lab fee: $30.00. Prerequisites: Mount Carmel employee or completed health record.

MULT 129 Patient Care Skill: Rehabilitation Technique 3-3-4
This course provides information and skills using safe, effective techniques in the care of mobility-impaired patients. Discusses the role of the physical therapy and nursing staffs use of therapeutic modalities, patient positioning, patient transfer techniques, exercise, ambulation, and utilization of assistive and adaptive equipment for patients with impaired mobility. Lab fee: $11.00.

MULT 130 Acute Care Skills for Patient Care Assistants (A,W,SP,SU) 1-0-1
This course provides the student with additional knowledge and skills to function as a patient care assistant in an acute care setting. Lab fee: $ 5.00. Prerequisite: MULT 120.

MULT 131 Referral Strategies for Chronically Ill Clients 2-2-3
This course introduces the student to the theory and rationale for appropriate referral of clients experiencing chronic physical health problems. The availability and accessibility of community resources for selected health problems will be presented. Lab fee: $5.00.

MULT 133 Success Strategies for Patient Care Assistants (A,W,SP,SU) 2-0-2
This course updates and enhances the knowledge and skills of patient care assistants in a hospital. Lab fee: $5.00. Prerequisites: Employed full-time during the previous year as a patient care assistant in a hospital.

MULT 135 Basic PCA/MSP Training (A,W,SP,SU) 2-2-3
This is a workforce training course for employees of health care facilities who have entered into a partnership with CSCC. In classroom, laboratory and clinical settings, students learn sterile technique and patient care skills. Prerequisite: MULT 120 or permission of instructor.

MULT 136 Advanced Patient Care Assistant (A,W,SP,SU) 1-2-2
This is a workforce training program for employees of health care facilities who have entered into a partnership with CSCC. In classroom, laboratory, and clinical settings, students learn advanced patient care skills such as tracheostomy care and tube feeding. Prerequisite: MULT 135 or permission of instructor.

MULT 137 Phlebotomy Training (A,W,SP,SU) 1-2-2
This is a workforce training program for employees of health care facilities who have entered into a partnership with CSCC. In classroom, laboratory and clinical settings, students learn the skills of drawing blood. Prerequisite: MULT 135 or permission of instructor.

MULT 138 EKG Training (A,W,SP,SU) 0-2-1
This is a workforce training program for employees of health care facilities who have entered into a partnership with CSCC. In classroom, laboratory and clinical settings, students learn the skill of performing electrocardiograms.. Prerequisite: MULT 135 or permission of instructor.

MULT 139 Basic PCA Training (A,W,SP,SU) 2-4-4
This is a workforce training program for employees of health care facilities who have entered into a partnership with CSCC. In classroom and laboratory settings, students learn basic patient care skills.

MULT 140 Patient Care Technician Training (A,W,SP,SU) 1-4-3
This is a workforce training program for employees of health care facilities who have entered into a partnership with CSCC. In classroom and laboratory settings, students learn sterile technique and advanced patient care skills. Prerequisite: MULT 139 or permission of instructor.

MULT 142 Home Care Skills for Nurses (A,W,SP,SU) 2-2-3
This course provides the student with appropriate adaptations of the skills and concepts traditionally used in the hospital care of patients that are now used in the home care setting. Lab fee: $25.00. Prerequisite: Permission of the instructor or nursing license.

MULT 143 Advanced Skills for Home Health Aides (A,W,SP,SU) 2-2-3
This course will prepare the student to perform procedures in the home above the basic patient care skills. Lab fee: $30.00. Prerequisite: Certified Home Health Aide State, Tested Nurse Aide.

MULT 153 Point-of-Care Testing 0-2-1
Point-of-care testing or bedside testing, is intended to provide more rapid test results than is routinely possible with traditional laboratory settings. Application is particularly important in ICUs, emergency rooms, bedside in hospitals, home care, hospices and physician office laboratory where rapid treatment decisions must be made or for added convenience to the patients. This course provides performance of frequently ordered analyses and an overview of regulatory considerations, instrumentation and quality assurance requirements. Lab fee: $45.00. Prerequisite: Permission of instructor or completion of MULT 123.

MULT 160 Tissue Identification (A) 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. Lab fee: $8.00. Prerequisite: MULT 169 or permission of program director.

MULT 161 Chemistry of Stains I (A) 3-0-3
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. Lab fee: $8.00. Prerequisite: MULT 169 or permission of program director. Concurrent: MULT 163.

MULT 162 Chemistry of Stains II (W) 2-0-2
Continuation of MULT 161. First term. Lab fee: $3.00. Prerequisite: MULT 161 or permission of program director. Concurrent: MULT 164.

MULT 163 Basic Histology Techniques I (A) 0-12-4
This course provides laboratory practice in all phases of the practice of histology. Lab fee: $73.00. Prerequisite: MULT 169 or permission of program director.

MULT 164 Basic Histology Techniques II (W) 0-9-3
Continuation of MULT 163. First term. Lab fee: $48.00. Prerequisite: MULT 163 or permission of program director. Concurrent: MULT 162.

MULT 165-166 Case Study Review and Seminar (W,SP) 1-3
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. Lab fee: $3.00. Prerequisites: MULT 161 and MULT 163.

MULT 167 Histology Clinical Experience I (W) 0-16-4
The student will attend three (3) different clinical facilities 32 hours per week for 17 weeks including two weeks at Battelle Research Institute. During this time, the student will perform all functions in the clinical site as a histology technician. Lab fee: $8.00. Prerequisite: MULT 162 or permission of program director. Concurrent: MULT 165.

MULT 168 Histology Clinical Experience II (SP) 0-32-8
Continuation of MULT 167. Lab fee: $18.00. Prerequisite: MULT 167 or permission of program director. Concurrent: MULT 166.

MULT 169 Introduction to Histology (SU) 0-6-2
The student will be introduced into the laboratory environment and histology profession. The major areas of study will include instrumentation, laboratory safety (including state and federal regulations), and laboratory mathematics as they apply to reagent preparation in the histology laboratory. Lab fee: $65.00. Prerequisite: Completed health record.

MULT 170 Cancer Prevention, Diagnosis & Treatment (W 2nd term) 1-1-0
The course will present an overview of the prevention, diagnosis and treatment of a variety of cancers including breast cancer, cancers associated with smoking (cancer of the mouth, throat, voice region, lung and bladder), skin cancer (including skin carcinoma and melanoma), cancers affecting men (including prostate and testicular malignancies), and cancers affecting women (including uterine, cervical, endometrial and ovarian cancers). Presentation will be provided through photomicrographs of cancer biopsies, photographs of x-rays, and clinical and histological laboratory results and will emphasize the role of various health care professionals.

MULT 171 Current Issues: HIV Infection (A,W,SP,SU) 1-0-1
Introductory course covering the psycho social, legal, epidemiologic issues surrounding HIV infection. Offered as a term course. Lab fee: $9.00.

MULT 172 Instructor HIV/AIDS Course 0-2-1
In-depth study of the implications of HIV virus in society in which students complete requirements for the Red Cross HIV/AIDS Instructor Certification. Include Red Cross Instructor Candidate Training Course. Lab fee: $5.00. Prerequisite: MULT 171.

MULT 174 Personal Health (A,W,SP,SU) 3-0-3
The study of health issues which affect Americans today and in the future; to establish a basis for positive health and efficiency through consideration of various factors which affect health. Lab fee: $5.00.

MULT 175 Alternative Healing/Homeopathy (A,W,SP,SU) 4-0-4
This course is designed to introduce students to the principles and theories behind the use of homeopathic preparations to treat most disease and disorders. Lab fee: $5.00

MULT 176 Fundamentals of Herbology (A,W,SP,SU) 4-0-4
This course outlines the uses of herbs in the healing process from ancient history to present day. Herbs will be discussed in relation to both flowers and in cooking. Emphasis will be on therapeutic self-care first aide. Lab fee: $5.00.

MULT 178 Animals and Nature - Therapeutic Programs (SP) 2-2-3
The Animal-Assisted Therapy and Education Certificate Program is designed to meet the Delta Society's standards for accreditation. The Delta Society is an international organization devoted to research and service in the area of human-animal relationships and is the leading resource center on the interactions of people, animals and the environment. The program will include the Delta Society's Pet Partners home-study course and its two-day course on temperament testing. Prerequisite: MULT 179. Admission to a Health and Human Services Technology or permission of instructor.

MULT 179 Companion Animals and Health (W) 2-0-2
This course will review the recent scientific evidence which confirms the ancient wisdom that our living environment - our pets, gardens, parks, rural landscapes and wild and domestic animals - have important, positive effects on health and well-being of humans. Topics to be covered include the cognitive, emotional, behavioral, and physiological effects of contact with animals and nature; Biophilia, our natural affinity for life that binds us to all living species; the psychobiology of nurturing; the ecology of pets, gardens and natural places. Prerequisite: MULT 181.

MULT 180 Professionalism for Health Care Providers 2-0-2
The Code of Ethics for each of the technologies is reviewed. Concepts of death and dying, patient as consumer, professional standards of behavior and team work are addressed. Lab fee: $7.00. Prerequisites: Admission to a Health and Human Services Technology. Concurrent: ENGL 101.

MULT 181 Introduction to the Human-Animal Interaction (A) 2-0-2
This course will investigate the origins, nature and application of the human-animal bond. The course content is designed to promote understanding of the mutually nurturing relationship between people and animals and to explore services by animals to aid people with health difficulties and physical and emotional challenges. Lab fee: $8.00. Prerequisite: Placement into ENGL 101.

MULT 183 Introduction to Inpatient Coding (A,W,SP,SU) 1-0-1
Students will be introduced to the application of ICD-9-CM coding as it relates to payment of health services. This course is flexibly scheduled in 2 days. Lab fee: $3.00.

MULT 184 Introduction to Ambulatory Coding (A,W,SP,SU) 1-0-1
Students will be introduced to the application of CPT coding as it relates to payment of health services. This course is flexibly scheduled in 2 days. Lab fee: $3.00.

MULT 185 Introduction to Third-Party Reimbursement (A,W,SP,SU) 1-0-1
Students will receive an overview of how coding systems are used in outpatient and inpatient health care settings for the purpose of reimbursement to the providers of health care services. This course is flexibly scheduled in 2 days. Lab fee: $3.00.

MULT 190 Radiation Protection for General Machine Operator (A,W,SP,SU) 2-0-2
This course is designed to prepare non-radiographers with a specific background in radiation protection and radiation biology necessary to be eligible to apply for the State of Ohio, Radiologic Technology Division, General Machine Operator examination. Areas of instruction include radiation physics, radiographic technique, darkroom processing and film handling, radiation health, safety and protection, and radiation biology. Basic radiographic positioning skills and terminology are also presented. Lab fee: $3.00. Prerequisite: Admission to College.

MULT 203 Diagnostic and Interventional Proc. for the Mammographer 3-0-3
This course is designed to familiarize the radiographer with diagnostic imaging and interventional procedures utilized in the diagnosis and treatment of breast disease. In-depth positioning of routine and specialized mammographic projections and localization/biopsy procedures are presented, as well as the performance of other imaging procedures which may be performed in conjunction with mammography. Patient assessment skills and patient education techniques, to include the American Cancer Society's Breast Self-Examination Instruction are also discussed. Lab fee: $3.00. Prerequisite: ARRT registered Radiologic Technologist.

MULT 205 Mammographic Physics and Quality Assessment (A,SP) 4-0-4
This course is designed to familiarize the radiographer with principles of radiation physics and radiographic exposure specific to mammography. The Mammographic Quality Standards Act is discussed and the course includes the knowledge necessary to prepare for and pass federal accreditation standards/inspections. In-depth quality assurance testing methods are presented to ensure adherence with federal standards, as well as "hands-on" performance of QC test in the clinical laboratory environment. Lab fee: $3.00. Prerequisite: Graduate of an accredited Radiography Program.

MULT 207 Clinical Experience in Mammography (W,SU) 0-14-2
This course is designed to provide clinical experience in the field of mammography. Clinical experience is gained in the performance of screening mammography, diagnostic mammography, needle localization procedures, core needle biopsy procedures and allied imaging modalities. The student begins the course by performing procedures under the direct supervision of a registered mammographer. As the course progresses, the student assumes a more independent role in the performance of mammographic procedures and must demonstrate mastery of the clinical competencies for successful completion of the course. Lab fee: $25.00. Prerequisites: Graduate of an accredited Radiography Program, MULT 203 and MULT 205 or permission of instructor.

MULT 221 Introduction to Sleep Problems (SU,A,W,SP) 2-0-2
This introductory course will provide an overview of the physiology and architecture of sleep, common sleep disorders, their prevalence in the population, causes and treatment, the factors related to risk and risk management for shift workers, and the role of the polysomnography laboratory in monitoring and recording physiologic data during sleep. Lab fee: $3.00.

MULT 223 Level I Polysomnography Technician (SU,A,W,SP) 2-0-2
This course will prepare the student for performing Level I polysomnographic technician responsibilities in the clinical area, and will provide an introduction to polysomnography. Lab fee: $3.00. Prerequisites: MULT 102, MULT 221 or BIO 101, CHEM 100 and MATH 102 and placement into ENGL 101 or permission of instructor.

MULT 224 Level I Polysomnography Technician Clinical (SU,A,W,SP) 0-4-2
This course will prepare the student for performing Level I polysomnographic technician responsibilities in the clinical area. The student will complete a supervised clinical experience in a sleep lab under the guidance of a clinical preceptor. The course focuses on preparing the equipment and instrumentation used in the sleep lab, as well as patient preparation. Lab fee: $3.00. Prerequisites: MULT 102 or permission of instructor.

MULT 225 Polysomnography Level II Technician (SU,A,W,SP) 2-0-2
The Level II Technician course is designed for nurses, respiratory therapists, paramedics and other health care practitioners who are interested in polysomnography. This course focuses on scoring of polysomnography tracings, applying and titrating CPAP/BiLevel therapy, and patient education. Lab fee: $3.00. Prerequisite: Permission of chairperson.

MULT 226 Level II Polysomnography Technician (SU,A,W,SP) 0-4-2
The Level II is designed to provide clinical practice for skills covered in the Level II Technician Course. Lab fee: $3.00. Prerequisite: MULT 223 and MULT 224 or permission of instructor.

MULT 228 Polysomnography Current Topics (SU,A,W,SP) 2-0-2
This course will examine current changes in the field of polysomnography. Changes may include new techniques in instrumentation, diagnosis, new approaches to disorder, new approaches to assessment. Lab fee: $3.00. Prerequisite: MULT 223 or MULT 225 or permission of instructor.

MULT 231 Maternal Child Home Care (A,SP) 2-0-2
This course is designed to provide students with an introduction to maternal child home care from home pregnancy through the postpartum period. The course provides lecture and skills practice for learning. Prerequisite: Registered Nurse.

MULT 233 Pediatric Home Health Care (A,SP) 3-0-3
The course is designed to provide students with an introduction to all facets of pediatric home health care. The course combines lecture, skills, laboratory and clinical observation in a home health setting. Prerequisite: Registered Nurse/Licensed Practical Nurse.

MULT 245 RN First Assistant Program (A,SP) 5-0-5
This is an intensive training program which is designed to provide the experienced perioperative nurse with the advanced preparation and study necessary to assume the role of first assistant. The course is based on AORN's official statement of the RNFA role. Lab fee: $8.00. Prerequisite: RN Licensure;Two years perioperative experience; CNOR certified or eligible; CPR certified; liability insurance; letters of recommendation.

MULT 246 RNFA Experiences in the Operating Room (W,SU) 2-14-4
This course provides the student with continued practicum for completion of the RN First Assistant Program. Lab fee: $8.00. Prerequisite: MULT 245.

MULT 250 N.A.T.P. Train the Trainer (A,W,SP,SU) 3-0-3
This course prepares qualified nurses to teach, coordinate, and supervise a Nurse Aid Training Program. Federal and State of Ohio requirements are met. Lab fee: $25.00. Prerequisite: RN/LPN Licensed in Ohio minimum of 2 years experience in caring for elderly or chronically ill.

MULT 270 Human Resource Management for Health Services 4-0-4
The focus of this course is the application, analysis, synthesis, and evaluation of human resource management principles and practices for health care managers. Practical application to past and current life/work experience is provided and emphasized. Case studies are used as simulations to provide future application in the real work setting. Lab fee: $5.00.

MULT 272 Health Care Resource Management 4-0-4
This course is designed to provide management approaches to health care resources (budget, equipment, supplies, etc.). It is intended for health care managers with limited financial skills. Lab fee: $5.00.

MULT 274 TQM/UM/Accreditation 4-0-4
This course prepares health care professionals to apply, analyze, synthesize, and evaluate principles and practices of Total Quality Management (TQM), Utilization Management (UM), and Accreditation. TQM focuses on methods and systems to identify and resolve problems that interfere with optimal care and explore continuous quality improvement processes. UM enlightens the health care manager to their essential involvement in the review process and examines the meaning of utilization review to institutional performance. Accreditation process is presented in a practical manner to approach a very complex concern of health care managers. Health care managers will be more knowledgeable of and compliant with external accreditation processes. Lab fee: $5.00. Prerequisites: ENGL 101, COMM 110, and BMGT 218.

MULT 275 Advanced Homeopathic Theories (A,W,SP,S) 4-0-4
This course will discuss homotoxicology and details of homeopathic care in acute and chronic conditions as they relate to self-care. Referral protocols will also be addressed. Lab fee: $5.00. Prerequisite: MULT 175 or permission of instructor.

MULT 276 Legal Aspects and Risk Management 3-0-3
This course is designed to provide the student with an overview of the legal aspects and risk management of the health care system. It is intended for health care practitioners preparing to enter supervisory positions. Lab fee: $5.00. Prerequisites: ENGL 101, COMM 110, and BMGT 218.

MULT 290 Special Topics in Health Care (A,W,SP,SU) 1-5
This is a workforce training course for employees of health care facilities who have entered into a partnership with CSCC. Various current and timely topics will be offered to give students an opportunity to expand their knowledge and/or skill level in a special area of interest. Prerequisite: permission of instructor.

MULT 291 Special Topics in Health Care Facilities (A,W,SP,SU) 1-5
This is a workforce training program for employees of health care facilities who have entered into a partnership with CSCC. Students will discuss various current and timely topics related to patient care. Prerequisite: permission of instructor. 1-5 credits to a maximum of 10 hours.

Multimedia Production Technology (MMPT)

MMPT 101 Introduction to Multimedia (A - DL) 2-8-5
A basic course designed for student with little or no previous computer skills. This course systematically takes students through an integrated software group with presentation, discussion and laboratory exercises in the following areas: word processing, database management, spreadsheets, drawing, painting and telecommunications abilities. Discussions, presentations and projects are focused on the multimedia profession. Lab fee: $15.00. Prerequisite: CPT 101 or permission of instructor.

MMPT 111 Multimedia Computer Systems (W - DL) 2-8-5
A comprehensive approach to education on Apple Macintosh hardware, software and peripheral system options conducted via on-line presentation, discussion and simulation techniques. Students will understand various components inside the computer "box" as well as the software operating system environment and connectivity applications. Lab fee: $25.00. Prerequisite: MMPT 101.

MMPT 116 Information Logistics (SP - DL) 2-8-5
This course concentrates on the issu s of input, storage, compression and transmission of a wide variety of information media. Various methods of technologies for each focus area, i.e., input, storage, compression and transmission are discussed and laboratory projects are utilized via Internet. Lab fee: $25.00. Prerequisites: MMPT 111 and MMPT 101.

MMPT 131 Multimedia Project Planning (A - DL) 2-8-5
This core technology course focuses student education in three areas of time or project management. These three areas include personal time management, group management/interaction and project management. Understanding of these concepts will help students become more organized as an individual, plus give practical communication skills for interacting with others in a project grouping system. Lab fee: $20.00. Prerequisites: MMPT 101, MMPT 111, and MMPT 116.

MMPT 201 Multimedia Authoring (W) 4-10-6
The course provides an introduction to the fundamental concepts and applications of multimedia authoring. The software used as the authoring tool for multimedia applications and the Internet is Macromedia Director. Students will learn to import and integrate media elements such as 2D and 3D graphics, animation, sound, and digital video from a wide variety of sources. Lab fee: $25.00. Prerequisites: MMPT 101, MMPT 111, MMPT 116, MMPT 131 amd MMPT 226.

MMPT 206 Multimedia Authoring with Macromedia Authorware Pro 4-10-6
Students will be introduced to all phases of the multimedia authoring software application Authorware Pro. Instruction, demonstration and analysis of this software tool set the stage for student laboratory projects in Authorware Pro. Projects i transition and completed format will be stored at Columbus State with retrieval and storage enabled through the Internet medium. Lab fee: $25.00. Prerequisites: MMPT 101, MMPT 111, MMPT 116, MMPT 113 and MMPT 226.

MMPT 211 Multimedia Scripting Languages (SP) **4-10-6**
Scripting languages of Lingo, Hypertext, Applescript and HTML are the focus of this course. Students will be introduced to each scripting language with explanation and examples of their utilization. Complete materials will enable students to have a ready reference to all scripting alternatives. Students will perform projects with each scripting language as part of the laboratory exercise portion of the course. Lab fee: $40.00. Prerequisites: MMPT 201, MMPT 206, MMPT 101, MMPT 111. MMPT 116, MMPT 131 and MMPT 226.

MMPT 216 Still Video Image Editing (W) **4-10-6**
Image input, storage and retrieval are the focus of this course. Each electronic photograph must be handled from digitization, through augmentation and final storage or utilization phases. Raster image software such as Adobe Photoshop will enable students to manipulate images for laboratory projects. Files will be transported over the Internet utilizing industry-standard file compression and transmission technologies. Lab fee: $25.00. Prerequisites: MMPT 101. MMPT 111, MMPT 116, MMPT 131 and MMPT 226.

MMPT 217 Digital A/V Editing (W) **4-10-6**
The basic principles of digital video are presented. Course includes laboratory work dealing with the standards and methods for recording/editing and the interconnection of digital video. Concepts of digital conversion, video coding and processing, and digital audio with video are presented. Lab fee: $25.00. Prerequisites: MMPT 101. MMPT 111, MMPT 116, MMPT 131 and MMPT 226.

MMPT 226 Multimedia Telecomm/Network Systems (A - DL) **2-6-4**
A study of the mechanics of connectivity for multimedia is the center of this core course. Students are introduced to the mechanics, jargon and physical attributes of network systems within a controlled environment, modem and other telecommunications systems and how to plan for the best utilization of transport systems in the multimedia presentation. Lab fee: $20.00. Prerequisites: MMPT 116, MMPT 111 and MMPT 101.

MMPT 231 Technical Illustration (W) **4-10-6**
This course presents students with content and application for the vector graphic areas in multimedia. Specifically, instruction, demonstration and student projects will focus on such illustration software applications as Adobe Illustrator and Macromedia Freehand for creation of two dimensional vector illustrations. Lab fee: $25.00. Prerequisites: MMPT 226, MMPT 101, MMPT 131, MMPT 111 and MMPT 116.

MMPT 236 Modeling (SP) **4-10-6**
A course following the Technical Illustration course, in which students will be able to take two-dimensional vector images and convert them to 3D and solid model formats. Further, sequencing animation techniques will be presented with students performing laboratory exercises for both static and moving animation images. Lab fee: $40.00. Prerequisites: MMPT 216, MMPT 217, MMPT 101, MMPT 111, MMPT 116, MMPT 131 and MMPT 206.

MMPT 237 Animation Development (SP) **4-10-6**
An advanced course where students apply the theory and concepts learned in earlier courses to assemble and produce a moving animation production with sound. Lab fee: $40.00. Prerequisites: MMPT 216, MMPT 217, MMPT 101, MMPT 111, MMPT 116, MMPT 131 and MMPT 226.

MMPT 241 Multimedia Authoring for the Internet/WWW (SP) **4-10-6**
Students will be introduced to multimedia authoring for delivery on the Internet World Wide Web. Components include authoring software tools, practical applications, Internet Service Providers, Netscape Navigator page construction and related issues. Students will be able to apply their knowledge in these areas through the use of their own "homepage" assignments. Lab fee: $40.00. Prerequisites: MMPT 201, MMPT 206, MMPT 101, MMPT 116, MMPT 111, MMPT 131 and MMPT 226.

MMPT 299 Multimedia Internship/Work Experience (SP,SU) **0-36-3**
The student works 36 hours per week in an activity which relates to the students' occupational objective. The on-the-job experience is coordinated by a faculty member who aids in the students' growth and development.

Music (MUS)

MUS 101 History of Western Music (A,W,SP,SU) **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: $8.00. Prerequisite: Placement into ENGL 101.

MUS 102 Introduction to Vocal Technique (A,W,SP) **0-2-1**
An introduction to vocal technique intended for non-music majors. This class will develop basic skills for both solo and group singing through the use of traditional song materials. Lab fee: $2.00.

MUS 103 Vocal Technique II (A,W,SP) **0-2-1**
Continuation of MUS 102: continued development of skills for solo and group singing through traditional song material. Admission by audition. Lab fee: $5.00.

MUS 110 Basic Keyboard and Music Fundamentals I (On Demand) **1-2-2**
Basic applied keyboard combined with the development of music reading and basic aural skills. This course is for those without prior musical experience. Lab fee: $6.00.

MUS 111 Basic Keyboard and Music Fundamentals II (On Demand) **1-2-2**
Continued development of keyboard technique and basic musical theory. Lab fee: $6.00. Prerequisite: MUS 110 or demonstrable equivalent; permission of instructor.

MUS 120 Introduction to Electronic Music (On Demand) **3-0-3**
This course will introduce students to the fundamentals of synthesized music. The origin, development, and present day applications of computerized sound manipulations will be studied. Prototypical synthesizing, MIDI sequencing, and digital sampling will be discussed, demonstrated, and used in classwork. Instruction is through a combination of lecture and hands-on experience. Lab fee: $3.00. Prerequisite: MUS 110 or permission of instructor.

MUS 121 Fundamentals of Music Theory (On Demand) **5-0-5**
An introduction to the elements of music for non-music majors, including notation, composition, and the basic skills necessary for listening and performance. The class is designed to introduce the students to the elements and procedures necessary for the composition and performance of music. Lab fee: $5.00. Prerequisite: Placement into ENGL 101.

MUS 140 World Music (On Demand) **5-0-5**
A survey of nonwestern musical traditions, including forms of music, instrumental development and function, and the role of music and the musician in society. 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: $6.00. Prerequisite: Entry into ENGL 101.

MUS 160 Concert Band (A,W,SP) **0-2-1**
Admission by audition. Preparation of a variety of wind literature for performance. Prior experience in instrumental music expected. Elective credit for AA/AS degrees. Lab fee: $5.00.

MUS 165 Small Instrumental Ensemble (A,W,SP) **0-2-1**
Placement by audition. Specialized ensemble to concentrate on specific instrumental techniques or to explore specialized musical literature. Prior experience in instrumental music expected. Elective credit for AA/AS degree. Lab fee: $5.00.

MUS 180 Vocal Ensemble (A,W,SP) **1-6**
Admission by audition only. Preparation for performance in concert of a variety of music. Music reading ability helpful but not required. It is suggested that a new Ensemble member take MUS 102 concurrently. Lab fee: $2.00.

MUS 221 Musicianship I (A) **3-4-5**
Elements of music and musical notation; analytical concepts and terminology; fundamentals of harmony and melody as well as development of basic aural skills: solfege, dictation, and keyboard drill. For students intending to major in music or those with strong interest in music and possessing music reading ability. Lab fee: $6.00.

MUS 222 Musicianship II (W) **3-4-5**
Principles of diatonic harmony and non-chordal melodic technique; introduction to seventh cord structures; major, minor, pentatonic and blues scales. Continued development of aural skills. Lab fee: $6.00. Prerequisite: MUS 221.

MUS 223 Musicianship III (SP) **3-4-5**
Continued study of diatonic modulation and secondary dominants as well as modal and pentatonic harmonic patterns with an emphasis on creative projects. Continued development of aural skills. Lab fee: $6.00. Prerequisite: MUS 222.

MUS 241 Music History I (A) **3-0-3**
A survey of the development of music from earliest times to the 18th Century. Student ability to read music is assumed. Lab fee: $10.00. Prerequisite: Entry into ENGL 101.

MUS 242 Music History II (W) **3-0-3**
A survey of music from the rococo through the early romantic (1850) periods. Student ability to read music is assumed. Lab fee: $10.00. Prerequisites: Entry into ENGL 101.

MUS 243 Music History III (SP) **3-0-3**
A survey of music from the late romantic period to the present. Student ability to read music is assumed. Lab fee: $10.00. Prerequisite: Entry into ENGL 101.

MUS 290 Capstone Experience in Music (On Demand) **2-2-3**
A capstone course focusing on Music. Students will work on developing techniques and methodologies in the field of music. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $10.00.

MUS 299 Special Topics in Music (On Demand) **1-5**
Detailed examination of selected topics in music. Lab fee: $2.00. Prerequisites vary.

Natural Science (NSCI)

A mandatory safety lesson (normally given in the laboratory) must be completed before the student is admitted to certain natural science laboratory sessions. Approved safety goggles are required for some laboratory sessions and may be purchased through the Bookstore. Attendance during the first week of class is mandatory and may affect a student's continued enrollment in these classes. Students must complete 60% of the laboratories to receive course credit.

NSCI 101 Natural Science I (A,W,SP,SU - DL) **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 and its role in the development of cell and germ theory, germ theory, the atomic nature of matter, and the classification and bonding of the elements. Related laboratory and demonstrations. Safety training and goggles are required for the laboratory. Lab fee: $19.00. Prerequisites: Placement into ENGL 101 and placement into MATH 102 or higher or completion of DEV 031.

NSCI 102 Natural Science II (A,W,SP,SU) **4-3-5**
A continuation of NSCI 101. Topics include the laws of chemical combination, chemical reactions, evolution and natural selection, the diversity of life and ecology, the concept of energy, heat and thermodynamics, kinetic theory, electricity and magnetism, the nature of light, and quantum mechanics. Related laboratory and demonstrations. Safety training and goggles are required for the laboratory. Lab fee: $19.00. Prerequisite: NSCI 101 or equivalent.

NSCI 103 Natural Science III (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, protein synthesis, 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. Safety training and goggles are required for the laboratory. Lab fee: $19.00. Prerequisite: NSCI 102 or equivalent or permission of instructor.

Nursing (NURS)

NURS 109 Student Transition (A,W,SP,SU) **1-0-1**
This course is designed to assist the student who has life experience credit for one or more designated nursing courses with transition into the nursing sequence. The components of the course include socialization into the ADN student role at Columbus State, nursing process, communications skills, and selected psychomotor skills. Prerequisite: Acceptance into Nursing via LPN route or transfer student route.

NURS 110 Introduction to Nursing **1-2-3**
The student will examine the historic and current role of the nurse in the health care delivery system. The nursing process is introduced as a method for planning care and self-care activities that promote, maintain, and restore health in adult and geriatric clients. Communication techniques, teaching/learning principles, and computer skills used by the nurse in delivery of care will be discussed. In the variety of subacute, extended care and community health care settings that will be utilized for the clinical experience, the student will examine the economics of and services available within the system. The student will be introduced to ethical and legal issues as they relate to the practice of nursing. Safe implementation of technical skills with a holistic approach and attention to cultural consideration is stressed. Beginning principles of critical thinking are discussed. Lab fee: $30.00. Prerequisite: Admission to Nursing Technology. Concurrents: BIO 161, PSY 100, ENGL 101 and NURS 120.

NURS 111 Health Promotion of Women and Families (W,SU) **1-9-4**
The student will focus on the role of the nurse as a provider of care in the promotion of health for women and families. The influence of cultural diversity and health care economics on women and families will be included. The student will use the nursing process in providing care and promoting self-care activities. Emphasis will be placed on the teaching/learning process. Concepts of mental and spiritual health will be introduced. Community resources available to women and families will be examined. Clinical experiences will be provided in a variety of community settings. The student will begin application of critical thinking principles. Lab fee: $30.00. Prerequisites: NURS 110, NURS 120, BIO 161, PSY 100 and ENGL 101. Concurrents: BIO 169, PSY 240, NURS 121 and NURS 130.

NURS 112 Introduction to Nursing Concepts of Health Maintenance and Restoration (A,SP) **2-12-6**
The student will focus on the role of the nurse as a provider of care for persons in need of maintenance and/or restoration of health. The student will study the impact of developmental levels and the effect of acute, chronic or terminal conditions as they relate to the ability of the person and family to care for themselves. The physical, psychological, and spiritual well being of the person and family during the dying and death process will be emphasized. The concepts studied include perioperative nursing, pain management, infectious processes, cancer, fluid and electrolyte imbalances, and altered nutrition. A variety of community settings will be utilized for the clinical experience. Lab fee: $30.00. Prerequisites: NURS 111, NURS 121, NURS 130, BIO 169 and PSY 240. Concurrents: BIO 170, NURS 131 and NURS 113.

NURS 113 Nursing Skills (DL) **1-3-2**
Principles and concepts underlying the performance of select nursing skills as well as the technical aspects necessary in performing those skills will be discussed. Critical thinking and communication techniques, which are integral components of the application of these skills in nursing practice, are included. As a provider of care the nurse implements nursing skills with consideration to the developmental level of the person and to the venue in which they practice. In each unit of instruction the legal, ethical and economic issues related to the skills will be presented. Lab fee: $45.00. Prerequisites: NURS 130 or permission of instructor.

NURS 120 Health Assessment in Nursing I (A,SP) **1-3-2**
Nursing assessment of the person is presented in two courses. In the first course the student is introduced to techniques of physical assessment. The student will be involved in holistic assessments of adults with consideration to ethnic variations. Developmental considerations in the geriatric client will be discussed. Legal ramifications of nursing assessment will be presented. Lab fee: $23.00. Prerequisites: Admission to Nursing Technology or permission of instructor. Concurrent: BIO 161.

NURS 121 Health Assessment in Nursing II (W,SP) **1-3-2**
This is the second of two nursing assessment courses. The focus will be on holistic assessments of the childbearing, newborn, and pediatric client. Assessment of mental health status and family relations will also be included. Consideration will be given to ethnic and developmental variations. The assessment of community resources available to promote, maintain, and restore health will be explored. Lab fee: $25.00. Prerequisite: NURS 120. Concurrents: BIO 169, PSY 240 and NURS 111.

NURS 130 Concepts of Pharmacology I (W,SP) **2-3-3**
The student is introduced to the general principles of pharmacology. This is the first of two courses where the focus will be on the nurse's role in drug administration to person's of all ages. Drug classifications and their relationship to promotion, maintenance and restoration of health will be presented. Safe administration and documentation of oral, topical, and injectable medication is presented in the laboratory component. Calculations of medications for each administration form will be taught. Lab fee: $35.00. Prerequisite: NURS 120 or permission of instructor. Concurrent: BIO 169.

NURS 131 Concepts of Pharmacology II (A,SP) **2-3-3**
This is the second of two courses where the focus will be on the nurse's role in drug administration to persons of all ages. Drug classifications and their relationship in promotion, maintenance and restoration of health will be presented. Safe administration of enteric, intravenous and inhalation mediations is presented in the laboratory component. Calculations of medications for each administration form will be taught. Lab fee: $35.00. Prerequisite: NURS 130. Concurrent: NURS 113.

NURS 190 Special Topics (A,W,SP,SU) **1-5**
Various current and timely topics will be offered to give students an opportunity to expand their knowledge and/or skill level in a special interest area. A minimum of one nursing elective will be required. These courses will be small group classes. They may or may not have a laboratory component based on the topic. No clinical offering accompanies these courses. Lab fee: $5.00. Prerequisite: Enrolled in Nursing program 3-7 quarters or permission of instructor.

NURS 192 Special Topics in Nursing (A,W,SP,SU) **1-5**
Lab fee: $5.00.

NURS 194 Special Topics in Nursing (A,W,SP,SU) **1-5**
Lab fee: $5.00.

NURS 210 Nursing Concepts of Health Maintenance and Restoration **2-12-6**
The student is introduced to the concepts of care management while continuing to function as a provider of care and promoter of health for pediatric and adult clients. The focus is on meeting the holistic needs of the client. Maintenance and restoration of health are presented in relating to the integumentary, gastrointestinal, urinary, sensory, and endocrine systems. The nursing process is the framework for continued development of critical thinking skills. Each unit of instruction will contain content on the influence of legal, ethical, cultural, and economic issues related to health care. In the clinical component of the course, which is conducted in a variety of community settings, the student is accountable for their nursing practice. Lab fee: $30.00. Prerequisites: NURS 112, NURS 113, NURS 131 and BIO 170. Concurrents: BIO 115 and ENGL 102.

NURS 211 Nursing Concepts of Health Maintenance and Restoration II **2-12-6**
The student continues to develop the role of manager of care while providing care and promoting health of pediatric and adult clients. The focus is on meeting the holistic needs of clients. Maintenance and restoration of health are presented in relation to the respiratory, cardiovascular, hematological, and reproductive systems. The nursing process is the framework for continued development of critical thinking skills. Each unit of instruction will contain content on the influence of legal, ethical, cultural, and economic issues related to health care. In the clinical component of the course, which os conducted in a variety of community settings, the student is accountable for their nursing practice. Lab fee: $30.00. Prerequisites: NURS 210 and BIO 115.

NURS 212 Nursing Concepts of Health Maintenance and Restoration III **2-12-6**
The student continues to develop the role of manager of care while providing care and promoting health of pediatric and adult clients. The focus is on meeting the holistic needs of clients. Maintenance and restoration of health are presented in relation to mental health, and the neurological, musculoskeletal, and immune systems. The nursing process is the framework for continued development of critical thinking skills. Each unit of instruction will contain content on the influence of legal, ethical, cultural, and economic issues related to health care. In the clinical component of the course, which os conducted in a variety of community settings, the student is accountable for their nursing practice. Lab fee: $30.00. Prerequisite: NURS 211. Concurrent: MATH 135.

NURS 213 Concepts of Nursing Management (A,SP) **2-18-8**
The student will synthesize concepts of care management to develop leadership skills inherent in the profession of nursing. The student will assume the roles of provider of care, manager of care, and member within the discipline of nursing. Ethical, legal, political, and economic issues as they relate to professional nursing will be presented. Current trends in nursing practice are analyzed. The student will focus on holistic care of groups of clients and their families in the promotion of self-care activities. The clinical experience will be conducted in a variety of community settings. Lab fee: $30.00. Prerequisites: NURS 212 and MATH 135.

Office Administration (OADM)

OADM 101 Business Grammar Usage (A,W,SP - DL) 2-3-3
This course is a structured program reviewing all eight parts of speech in detail. In addition, it is designed to assist the student to become skillful in sentence analysis, word choice, punctuation, vocabulary, capitalization, number expression, and spelling.

OADM 102 Editing Business Documents (W,SP) 2-3-3
Editing Business Documents is a course which has application for anyone who writes, edits, or prepares final copy for distribution or publication. Includes basic rules regarding grammar usage and aspects of style, as well as techniques and procedures for producing many different kinds of written communications. In addition to editing and proofreading at the computer, letters, memos, reports, tables, and a wide variety of other business documents will be formatted. Lab fee: $3.00. Prerequisites: OADM 101 and OADM 132, or permission of instructor.

OADM 111 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 analysis of business transactions, journalizing, posting, adjusting and closing entries, and financial statement preparation. Also included are transactions involving payroll accounting, bank accounts, and cash funds.

OADM 112 Computerized Accounting Using QuickBooks (A,W) 1-0-1
Students will learn how to keep a set of computerized books for small businesses using QuickBooks. Lab fee: $1.00. Prerequisites: OADM 111 or permission of instructor.

OADM 121 Records Management (A,W,SP) 2-3-3
This course is designed to provide knowledge of efficient handling of business records, ARMA filing methods and systems, and principles for the selection of records systems and supplies.

OADM 131 Keyboarding I (A,W,SP,SU - DL) 2-3-3
An introductory interactive system of keyboarding by touch and applications using microcomputers and software; development of basic keyboarding skills measured in words per minute and accuracy of one error per minute. To receive credit for this course, students must (a) complete all keyboarding lessons in assigned text, and (b) be able to type at least two different two-minute timings, each demonstrating minimum speed of 25 words a minute with accuracy of two errors or less. Lab fee: $3.00.

OADM 132 Keyboarding II (A,W,SP,SU) 2-3-3
An intermediate interactive system of reinforcing keyboarding skills by touch and applications using microcomputers and Microsoft Word designed to teach formats for business correspondence, tabulations, and manuscripts with emphasis on correct techniques, proofreading, decision-making skills, and accuracy; further development of keyboarding speed measured in words per minute and accuracy of one error per minute on three-minute timings. To receive credit for this course, students must demonstrate assigned formatting skills and be able to type at least two different three-minute timings, each demonstrating minimum speed of 35 words a minute with accuracy of three errors or less. Lab fee: $3.00. Prerequisite: OADM 131 or proficiency test.

OADM 133 Keyboarding III (W,SP,SU) 2-3-3
An advanced interactive system of reinforcing keyboarding skills by touch and applications using microcomputers and Microsoft Word software designed to teach business correspondence, tabulations, manuscripts, reports, and various business forms with emphasis on correct techniques, proofreading, decision-making skills, and accuracy; further development of keyboarding speed measured in words per minute and accuracy of one error per minute on five-minute timings. To receive credit for this course, students must demonstrate assigned formatting skills and be able to type at least two different five-minute timings, each demonstrating minimum speed of 45 words per minute with accuracy of five errors or less. Lab fee: $3.00. Prerequisite: OADM 132 or proficiency test.

OADM 134 Keyboarding IV (SP,SU) 2-3-3
The focus in this course is in three areas of learning: developing keyboarding speed and accuracy, building production-level mastery on a wide variety of business documents, and using word processing functions and features to streamline the creation of professional-looking documents. Lab fee: $5.00. Prerequisite: OADM 133.

OADM 139 Keyboarding Improvement (A,W,SP,SU) 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: $3.00. Prerequisite: OADM 131.

OADM 144 Notetaking Using SuperWrite (W,SP) 2-3-3
This course introduces the basics of SuperWrite, an abbreviated writing system based on the longhand alphabet and secondarily on phonetics. Practice for speed and accuracy. Lab fee: $5.00. Prerequisites: OADM 131.

OADM 151 Machine Transcription (SP,SU) 3-2-4
This course is designed to develop skill 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 is on the fundamentals of English in grammar, spelling, and vocabulary will reinforce transcription skills. Lab fee: $3.00. Prerequisite: OADM 132. Concurrent: OADM 133.

OADM 161 Data Entry Database Management (W,SU) 2-3-3
The student will create databases using a Window's computer application, enter data, retrieve records, and generate appropriate reports. Development of data entry skills are measured in key strokes per hour and percentage of accuracy. Lab fee: $4.00. Prerequisite: OADM 131.

OADM 164 WordPerfect for Windows I (A,W,SP,SU) 2-3-3
Provides a solid foundation for this word processing software. Covers basic to advanced features including the use of icons, the ruler bar, line and page formatting, tabs, headers, footers, footnotes, endnotes, tools, and file management.

OADM 165 WordPerfect for Windows II (A,W,SP,SU) 2-3-3
Covers such special features as using multiple windows, merging, macros, envelopes and labels, sorting and selecting, columns, tables, desktop publishing, style sheets, and manuscripts. Lab fee: $5.00. Prerequisite: OADM 164.

OADM 167 Desktop Publishing Using Pagemaker (A,W,SP,SU) 2-3-3
Principles of design and hands-on experience with PageMaker. Lab fee: $20.00. Requirements: 35 wpm typing skill and knowledge of a personal computer in general, Windows, and word processing.

OADM 172 Spreadsheet Basics Using Excel for Windows (A,W,SP,SU) 2-3-3
A foundation course in spreadsheets for office workers. Covers major spreadsheet features of the program including spreadsheet design, formulas, functions, and charts. Applications investigate Excel's powerful features in business situations. Lab fee: $5.00.

OADM 173 Spreadsheet and Word Processing for Managers (A,W,SP,SU) 1-2-2
Students will learn and use Microsoft Word and Excel in an integrated approach that will develop software skills when solving managerial problems. Lab fee: $5.00. Prerequisites or concurrent: MKTG 111, or LOGI 100, or RETL 101.

OADM 181 Windows (A,W,SP,SU) 1-0-1
Introduction to Windows 95, a graphic user interface (GUI), which allows users to interact with computers using icons and simple menu items instead of the command line statements required in DOS. Includes such features as the Control Panel, the Program Manager, the Explorer, the Print Manager, and Windows accessories. Lab fee: $5.00.

OADM 191 Microsoft Word for Windows I (A,W,SP,SU) 2-3-3
Provides a solid foundation for this word processing software. Covers basic to intermediate features including creating, editing, printing documents, using icons, rulers, and the file manager. Lab fee: $5.00. Prerequisites: OADM 131 or permission of instructor.

OADM 192 Microsoft Word for Windows II (A,W,SP,SU) 2-3-3
Advanced features of Microsoft Word are presented including creating charts, formatting text into columns, formatting with styles, merging documents, sorting, creating tables and indexes. Lab fee: $5.00. Prerequisites: OADM 191 or MCT 106.

OADM 201 Business Research Using the Internet (A,W,SP,SU) 1-0-1
Students will learn to use the Internet as a communication and information retrieval tool. Students will learn how to use browsers, listserv mailing lists, and news groups. Lab fee: $1.00. Prerequisites: OADM 102 or permission of instructor.

OADM 211 Office Management (A,SU) 4-1-5
This upper-level course includes an introduction to human relationships in business organizations, communication skills, motivational skills, management styles and objectives, business ethics, and organizational challenges. Students should have completed 45 credits before taking this course.

OADM 213 Medical Office Management (SP) 2-3-3
This course is designed to familiarize the student in Medical Office Administration with computerized account management, including patient account information, scheduling, chart notes, filling, insurance claim filing, and other routine medical practice reporting. Lab fee: $5.00. Prerequisites: OADM 133 and OADM 165; BIO 111.

OADM 224 Office Field Experience I (W) 0-24-2
The student is employed for approximately 24 hours a week in an office position that will provide application of as many of the theories taught in the office administration program as is practical for each individual. The on-the-job field experience is supervised by a field experience coordinator to aid in the student's growth and development. Prerequisites: OADM 134, OADM 165 and OADM 261.

OADM 225 Office Field Experience II (SP) 0-24-2
A continuation of OADM 224. The student continues to apply what has been learned in the classroom to tasks and situations encountered at work. The on-the-job field experience is supervised by a field experience coordinator to aid in the student's growth and development. Prerequisite: OADM 224.

OADM 252 Advanced Transcription (W) 2-3-3
This course is computer interactive development of advanced skills in the use of machine transcription equipment, with greater emphasis on accuracy in grammar and spelling, the development of an acceptable rate of speed, as well as producing mailable work on the first attempt. Lab fee: $5.00. Prerequisite: OADM 151 with a grade of "C" or higher.

OADM 253 Legal Transcription (A) 3-2-4
Introduction to responsibilities of legal office support staff, law office correspondence, the state court system, civil litigation procedures, criminal law, and probate law, including estates, guardianships, adoptions, and paternity. Lab fee: $5.00. Prerequisites: OADM 133 and OADM 151.

OADM 254 Legal Transcription II (W) 3-2-4
Continuation of Legal Transcription covering domestic relations, contracts, corporate law, real estate, bankruptcy, appellate procedures, and the federal court system. Lab fee: $5.00. Prerequisite: OADM 253.

OADM 261 Electronic Office Procedures (A) 3-2-4
This upper-level course is designed for second-year students who are preparing to enter an Office Administration position or who are currently working in an office. The student will prepare for a job search, consider topics such as incoming and outgoing communications, reprographics, travel arrangements, meetings and conferences, preparing presentations and meeting minutes, as well as other advanced topics. Lab fee: $5.00. Prerequisite: OADM 134 and OADM 165 or permission of instructor.

OADM 297 Special Topics in Office Administration (On Demand) 1-3
Detailed examination of selected topics of interest in office administration. Lab fee: $20.00 Prerequisites vary.

Physics (PHYS)

Students must complete 60% of the laboratories to receive course credit.

PHYS 100 Introduction to Physics (A,W,SP,SU) 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: $10.00. Prerequisites: MATH 102 or equivalent, and placement into ENGL 100. Not open to students with credit for PHYS 117, PHYS 118, PHYS 177, PHYS 178, PHYS 181, PHYS 182, PHYS 183, or PHYS 185.

PHYS 117 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: $11.00. Prerequisites: MATH 148 or MATH 111 or equivalent, placement into ENGL 101. Not open to students with credit for PHYS 177 or PHYS 178. This course and PHYS 118 provide a two-quarter sequence in physical science that will fulfill the elective requirement for the Associate of Science Degree.

PHYS 118 College Physics (Electricity, Magn. and Light)(A,W,SP,SU) 4-3-5
A continuation of PHYS 117. 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: $10.00. Prerequisites: PHYS 117, and MATH 150 or MATH 112 or equivalent. Not open to students with credit for PHYS 177, PHYS 178 or PHYS 179.

PHYS 119 College Physics (Modern Physics) (A,W,SP) 4-3-5
A continuation of PHYS 118. 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: $10.00. Prerequisites: PHYS 118. Not open to students with credit for PHYS 177, PHYS 178 or PHYS 179.

PHYS 177 General Physics I (A,W,SP,SU) 4-3-5
A course in the fundamental principles of mechanics for physics majors and engineers. 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: $11.00. Prerequisites: MATH 151, high school physics or PHYS 100 recommended and placement into ENGL 101. This course and PHYS 178 provide a two-quarter sequence in physical science that will fulfill the elective requirement for the Associate of Science Degree.

PHYS 178 General Physics II (A,W,SP,SU) 4-3-5
A continuation of PHYS 177. Topics covered include Coulomb's law, electric fields and potentials, capacitors and dielectrics, current and resistance, dc circuits. Magnetic fields and forces, electromagnetic properties of matter, ac circuits. Related laboratory and demonstrations. Lab fee: $10.00. Prerequisite: PHYS 177 and MATH 152.

PHYS 179 General Physics III (A,W,SP,SU) 4-3-5
A continuation of PHYS 178. Topics include mechanical waves, sound, electromagnetic waves, light, mirrors, lenses, interference, diffraction, polarization, relativity, photons, structure of atoms, nuclei, and solids. Related laboratory and demonstrations. Lab fee: $10.00. Prerequisite: PHYS 178 and MATH 153.

PHYS 181 Technical Physics (Mechanics) (A,W,SP,SU) 3-3-4
A course in the basic principles of mechanics. Major topics include equilibrium or rigid bodies, particle motion, Newton's laws of motion, work and energy, conservation principles, and rotational motion. Related laboratory and demonstrations. Lab fee: $10.00. Prerequisite: MATH 111 or MATH 148 or equivalent, and placement into ENGL 100. Not open to students with credit for PHYS 117 or PHYS 177.

PHYS 183 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: $10.00. Prerequisites: MATH 111 or MATH 148 or equivalent, and placement into ENGL 100. Not open to students with credit for PHYS 117 or PHYS 177.

PHYS 185 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: $12.00. Prerequisites: MATH 112 or equivalent, and placement into ENGL 100. Not open to students with credit for PHYS 117 or PHYS 177.

PHYS 290 Capstone Experience in Physics (On Demand) 2-2-3
An integrated science course blending elements of chemistry, physics and biology. Topics include the historical development of the sciences, ethical issues in science and how they affect the advancement of scientific thought, and the scientific method as it relates to experimental design and interpretation of scientific results. The laboratory utilizes an investigative approach taking students through the process of identifying a research problem, conducting a literature review, writing a research proposal, collecting and analyzing data, writing a scientific paper and presenting results. Lab fee: $18.00. Prerequisites: 75 hours or more of course work completed with a minimum of 20 credit hours within the sciences. This course is required for all physics majors seeking either the Associate of Arts or Associate of Science degree.

PHYS 293 Independent Study in Physics 1-5
Detailed examination of selected topics of interest in physics. Lab fee: $6.00. permission of instructor.

Philosophy (PHIL)

PHIL 101 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 ENGL 101.

PHIL 130 Ethics (A,W,SP,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 ENGL 101.

PHIL 150 Introduction to Logic (A,W,SP,SU) 5-0-5
An introduction to 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 ENGL 101.

PHIL 250 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 PHIL 150. 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: Placement into ENGL 101.

PHIL 270 Philosophy of Religion (On Demand) 5-0-5
An introduction to the major issues in the philosophy of religion including the existence of God, faith and reason, the problem of evil, miracles, death and immortality, and God and morality. Meets elective requirements in the Associate of Arts and Associate of Science programs. Lab fee: $2.00. Prerequisite: Placement into ENGL 101.

PHIL 290 Capstone Experience in Philosophy (On Demand) 2-2-3
A capstone course focusing on philosophy. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $10.00.

PHIL 299 Special Topics in Philosophy 1-5
Detailed examination of selected topics in philosophy. Lab fee: $2.00. Prerequisites vary.

Political Science (POLS)

POLS 101 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: $6.00. Prerequisite: Placement into ENGL 101.

POLS 165 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: $6.00. Prerequisite: Placement into ENGL 101.

POLS 290 Capstone Experience in Political Science (On Demand) **2-2-3**
This course is designed for students completing the two-year Associate of Arts or Associate of Science degree who have special interest in continuing a baccalaureate degree program in political science. Students will devise a research project that relates to their academic interests after reviewing research methodologies and findings in political science; complete a portfolio that covers their academic career at Columbus State Community College; and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree with five credit hours in political science.

POLS 293 Independent Study in Political Science **1-5**
An individual student-structured course that examines a selected topic in political science through intensive reading or research. The independent study elective permits a student to pursue his/her interest within the context of a faculty-guided program. Lab fee: $5.00. Prerequisite: Permission of the Instructor and the Chairperson.

POLS 299 Special Topics in Political Science **1-5**
A detailed examination of selected topics of interest in political science. Lab fee: $5.00. Prerequisites vary.

Psychology (PSY)

PSY 100 Introduction to Psychology (A,W,SP,SU - DL) **5-0-5**
An introductory course that provides an overview of the origins, growth, 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: $6.00. Telecourse lab fee: $25.00. Prerequisite: Placement into ENGL 101.

PSY 200 Educational Psychology (On Demand) **5-0-5**
Concepts and factors affecting application of psychological principles to the education process. Presents theories of learning, motivation, classroom management, planning, teaching, and student evaluation in relationship to developmental stages. Lab fee: $6.00. Prerequisite: PSY 100 and placement into ENGL 101.

PSY 201 Field Based Experience in Educational Psychology (On Demand) **1-5**
Designed to teach the relationship between psychological principles and the education process. The supervised field experience emphasizes appropriate teaching strategies for different age groups and settings. Practical experiences are related to classroom organization, management, and learning activities. The field based course consists of 12 hours per academic credit hour in an educational or community setting. Lab fee: $6.00. Prerequisite: PSY 100 and placement into ENGL 101. Concurrent: PSY 200.

PSY 230 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-IV). The course focuses on classification schemes of diagnoses and looks at descriptive terms and symptoms. Research, major perspectives, and myths in the field of mental health will be examined. Lab fee: $6.00. Prerequisite: PSY 100 and placement into ENGL 101.

PSY 235 Psychology of Adjustment (On Demand) **3-0-3**
Psychological factors which influence individual growth, development, and behavior will be examined. 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: $6.00. Prerequisite: PSY 100 and placement into ENGL 101.

PSY 240 Human Growth and Dev. 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: $6.00. Prerequisite: PSY 100 and placement into ENGL 101.

PSY 261 Introduction to Child Development (A,W,SP,SU) **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: $6.00. Prerequisites: PSY 100 and placement into ENGL 101.

PSY 267 Social Psychology (On Demand) **5-0-5**
An introductory course that provides an overview of the origins, growth, content, and application of individuals in social settings, including the application of the scientific method and cultural influence in the treatment of the following topics: attitudes and attitude change, attribution, social identity (self and gender), social perception (understanding others), social cognition (thinking about others and their social environment), prejudice and discrimination, non-verbal communication, obedience to authority, conformity, aggression, prosocial behavior, interpersonal attraction, and behavior in groups. Lab fee: $6.00. Prerequisite: PSY 100 and placement into ENGL 101.

PSY 290 Capstone Experience in Psychology (on Demand) **2-2-3**
This course is designed for students completing the two-year Associate of Arts or Associate of Science degree who have a special interest in continuing a baccalaureate degree program in psychology. Students will devise a research project that relates to their academic interests after reviewing research methodologies and findings in psychology; complete a portfolio that covers their academic career at Columbus State Community College, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree with five credit hours in psychology.

PSY 293 Independent Study in Psychology (On Demand) **1-5**
An individual student-structured course that examines a selected topic in psychology through intensive reading or research. The independent study elective permits a student to pursue his/her interests within the context of a faculty-guided program. Lab fee: $5.00. Prerequisite: Permission of the Instructor and the Chairperson.

PSY 299 Special Topics in Psychology (On Demand) **1-5**
A detailed examination of selected topics of interest in psychology. Lab fee: $5.00. Prerequisites vary.

Purchasing Major
(See Logistics)

Quality Assurance Technology (QUAL)

For Statistical Process Control, see MECH 244 in the Mechanical Engineering Technology course descriptions. For other related course descriptions, see Electronic Engineering Technology and Mechanical Engineering Technology.

QUAL 120 Engineering Drawing Interpretation (W,SU) **2-2-3**
This course is a study in the proper use and interpretation of lines, symbols, abbreviations, and terminology of engineering drawings. Emphasis is on reading rather than drawing. Text illustrations use multi-views of details and assemblies, including machined, cast, welded, structural, and developed sheet metal. Also included are reading symbols for fluid power and electronic circuitry. Prerequisite: MECH 110.

QUAL 150 Quality Transformation (A,W,SP) **3-2-4**
This course focuses on teamwork and the application of Total Quality Transformation® tools. Teams of students and employees from business and industry solve existing quality problems in their organizations with careful direction and on-site visits by faculty.

QUAL 240 Total Quality Management (A,W) **2-2-3**
This course is a study and practice of the major elements and concepts of total quality management, including principles and styles of quality management, systems thinking, continuous improvement, management by data, and historic influences of leaders in quality management.

QUAL 250 Metrology (SP) **2-2-3**
Making precise measurements is an important part of producing quality products for consumers, industry, and the military. The course is restricted to measurement, including measurements required to use tools and instruments for designing, building, operating and maintaining material objects. The values used in quality functions are determined by measurement. Students use a variety of instruments and systems to make precision measurements, using both English and Metric systems. Lab fee: $10.00. Prerequisite: MATH 112

QUAL 251 Value Engineering (W) **2-2-3**
Value engineering is the systematic application of recognized techniques which identify the function of a product or service, establish a monetary value for that function, and provide the necessary function reliably at the lowest overall cost. Students will be introduced to value engineering concepts and applications for the practitioner, including functional aspects of part and component as well as service subsystem interactions to meet fit for end use requirements. Prerequisite: MECH 244.

QUAL 260 Reliability and Systems Maintainability (SP) **3-0-3**
This course is an examination of the basic methods that companies use to ensure the reliability of their products. Students learn statistical methods used to determine reliability, the effectiveness of data analysis, use of simulations, and ways to improve system performance. Prerequisites: MATH 135 and MECH 244.

QUAL 261 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.

QUAL 262 Materials Testing and Analysis (W) **2-2-3**
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. Prerequisite: QUAL 120.

Radiography (RAD)

RAD 111 Introduction to Radiologic Technology **3-0-3**
Basic introduction to radiologic principles and clinical radiography. Areas of emphasis include fundamentals of radiobiologic concepts, medical ethics, body mechanics, patient care skills, and clinical observation. This course is a prerequisite for all other radiologic technology courses. Prerequisite: Completed health record, acceptance into program.

RAD 113 Radiologic Science **5-0-5**
The course begins with a review of basic concepts of electricity, electromagnetism, and electrical circuits. The student is then introduced to the theory of x-ray production, x-ray emissions, and x-ray interactions. Applications of equipment are discussed to include special x-ray equipment such as tomography, stereoradiography, mammography, and fluorscopy. Prerequisite: RAD 111.

RAD 118 Radiographic Exposure and Processing **4-2-5**
This course consists of a study of film processing through analysis of radiographic film characteristics, film processing, film storage and handling, and silver recovery methods. Photographic and geometric properties necessary to the production of a quality radiograph are discussed, as well as technical conversions necessary to maintain film density. Lab fee: $25.00. Prerequisite: RAD 113.

RAD 123 Advanced Exposure and Processing (W) **3-2-4**
This advanced course analyzes factors which affect the diagnostic quality of the radiograph. Technique charts are developed. The importance of a quality assurance program is emphasized and quality control testing is presented. Students are required to conduct quality control testing and troubleshooting of radiographic equipment. Lab fee: $30.00. Prerequisite: RAD 118.

RAD 126 Radiation Biology and Protection **3-0-3**
This advanced science course examines human responses to ionizing radiations. Early and late effects of radiation exposure are discussed, as well as an indepth analysis of radiation protection standards and practices. Lab fee: $25.00. Prerequisite: RAD 113.

RAD 141 Radiographic Procedures I **3-3-4**
The student is introduced to radiologic terms specific to imaging, equipment operation, and patient positioning. Specific areas of study include physician assisting, and radiographic anatomy to include gastrointestinal system, upper and lower extremities, chest, abdomen, and basic urography. Lab provides the opportunity for practice and demonstration of proficiency. Lab fee: $50.00. Prerequisite: Admission to program.

RAD 142 Radiographic Procedures II **3-3-4**
This course serves as a continuation of RAD 141, with progression through the positioning categories and radiographic anatomy. Course topics include basic fluoroscopic procedures, the vertebral column, bony thorax, specialized biliary and urographic studies, and tomography. Lab fee: $50.00. Prerequisite: RAD 141.

RAD 143 Radiographic Procedures III **3-3-4**
This course serves as the final of a series of three, with progression through the remaining categories of positioning and radiographic anatomy. Course topics include specialized fluoroscopic and radiographic studies, skull and facial bones, operative radiography, and trauma radiography. Lab fee: $50.00. Prerequisite: RAD 142

RAD 148 Special Radiographic Procedures **3-0-3**
This course provides a detailed examination of cardiovascular, neurologic, interventional radiologic studies and common specialized procedures. The course begins with discussion of specialized equipment and materials. Emphasis is placed on pertinent anatomy, diagnostic value and/or therapeutic value of each examination. Prerequisite: RAD 143.

RAD 211 Sectional Anatomy (A) **1-0-1**
Sectional anatomy is introduced. Emphasis on head, chest, abdomen and pelvis. Students will be required to give a presentation demonstrating correlations between different sectional imaging modalities. Lab fee: $3.00. Prerequisite: RAD 143.

RAD 222 Computerized Imaging (A) **1-0-1**
This course presents a survey of computerized modalities related to radiography to include an introduction to computers in medical imaging, digital radiography, computed tomography, magnetic resonance imaging, positron emission tomography and Picture Archival and Communication Systems (PACS). Lab fee: $3.00. Prerequisite: RAD 113.

RAD 231 Radiographic Pathology **3-0-3**
The course begins with a review of common terms relating to pathology. Using a survey approach, this course continues with a study of various disease processes and their effect on body systems as they relate to radiography and allied imaging modalities. Students are required to write a term paper on a specific pathologic process. Prerequisite: RAD 148.

RAD 254 Seminar I (SU) **1-0-1**
Evaluation and review of radiography cases and discussion of current issues in the radiologic sciences.

RAD 255 Seminar II (A) **1-0-1**
Evaluation and review of radiography cases and discussion of current issues in the radiologic sciences. Concurrent: RAD 265.

RAD 256 Seminar III (W) **1-0-1**
Evaluation and review of radiography cases and discussion of current issues in the radiologic sciences. Concurrent: RAD 266.

RAD 257 Seminar IV (SP) **1-0-1**
Evaluation and review of radiography cases and discussion of current issues in the radiologic sciences. This summative course also reviews all program requirements. (Elective course.) Concurrent: RAD 267.

RAD 261 Clinical I **1-16-2**
Clinical provides the opportunity for the student to become familiar with the care and positioning of the patient. Proficiency requirements are completed using a competency-based educational format over the course material presented in Radiologic Procedures I. Film Critique is incorporated to provide a correlation of all factors that comprise a finished radiograph to include an analysis of anatomic structures, patient positioning, radiation protection, and fundamental exposure techniques. Prerequisite: RAD 111.

RAD 262 Clinical II **1-16-2**
Clinical II provides the practical experience necessary to function as a radiographer and is designed to enhance and compliment didactic studies. Clinical experience is gained in the general diagnostic and fluoroscopic areas, the emergency department, and on portable radiography rotations. Film critique is continued to provide a correlation of all factors that comprise a finished radiograph. Case presentations are introduced. Prerequisite: RAD 261.

RAD 263 Clinical III **1-16-2**
A continuation of Clinical II. Clinical III provides the practical experience necessary to function as a radiographer and is designed to complement and enhance the didactic studies. Clinical experience is gained in the general diagnostic and fluoroscopic areas, the emergency department, the operating room, tomography, portable radiography, and digital imaging. Film critique and case presentations are continued. Prerequisite: RAD 262.

RAD 264 Clinical IV (SU) **1-24-3**
A continuation of Clinical III. Clinical IV provides the practical experience necessary to function as a radiographer and is designed to enhance and compliment the didactic studies. Clinical experience is gained in the general diagnostic and fluoroscopic areas, the emergency department, the operating room, tomography, portable radiography, the computed tomographic area, to include an evening rotation. In addition, each student is required to observe a radiologist during film reading and dictation. Film critique and case presentations are continued. Lab fee: $18.00. Prerequisite: RAD 263.

RAD 265 Clinical V **1-24-3**
A continuation of Clinical IV. Clinical V provides the practical experience necessary to function as a radiographer and is designed to enhance and compliment didactic studies. Clinical experience is gained in the general radiographic and fluoroscopic areas, emergency department, operating room, portable radiography, tomography, computed tomography, cardiovascular and interventional radiology, digital imaging and special area (one day) rotations in nuclear medicine, radiation oncology, diagnostic medical sonography, cardiac catheterization laboratory, and extra-corporeal shock wave lithotripsy. Film critique and case presentations are continued. Prerequisite: RAD 264.

RAD 266 Clinical VI **1-24-3**
A continuation of Clinical V. Clinical VI provides the practical experience necessary to function as a radiographer. Clinical experience is obtained in general radiographic and fluoroscopic areas, the emergency room, the operating room, tomography, mammography, portable radiography, digital imaging, computed tomography, and magnetic resonance imaging. Film critique and case presentations are continued. Prerequisite: RAD 265.

RAD 267 Clinical VII (SP) **1-24-3**
A continuation of Clinical VI. Students are required to complete the Final Competency Examination during this quarter. Clinical rotations are scheduled in the general radiographic and fluoroscopic areas, the operating room, the emergency room, mammography, and computed tomography. Once the Final Competency Examination has been satisfactorily completed, the student may custom design their own specific clinical rotations. Critique and case presentations are continued. Prerequisite: RAD 266.

RAD 268 Clinical IV-B (SU) **0-32-4**
A continuation of Clinical III. Clinical IV-B description is the same as RAD 264 (Clinical IV). This course is an elective which gives program students an opportunity to increase the clinical contact hours while in the program. Lab fee: $18.00. Prerequisite: RAD 263. Concurrent: RAD 254.

Real Estate (REAL)

REAL 101 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: $3.00.

REAL 102 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: $3.00.

REAL 104 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: $3.00.

REAL 111 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: $3.00. Concurrents: REAL 101, REAL 102 and REAL 112.

REAL 112 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: $3.00. Concurrents: REAL 101, and REAL 102.

REAL 121 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: $3.00. Prerequisites: REAL 101 and REAL 102 or Real Estate License.

REAL 123 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 continuing education requirement. (See advisor) Lab fee: $5.00. Prerequisite: Real Estate License.

REAL 202 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: $3.00. Prerequisite: REAL 101.

REAL 212 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: $3.00. Prerequisite: REAL 112.

REAL 213 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: $3.00. Prerequisite or concurrent: REAL 212.

REAL 214 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: $3.00. Prerequisite: REAL 213.

REAL 221 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: $3.00. Prerequisite: REAL 101.

REAL 233 Practical Financial Analysis (On Demand) 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: $3.00.

REAL 234 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: $3.00.

REAL 236 Real Estate Development (A) 3-0-3
An overview of the entire field of real estate development including its methodology, history, marketing, and specific operations of planning, analysis, feasibility studies, negotiation techniques, and property management. Lab fee: $3.00. Prerequisites: REAL 101, REAL 102, REAL 111 and REAL 112.

REAL 281 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: $3.00.

REAL 282 Real Estate Today Seminar II (on Demand) 2-0-2
Continuation of REAL 281. Lab fee: $3.00.

REAL 283 Real Estate Today Seminar III (on Demand) 3-0-3
Continuation of REAL 282. Lab fee: $3.00.

REAL 284 Uniform Standards of Professional Appraisal Practice (On Demand) 2-0-2
Capstone course for the Ohio appraisal certification. Course user to apply the standards of the industry to the instruments of appraisal process. Lab fee: $3.00. Prerequisites: REAL 211, REAL 212 or equivalent experience.

REAL 290 Post Licensure Sales Course (once each quarter) 1-0-1
Mandatory 10 hour Post Licensure course for Real Estate Salepersons. Course covers the following topics: The housing market today; Future trends impacting real estate markets; License law matters; Legal matters; Environmental concerns; Real estate specialties; The image of real estate licensees; and Finance, taxes, and legislation. Lab fee: $3.00.

REAL 291 Post Licensure Brokers Course (On Demand) 1-0-1
Mandatory 10 hour Post Licensure course for Real Estate Brokers. Course covers the following topics: The housing market today; Future trends impacting real estate markets; License law matters; Legal matters; Environmental concerns; Real estate specialties; The image of real estate licensees; and Finance, taxes, and legislation. Lab fee: $3.00.

Respiratory Care (RESP)

RESP 100 Introduction to Respiratory Care (A) 3-4-5
This course presents an integrated introduction to the care of pulmonary patients. Course content will focus on the skills required and the methods used to manage cardiopulmonary problems. Lab fee: $35.00. Prerequisite: Acceptance into the technology.

RESP 114 Introduction to Pulmonary Disease (W) 3-2-4
This course provides an integrated approach to the anatomy, physiology and pathology of the cardiopulmonary system. Normal and abnormal function will be compared. Emphasis will be placed on cardiopulmonary functions that are frequently measured to monitor patient status. Prerequisite: RESP 100 or permission of instructor. Concurrent: RESP 150.

RESP 130 Patient Assessment I (SP) 1-2-2
This course presents a holistic approach to assessment of adult and pediatric patient in the subacute/homecare setting. Special emphasis will be placed on assessment of the cardiopulmonary function. Prerequisites: RESP 114, RESP 150 or permission of instructor. Concurrents: RESP 152 and RESP 190.

RESP 132 Patient Assessment II (SU) 1-2-2
This course presents a holistic approach to assessment of adult and pediatric patients in the acute care setting. Special emphasis will be placed on assessment of the cardiopulmonary system. Prerequisite: RESP 130. Concurrents: RESP 154 and RESP 198.

RESP 150 Introduction to Pharmacology (W) 2-0-2
This course provides an introduction to the basic principles of therapeutic drug administration. Classification of drugs will be included. Special emphasis will be directed to safety issues, sources of drug information, and application to respiratory care practice. Prerequisites: RESP 100 or permission of instructor. Concurrent: RESP 114.

RESP 152 Case Management I (SP) 1-2-2
This course presents a holistic approach to the management of adult and pediatric patients in the subacute and homecare settings. Special emphasis will be placed on the management of the cardiopulmonary problems. Prerequisites: RESP 114, RESP 150 or permission of instructor. Concurrents: RESP 130 and RESP 196.

RESP 154 Case Management II (SU) 1-2-2
This course presents a holistic approach to the management of adult and pediatric patients in the acute care setting. Special emphasis will be placed on the management of the cardiopulmonary problems. Prerequisite: RESP 152 or permission of instructor. Concurrents: RESP 132 and RESP 198.

RESP 170 Mechanical Ventilators (A) 0-2-1
Students will learn to assemble equipment used for mechanical ventilatory support, check it for proper function, identify and correct malfunctions. Prerequisite: permission of instructor.

RESP 196 Clinical Practice/Therapeutic Procedures I (SP) 2-12-8
This course is focused on conducting respiratory care procedures in the subacute and homecare setting. Lab fee; $35.00. Prerequisites: RESP 150 or permission of instructor. Concurrents: RESP 130 and RESP 152.

RESP 198 Clinical Practice/Therapeutic Procedures II (SU) 2-12-8
This course is focused on conducting respiratory care procedures in the acute care setting. Lab

fee: $35.00. Prerequisites: RESP 196 or permission of instructor. Concurrents: RESP 132 and RESP 154.

RESP 230 Patient Assessment III (A) **1-2-2**
This course presents a holistic approach to the assessment of adult and pediatric patient in the critical care setting. Special emphasis will be placed on assessment of the cardiopulmonary system. Prerequisite: RESP 132 or permission of instructor. Concurrents: RESP 256 and RESP 290.

RESP 232 Pediatric Respiratory Care (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. Lab fee: $20.00. Prerequisite: permission of instructor.

RESP 238 Pulmonary Function (A,W,SP,SU) **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: Permission of instructor.

RESP 251 Respiratory Rehabilitation Home Care Techniques (A,W,SP,SU) **3-0-3**
This course provides the student with the appropriate adaptations of skills and concepts traditionally used in the hospital to alternate care settings in order to educate the patient and care-giver to maintain the highest possible functional capacity. Included are: medication regimens, smoking cessation, breathing retraining, bronchial hygiene, and other self-care techniques. Other topics include monitoring the patient's disease and servicing the equipment needs of the patient. Lab fee: $15.00. Prerequisite: Permission of instructor.

RESP 252 Patient Management in Respiratory Rehabilitation **3-0-3**
The study of the patient's adaptation to chronic pulmonary disease. Emphasis will be placed on problem identification, appropriate interventions, and referral to community resources using a multidisciplinary approach in coordinating the various systems of care. Prerequisite: RN, LPN, RRT, CRTT, or permission of instructor.

RESP 253 Respiratory Rehabilitation Home Care Administration **4-0-4**
This course concentrates on the management of a respiratory rehabilitation or home care organization. Topics include the development of policies and procedures for respiratory rehab home care services, the preparation of the certificate of medical necessity, and the documentation necessary for reimbursement, accreditation, regulatory requirements, and quality assurance. Other topics include marketing strategies and community health promotion. Prerequisite: RN, LPN, RRT, CRTT, or permission of instructor.

RESP 256 Case Management III (A) **1-2-2**
This course presents a holistic approach to the management of adult and pediatric patients in the critical care setting. Special emphasis will be placed on the management of the cardiopulmonary problems. Prerequisite: RESP 154 or permission of instructor. Concurrents: RESP 230 and RESP 290.

RESP 260 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. A portion of the course is devoted to preparing for the national credentialing exams. Lab fee: $60.00. Prerequisite: Permission of instructor.

RESP 270 Current Issues in Respiratory Care (A,W,SP,SU) **2-0-2**
This course is intended to be focused on current trends in the care of patient's with cardiopulmonary problems. Course content will change as current issues change. Prerequisite: permission of instructor.

RESP 290 Clinical Practice/Therapeutic Procedures III (A) **2-12-8**
This course is focused on conducting respiratory care procedures in the critical care setting. Lab fee: $35.00. Prerequisite: RESP 198 or permission of instructor. Concurrents: RESP 232 and RESP 256.

RESP 292 Clinical Practice/Therapeutic Procedures IV (W) **2-12-8**
This course allows students to select a specialty area for additional clinical practice. Students can select a rotation in critical care, pediatric/neonatal care, subacute care, or homecare. Lab fee: $35.00. Prerequisites: RESP 290 or permission of instructor. Concurrent: RESP 270.

RESP 295 Clinical Experience (SP) **1-24-4**
In the Clinical Practicum students apply skills that they have learned in the previous four quarters. Students spend 24 hours per week practicing respiratory care with a clinical affiliate. Lab fee: $30.00. Prerequisite: RESP 292 or permission of instructor.

Retail Management (RETL)

RETL 101 Introduction to Retailing (A,W,SP,SU) **5-0-5**
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: $3.00.

RETL 205 Quantitative Methods for Retailing (A,SP) **5-0-5**
This course provides the student with an overview of the impact of merchandising strategies on the fiscal management of store operations. Special emphasis is given to the mathematical tools that aid in merchandise planning, selection, and pricing. Students will use basic math formulas that are used by buyers, department managers and store owners in order to operate their businesses, stores or departments profitably. Lab fee: $3.00. Prerequisite: RETL 101.

RETL 213 Retail Buying (A,SP) **3-0-3**
An in-depth review of the many different duties of a buyer and the role the buyer plays in assuring profitability. Topics covered include the buyer's role in risk management, inventory shortage control, people management, promotion and the legal environment that impacts retailing. Lab fee: $3.00. Prerequisite: RETL 101.

RETL 223 Textiles (SP,SU) **3-2-4**
This course covers the fundamentals of textile science with a focus on the uses of textiles in the realm of fashion merchandising. Areas of emphasis include textile labeling laws, the properties of natural and synthetic fibers, the properties and structure of yarns and fabrics and the processes used to finish and color textile products. Lab fee: $10.00. Prerequisite: RETL 101.

RETL 271 Retail Store Operations and Control (W,SU) **4-0-4**
This course is designed to deal with the management and operations of the major functions of a retail establishment including location selection, distribution, customer service, merchandising, inventory control, human resource management, and financial strategies for retail success. Lab fee: $5.00. Prerequisite: RETL 101 and ACCT 106.

RETL 281 Retail Internship I (A,W,SP,SU) **0-40-4**
Supervised on-the-job appreciation of knowledge and skills acquired in the classroom. Focus on internship will be on retail sales. Open to Retail Management Technology majors only. Lab fee: $3.00. Prerequisites: MATH 101, RETL 101, BMGT 111, MKTG 111 and permission of advisor two quarters in advance. Concurrent: RETL 285.

RETL 282 Retail Internship II (A,W,SP,SU) **0-40-4**
Supervised on-the-job application of knowledge and skills acquired in the classroom. Focus on internship will be on store operations and management. Open to Retail Management Technology students only. Lab fee: $3.00. Prerequisites: RETL 281 and permission of instructor. Concurrent: RETL 286.

RETL 283 Retail Internship III (A,W,SP,SU) **0-40-4**
Supervised on-the-job application of knowledge and skills acquired in the classroom. Focus of internship will be determined by student career interests. Open to Retail Management Technology students only. Lab fee: $3.00. Prerequisites: RETL 282 or permission of instructor . Concurrent: RETL 287.

RETL 285 Special Problems in Retailing I (A,W,SP,SU) **0-4-2**
Application of theoretical knowledge to analyze and recommend solutions to specific problems encountered during the retail internship. Lab fee: $3.00. Prerequisites: MATH 101, RETL 101, BMGT 111, MKTG 111 and permission of instructor. Concurrent: RETL 281.

RETL 286 Special Problems in Retailing II (A,W,SP,SU) **0-4-2**
Application of theoretical knowledge to analyze and recommend solutions to specific problems encountered during the retail internship. Lab fee: $3.00. Prerequisite: RETL 285 . Concurrent: RETL 282.

RETL 287 Special Problems in Retailing III (A,W,SP,SU) **0-4-2**
Application and theoretical knowledge to analyze and recommend solutions to specific problems encountered during the retail internship. Lab fee: $3.00. Prerequisites: RETL 286 or permission of instructor. Concurrent: RETL 283.

RETL 297 Special Topics in Retailing (On Demand) **1-3**
Detailed examination of special topics of interest in Retail. Topics vary. Lab fee: $3.00.

Small Business Mgmt. Major
(See Business Management)

Social Sciences (SSCI)

SSCI 101 Cultural Diversity (A,W,SP,SU) **5-0-5**
An interdisciplinary course that focuses on the cultural, psychological, sociological, political, and economic diversity among various groups from both national and international contexts. Emphasis will center on how individual beliefs, social values, political, and economic systems affect our perspectives and life-styles. The effects of social inequity on groups within society will be explored and, through the use of team projects, students will participate in interactive group work. The course will also emphasize the development of critical thinking skills as applied to social science research and diversity issues that students may encounter in their lives. A general education core course. Lab fee: $6.00. Prerequisite: Placement into ENGL 101.

SSCI 102 America in Transition (A,W,SP,SU) **5-0-5**
An interdisciplinary course which focuses on the major changes (or transitions) now taking place in the social, economic, political, and international institutions in the United States. The course helps students identify the causes and consequences of these changes. Students are encouraged, through selected readings, written assignments, and group projects to identify possible ways to respond to and meet the challenges posed by this transitional era. A general education core course. Lab fee: $6.00. Prerequisite: Placement into ENGL 101.

SSCI 103 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, anthropological 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; institutional change; and future issues and trends. A general education core course. Lab fee: $6.00. Prerequisite: Placement into ENGL 101.

SSCI 104 World Economic Geography (A,W,SP,SU) **5-0-5**
An interdisciplinary course providing a geographical examination of the world economy. Students research the factors affecting a country's economic development and present findings from a policy maker's perspective. Factors considered include location; demographic trends; resource availability and use patterns; industrialization; political and cultural forces; and global interdependence. A general education core course. Lab fee: $6.00. Prerequisite: Placement into ENGL 101.

SSCI 290 Capstone Experience in Social Sciences (On Demand) **2-2-3**
This course is designed for students completing the two-year Associate of Arts or Associate of Science degree who have a special interest in continuing in a baccalaureate degree program in the social sciences. Students will devise a research project that relates to their academic interest after reviewing research methodologies and findings in social science; complete a portfolio that covers their academic career at Columbus State Community College, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree.

SSCI 293 Independent Study in the Social Sciences (On Demand) **1-5**
An individual student-structured course that examines a selected topic in the social sciences through intensive reading or research. The independent study elective permits a student to pursue his/her interests within the context of a faculty-guided program. Lab fee: $5.00. Prerequisite: Permission of the instructor and the chairperson.

SSCI 299 Special Topics in the Social Sciences (On Demand) **1-5**
A detailed examination of selected topics of interest in the social sciences. Lab fee: $5.00. Prerequisites vary.

Sociology (SOC)

SOC 101 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: $6.00. Prerequisite: Placement into ENGL 101.

SOC 230 Marriage and Family Relations (A,W,SP,SU) **5-0-5**
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, and marriage and family relations throughout the life span. Lab fee: $6.00. Prerequisite: Placement into ENGL 101.

SOC 280 American Race and Ethnic Relations (On Demand) **5-0-5**
An introductory course that explores racial and ethnic relations in the United States. The current and past experiences of selected American racial and ethnic groups will be examined with respect to theories and patterns of intergroup relations and issues of prejudice and discrimination (both individual and institutional) Possible future trends in American intergroup relationships will also be addressed. Lab fee: $6.00. Prerequisite: Placement into ENGL 101.

SOC 290 Capstone Experience in Sociology (On Demand) **2-2-3**
This course is designed for students completing the two-year Associate of Arts or Associate of Science degree who have a special interest in continuing in a baccalaureate degree program in sociology. Students will devise a research project that relates to their academic interest after reviewing research methodologies and findings in sociology; complete a portfolio that covers their academic career at Columbus State Community College, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree with five credit hours in sociology.

SOC 293 Independent Study in Sociology (On Demand) **1-5**
An individual student-structured course that examines a selected topic in sociology through intensive reading or research. The independent study elective permits a student to pursue his/her interests within the context of a faculty-guided program. Lab fee: $5.00. Prerequisite: Permission of the Instructor and the Chairperson.

SOC 299 Special Topics in Sociology (On Demand) **1-5**
A detailed examination of selected topics of interest in sociology. Lab fee: $5.00. Prerequisites vary.

Spanish (SPAN)

SPAN 101 Elementary Spanish I (A,W,SP,SU - DL) **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: $6.00. (Telecourse fee: $29.00.) Prerequisite: Placement into ENGL 101.

SPAN 102 Elementary Spanish II (A,W,SP,SU - DL) **5-0-5**
Continuation of SPAN 101 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: $6.00. (Telecourse fee: $29.00.) Prerequisite: SPAN 101 with a grade of "C" or better or by placement exam.

SPAN 103 Intermediate Spanish I (A,W,SP,SU - DL) **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: $6.00. (Telecourse fee: $29.00.) Prerequisite: SPAN 102 with a grade of "C" or better or by placement exam.

SPAN 104 Intermediate Spanish II (A,W,SP,SU - DL) **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: $6.00. (Telecourse fee: $29.00.) Prerequisite: SPAN 103 with a grade of "C" or better or by placement exam.

SPAN 290 Capstone Experience in Spanish (On Demand) **2-2-3**
A capstone course focusing on Spanish. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: $5.00.

SPAN 299 Special Topics in Spanish (On Demand) **1-5**
Detailed examination of special topics in Spanish. Lab fee: $2.00. Prerequisites vary.

Sports & Fitness Management (SFMT)

SFMT 100 Personal Fitness Concepts (A,W,SP,SU) **3-0-3**
This course of study focuses on fitness issues which affect Americans today and in the future. Emphasis is placed on establishing a basis for positive fitness through consideration of the various factors which influence fitness. Personal fitness concepts will focus attention on the need for each person to arrive at informed conclusions about how to take responsibility for his or her personal fitness. Lab fee: $10.00.

SFMT 101 Introduction to Sports & Fitness Management (W, SU) **3-0-3**
A survey of the health and fitness arena both private and public, to include the study of facilities, recreational options for the client, client profiles, daily operations, legal aspects, personnel issues, and program administration. Lab fee: $2.00. Prerequisite: Acceptance into the program.

SFMT 113 Aquatics Management (SP) **1-2-2**
A survey of the recreational aquatics environment. Hands on training in the filtration systems and their general operation, an understanding of Federal and State guidelines for licensure for pool operation and maintenance. Legal aspects of the aquatics area. Staffing requirements and training of aquatics personnel for indoor and outdoor facilities. Lab fee: $15.00. Prerequisite: SFMT 101 or permission of instructor.

SFMT 114 Introduction to Dance Exercise (A,W,SP,SU) **1-2-2**
Introduction into the methods of teaching participation in the activity, to include a thorough understanding of the fundamental techniques of the sport. The history and the value of dance for the client, the basic movements of dance, and the interpretation of music and language for dance. Lab fee: $10.00. Prerequisites: SFMT 100.

SFMT 115 Introduction to Weight Training (W,SP) **1-2-2**
Analysis of the weight training field to include types of equipment used, training methods for the client, proper lifting techniques for the various equipment, assessment of the beginning client for appropriate weight program. Risk management aspects of the weight area and proper care and maintenance of equipment. Lab fee: $20.00. Prereq· isite: SFMT 101 and permission of instructor.

SFMT 116 Golf Management (A,SP,SU) **1-2-2**
An in-depth analysis of the game of golf. To include the historical study of the game, the rules which apply to the playing of the gam, and a perspective of the growth and increasing significance of the game inside and out of our industry. A study of the management of the golf facility, turf and environmental issues, employment options and the instruction of the game. Lab fee: $50.00. Prerequisite: SFMT 100.

SFMT 117 Introduction to Tae Kwon Do (A,W,SP,SU) **1-2-2**
Introduction in the coaching and participating in the activity, to include a thorough understanding of the rules and sport strategy. History of the art form, self defense strategies, and concepts of tournament sparring and tournament implementation.

SFMT 213 Aquatic Programming for Individuals with Disabilities (A,SP) **2-2-3**
The adaptive aquatic course content will provide utilization of specialized instructional technology to maximize learning and participation of individuals with disabilities in aquatic activities. The inclusive or community setting will be emphasized since acquisition of skills and water safety knowledge should occur in as normalized a manner as possible. Practicum opportunities with diverse populations will highlight the learning experiences. Prerequisites: none or if Adapted Aquatics Certification is needed a Water Safety Instruction Certification is necessary prior to course.

SFMT 214 Advanced Dance Exercise (On Demand) **1-2-2**
Instruction in the methods of teaching and participation in group fitness activities to include a thorough understanding of the skills and the fundamental techniques of fitness instruction. The value of dance exercise and variations for the client, the movements and techniques of dance exercise, and the principles and legalities that guide fitness instructors. Prerequisite: SFMT 114.

SFMT 215 Advanced Weight Training (SP) **2-2-3**
This class will be a continued study of systems of physical conditioning. Including discussion of progressive resistance exercise through super sets, pyramiding, split routines, plyometrics and isokinetics. Program development including interval, continuous, and circuit training. Nontraditional training including partner resistance training. Other topics will include discussion of advantages and disadvantages of commercial exercise equipment in developing cardiorespiratory fitness and muscular strength. Musculoskeletal risk factor identification and programming for post injury rehabilitate fitness will also be included.

SFMT 222 Court Sports I (Tennis) (SU) **1-2-2**
Instruction in the coaching and participation in the activity, to include a thorough understanding of the rules and sport strategy. History of the sport and coaching techniques for the client, tournament set up and implementation for the facility. Lab fee: $20.00. Prerequisite: SFMT 101 and permission of instructor.

SFMT 224 Sport Management Foundations (W,SU) **5-0-5**
An advanced study of the facilities required for the recreational environment. An analysis of indoor and outdoor designs and utilization. An overview of the personnel process, staffing requirements, and staff development procedures. A study of activity programming for the club environment, to include class structure, tournament procedures, proper selection of activities, and equipment needed as well as proper care and storage. Lab fee: $10.00. Prerequisite: SFMT 101.

SFMT 225 Athlete Intervention (On Demand) **3-0-3**
This course will be a video based instructional program facilitated by a faculty member. It is designed to train sport managers to help athletes avoid or deal with the challenges of alcohol, drugs, and illegal drug use. The program allows sport managers to develop rules and expectations about drug and alcohol use, communication with parents and guardians, and behavior monitoring skills. Lessons on development of policies related to athlete usage and consequence and/or infraction guidelines. Prerequisite: permission of instructor.

SFMT 226 Care and Prevention of Athletic Injuries (W,SU) **2-2-3**
Recognition, treatment, management, and prevention of basic injuries sustained while participating in athletic activities. Basic taping and treatment procedures to be introduced and applied in the athletic environment. Lab fee: $10.00. Prerequisites: BIO 121 and BIO 122 or permission of instructor.

SFMT 230 Fitness Concepts for Special Populations (A,SP) **1-0-1**
A survey of the response of children, seniors, and physically challenged persons to exercise. Emphasis to be placed on choosing appropriate and challenging activities that will result in a positive physiological response while accommodating the social, developmental and physical needs of the potential clients. Lab fee: $3.00. Prerequisite: SFMT 101. Concurrent: SFMT 231.

SFMT 231 Exercise Physiology (A,SP) **3-4-5**
Instruction in the testing processes used for the individual evaluation to include proper techniques used for body fat, analysis, aerobic and anaerobic capabilities, muscle mass, flexibility, and program development for the athlete. Lab fee: $15.00. Prerequisites: BIO 121 and SFMT 115. Concurrent: SFMT 230.

SFMT 232 Court Sports II Racquetball, Squash , Walleyball (W) **1-2-2**
Instruction in the coaching and participation in the three activities, to include a thorough understanding of the rules and sport strategy, history of the sport and coaching techniques for the clients, tournament set up and implementation for the facility. Lab fee: $20.00. Prerequisite: SFMT 101.

SFMT 233 Outdoor Community Recreation (A,W,SP,SU) **2-2-3**
A survey of the outdoor recreational market and it's application through corporate America. Review outdoor recreational opportunities, basic activities, skills, and necessary equipment. Present safety, liability, and associated programming issues. Examine the business, career, and recreational applications. Lab fee: $50.00. Prerequisites: SFMT 101.

SFMT 234 Sport Marketing (A,SP) **5-0-5**
An advanced study of sports marketing strategies for the club both internal and external. Promotional guidelines and discussion of concepts of promotional activity. Study of the budgetary process, differentiations of budget styles, and implementation of the budgetary process in both the private or public sector. Lab fee: $3.00. Prerequisite: SFMT 224.

SFMT 235 Sport Law (A,W,SP,SU) **3-0-3**
Survey of the legal framework of the athletic environment. The nature of the legal system and the law pertaining to sports, to include tort law, contractual agreements, and civil law. Lab fee: $2.00. Prerequisite: SFMT 101.

SFMT 236 Medical Ethics for Massage Therapists (A,SP) **3-0-3**
An introduction to the professional practice of health care including the role of the practitioner, relationships with other health care providers, privacy and confidentiality, the concepts of liability, malpractice and negligence.

SFMT 241 Kinesiology **3-4-5**
Introduction to the fundamentals of kinesiology and biomechanics with discussion of both anatomical and mechanical principles. These concepts will be applied in the analysis of a wide variety of basic motor skills, exercise, and sport activities. Prerequisite: SFMT 231.

SFMT 261 Message Technique I (A,SP) **3-6-6**
Introduction to the professional practice of message therapy including hygiene, touch, stroking, friction, kneading, vibration, and precussion. Prerequisite: Acceptance into program. Concurrent: SFMT 271.

SFMT 262 Massage Technique II (W,SU) **3-6-6**
Introduction to the professional practice of message therapy including the effects, indications, and contraindications of massage upon various body systems. Prerequisite: SFMT 261.

SFMT 271 Massage Anatomy & Physiology I (A,SP) **3-2-4**
Investigation of the various human body systems, their structure and function as required by the Ohio State Medical Board for licensure as a Massage Therapist. Prerequisite: Acceptance into program. Concurrent: SFMT 261.

SFMT 272 Massage Anatomy & Physiology II (W,SU) **3-2-4**
Investigation of the various human body systems, their structure and function as required by the Ohio State Medical Board for licensure as a Massage Therapist. Prerequisite: SFMT 271.

SFMT 292 Practicum I (A,SP) **1-14-3**
Practical training in general operation of a fitness club to include activity preparation, personnel evaluation, and budget analysis. This course also includes an on campus seminar to discuss issues relating to the profession. Summative assessment will include a combination of objective tests, performance checklists, and evaluation by the on-site supervisor. Lab fee: $3.00. Prerequisite: SFMT 224 and permission of instructor.

SFMT 294 Practicum II (W,SU) **1-14-3**
Continuation of SFMT 292. Working in conjunction with a current fitness manager to gain insight on program and facility operation, budgetary implementation, and assist in the daily operation of a fitness facility. This course also includes an on campus seminar to discuss issues relating to the profession. Summative assessment will include a combination of objective tests, performance checklists, and evaluations by the on-site supervisor. Prerequisite: SFMT 292 and permission of instructor.

SFMT 298 Special Topics in Sports (SU) **3-0-3**
This course serves to bring together concepts discussed in previous program courses. Topics of discussion will revolve around exercise prescription for special populations including some disease states. Development and modification of institutional programming based on individual and group needs. Resources, content and delivery of health promotion programs will also be discussed.

Surgical Technology (SURG)

SURG 110 Surgical Technology I (A,SP) **3-6-6**
This course will provide an in-depth introduction of the role and responsibilities of the Surgical Technologist and Surgical Nurse as an important professional in the delivery of surgical services. Introduction to the surgical environment will include professional responsibilities, legal and ethical considerations, interpersonal relationships, communication skills, and basic surgical workplace safety. Introduction to the Principles of Aseptic Technique to include surgical asepsis, scrubbing, gowning, gloving, sterilization, disinfection, and operations room sanitation are explored. Patient care peri operative interventions to include positioning, prepping, draping techniques, and nursing related procedures. The surgical use of instrumentation, sutures, needles, sponges, syringes, and hypodermic needles are investigated while exploring the division of duties for the Surgical Technologist and Surgical Nurse. Students will be exposed to lecture , discussion, seminar, and recitation educational experiences all in support of direct patient care laboratory, practicum, and clinical applications in a variety of hospital-based surgery units. Lab fee: $50.00. Prerequisite: Admission to Surgical Technology.

SURG 120 Surgical Technology II (W,SU) **3-6-6**
This course continues to build upon Principles of Aseptic Technique while further defining the duties of the Surgical Technologist and Surgical Nurse. Introduction to diagnostic procedures and surgical procedures specific to a variety of surgical interventions are researched. Anesthesia and pharmacologic considerations for patient surgical care are investigated. Surgical wound healing considerations are researched with an ongoing investigation into the use of instrumentation, sutures, needles, dressings, packings, and drainage tubes/systems. Patient care peri operative interventions on positioning, prepping, and draping techniques continue to be explored. Students will be exposed to lecture, discussion, seminar, and recitation educational experiences all in support of direct patient care laboratory, practicum, and clinical applications in a variety of hospital-based surgery units. $50.00. Prerequisite: SURG 110.

SURG 130 Surgical Technology III (A,SP) **4-16-7**
The principles of asepsis and the patient care concepts of positioning, prepping, draping, and procedural techniques are directly applied to the investigation of General (GEN), Gastrointestinal (GI), Obstetrics (OB), Gynecological (GYN), and Genitourinary (GU) surgical services. The role and responsibilities of the Surgical Technologist as the "scrub" member and the Surgical Nurse as the "circulator" member of the surgical team will focus on maintaining the integrity, safety, and efficiency of the sterile and non-sterile areas throughout various surgical procedures. Investigation of instrumentation, sutures, needles, dressings, packings, and drainage tubes/ systems will continue with a focus on endoscopy use and selected auto stapling devices for use in GEN, GI, OB, GYN, and GU surgical services. Students will be exposed to lecture, discussion, seminar, and recitation educational experiences all in support of direct patient care laboratory, practicum, and clinical applications in a variety of hospital-based surgery units. Lab fee: $50.00. Prerequisites: SURG 120 .

SURG 210 Surgical Technology IV (W,SU) **4-16-7**
The principles of asepsis and the patient care concepts of positioning, prepping, draping , and procedural techniques are directly applied to the investigation of orthopaedic and neurosurgery surgical services. The role of the Surgical Technologist as the "scrub" member and the Surgical Nurse as the "circulator" member of the surgical team continues to focus on maintaining the integrity, safety, and efficiency of the sterile and non-sterile areas throughout various surgical procedures. Investigation of instrumentation, sutures, needles, dressings, packings, and drainage tubes/systems will continue with a focus on selected internal and external fracture stabilization devices, cast immobilization, spinal fixation implants, and neurovascular shunts. Students will be exposed to lecture, discussion, seminar, and recitation educational experiences all in support of direct patient care laboratory, practicum, and clinical applications in a variety of hospital-based surgery units. Lab fee: $50.0. Prerequisites: SURG 130.

SURG 220 Surgical Technology V (W,SU) **4-20-8**
The principles of asepsis and the patient care concepts of positioning, prepping, draping, and procedural techniques are directly applied to the investigation of plastic and reconstructive, Otorhinolaryngology and Throat (ENT), and Ophthalmic surgical services. The role of the Surgical Technologist as the "scrub" member and the Surgical Nurse as the "circulator" member of the surgical team continues to be explored throughout various surgical procedures. Investigation of instrumentation, sutures, needles, dressings, packings, and drainage tubes/ systems will continue with a focus on ocular implants, microscopic use, skin grafting techniques, liposuction use, mammoplasty implants, inner ear shunts, and tracheotomy tubes. Students will be exposed to lecture, discussion, seminar, and recitation educational experiences all in support of direct patient care laboratory, practicum, and clinical applications in a variety of hospital-based and ambulatory surgery centers. Lab fee: $50.00. Prerequisite: SURG 210.

SURG 230 Surgical Technology VI (A,SP) **4-20-8**
The principles of asepsis and the patient care concepts of positioning, prepping, draping, and procedural techniques are directly applied to the investigation of Thoracic, Peripheral Vascular (OV), and Cardiovascular (CV) surgical services. The role of the Surgical Technologist as the "scrub" member and the Surgical Nurse as the "circulator" member of the surgical team continues to be explored throughout various surgical procedures. Investigation of instrumentation, sutures, needles, dressings, packings, and drainage tubes/systems will continue with a focus on endoscopy use, chest tubes, cardiopulmonary bypass, vascular autografts and allografts, intra aortic balloon pumps, and vascular shunts. Students will be exposed to lecture, discussion, seminar, and recitation educational experiences all in support of direct patient care laboratory, practicum, and clinical applications in a variety of hospital-based and ambulatory surgery units. Lab fee: $50.00. Prerequisite: SURG 220.

SURG 239 Advanced Surgical Special Topics (A,SP) 1-2-2
This course will provide the Surgical Technology student with an in-depth analysis, recognition, and medical/surgical treatment for a variety of advanced surgical specialty areas. These areas include: Orthopedic Total Joint Replacement, Laser Therapy, Endoscopy, Ophthalmic, Oncology, and Obstetrics. Additional surgical specialty areas of interest will be investigated and offered to students, alumni, and surgical health care professionals as they become available. Students will be exposed to lecture, discussion, seminar, and recitation educational experiences all in support of direct patient care laboratory, practicum, and clinical applications in a variety of hospital-based and ambulatory surgery units. Prerequisite: SURG 210.

Surveying (SURV)

SURV 141 Basic Surveying (A,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: $15.00. Prerequisites MATH 104 or MATH 112.

SURV 241 Route Surveying (A,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 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: $15.00. Prerequisites: MATH 104 and CMGT 123. Concurrent or prerequisite: SURV 141.

SURV 243 Heavy Construction Standards (W,SU) **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: SURV 241, CMGT 121 and CMGT 105.

SURV 245 Survey Law (W,SU) **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: SURV 141, SURV 241 or permission of instructor.

SURV 247 Townsite/Urban Development (A,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 understanding the applicable land use regulations or standards that govern area development. Lab fee: $15.00. Prerequisites: ARCH 112, SURV 141 and SURV 241.

SURV 249 Land Subdivision Systems (A,SP) **2-3-3**
Advanced surveying including section and subdivision lines and residential property lines. Reestablishment of property boundaries and legal considerations for boundary descriptions, including local municipal records searching. Lab fee: $15.00. Prerequisites: SURV 241, ARCH 112, SURV 141 and SURV 245.

Technical Communication (TCO)

TCO 101 Careers in Technical Communication (A,SP) **1-3-2**
In this course, students are required to interview with Technical Communication professionals, research the field of Technical Communication, and deliver an oral presentation of the findings. Discussions of career goals, including the preparation of an initial resume and employment data file will also be required. The requirements of this course must be met within the first two quarters of entering the Technical Communication degree program. Lab fee: $20.00.

TCO 203 Introduction to Technical Communication (A,SP) **2-3-3**
In this course, students learn the project documentation cycle used by technical communicators in business, industry, and government by selecting an authentic problem-solving project from their technical cognate fields, and writing and formatting a series of reports in support of that project. Students learn the principles of modern technical communication and time/project management and practice them individually and in small groups throughout the documentation cycle. Lab fee: $5.00. Prerequisites: CPT 101 and ENGL 102 with a grade of "C" or higher.

TCO 204 Introduction to Technical Editing (A,SP) **2-3-3**
In this course, students will practice editorial skills needed for revising scientific/technical writing by checking grammar, sentence structure, clarity and style in personal, peer, and professional writings. Students will practice hard copy and online editing and proofreading and analyze editorial style books and other technical resource materials. Various editorial approaches and the editor/author relationship will be covered. Lab fee: $5.00. Prerequisite: ENGL 102 with a grade of "C" or higher and OADM 101.

TCO 214 Document Design & Delivery Methods (W,SU) **2-3-3**
This course will introduce students to learning theory as applied to the design and delivery of technical documents. It will integrate current technical communication theory in document design and delivery with the capabilities of various software packages and delivery methods. Students will develop skills in applying design theory to technical documents and in selecting appropriate delivery methods for technical documents. Lab fee: $8.00. Prerequisite: TCO 203.

TCO 215 Online Documentation (A,SP) **2-3-3**
This course will introduce students to all aspects of creating online documentation. Students will learn about the five phases involved in creating online documentation: planning online documentation, designing or modifying information for online presentation, testing and redesigning online documentation. Students will develop actual online documentation for a software package during the course. Lab fee: $8.00. Prerequisites: TCO 203 and TCO 214.

TCO 221 Proposal Development (A,SP) **2-3-3**
Students will learn how to develop proposals which offer to solve problems for a reader or groups of readers by providing specified services at a specified cost. The units involved in the learning process will include understanding the bidding process, defining the request for a proposal, planning and developing a proposal document and practicing the methods of formatting, writing, editing and presenting a formal business proposal. Lab fee: $5.00. Prerequisites: TCO 203, MCT 106, and CPT 101.

TCO 222 Developing Software Documentation (W,SU) **2-3-3**
In this course students are prepared as software documentation specialists to work with software users and developers. Students will prepare software documentation, conduct document usability testing, and perform documentation development tasks, such as preparing user specifications, task lists, style guides, project schedules, instruction sets, and problem reports, as well as conducting interviews, reviews, and walk throughs. Lab fee: $5.00. Prerequisites: TCO 203, MCT 106, and CPT 101.

TCO 223 Advanced Technical Communication (W,SU) **2-3-3**
In this course, students focus on current research and theory in scientific and technical writing and apply that research to practical situations. Students produce a proposal for funding, a full-length, portfolio quality manual or report, and various other writing assignments. They also lead class discussions on such topics as readability theory, writing style, documentation methods, text processing, manual formatting, and integrating graphics and text. Lab fee: $5.00. Prerequisite: TCO 203.

TCO 224 Advanced Technical Editing (W,SU) **2-3-3**
In this course, students are prepared as editors to work with other publications specialists. Students will edit manuscripts, prepare style books or manuals, and perform special editorial tasks such as preparing abstracts, indexes, and bibliographies with line-by-line precision and accuracy. Lab fee: $5.00. Prerequisites: TCO 203 and TCO 204.

TCO 230 Technical Presentations (W,SU) **2-3-3**
In this course, students learn to prepare and present various types of information ranging from press releases, annual reports, and statistical analyses to proposals for projects, systematic evaluations, and revisions of existing documents. Various types of audiences will be targeted, and students will be required to use computer graphics, hypermedia, desktop publishing, and multimedia approaches to supplement oral presentations. Lab fee: $5.00. Prerequisite: TCO 223.

TCO 250 Capstone in Technical Communication (A,W,SP,SU) **2-3-3**
In this course, students will be required to demonstrate both the overall competency and quality workmanship expected of professionals in the technical communication field. Students will work individually and in collaboration to solve problems of technical writing, editing, and presentations, and on the study and implementation of projects normally assigned to entry-level technical communicators. The course can only be taken during the final quarter, prior to graduation. Lab fee: $5.00. Prerequisite: Permission of instructor.

TCO 260 Career Development (A,SP) **1-0-1**
In this course, students prepare a professional portfolio, including a resume developed from the student's previous academic work experience. Students are required to review their portfolios informally and through formal oral presentations. Students will learn how to carry out company research and apply that research to targeted resumes, letters of application, and interview situations. This course must be completed within the final four quarters of the student's program. Lab fee: $5.00. Prerequisite: Permission of instructor.

TCO 290 Industry Internship (A,W,SP,SU) **1-4**
In this course, students are engaged in work specifically related to the Technical Communication field as employees in business or industry. Students are responsible for arranging the internship and must submit a written proposal to the Technical Communication Program Coordinator for approval no later than two quarters prior to becoming an intern. During the internship, the student must keep a written record of job responsibilities and projects. A formal written report must be accompanied by a written evaluation of the student's performance by his/her supervisor. One credit hour is equal to one hundred (100) clock hours on the job. The four credits may be spread over more than one quarter. Lab fee: $5.00. Prerequisites: TCO 101, TCO 203, TCO 204, and permission from the Chairperson of the Technical Communication Department. A GPA of "B" or higher in TCO courses.

TCO 297, 298, 299 Special Topics in Technical Communication (On Demand) **1-5**
Special topics in technical communication designed to meet specific needs. Lab fee: $5.00.

Theater (THEA)

THEA 100 Introduction to the Theater (A,SP) **5-0-5**
The course is designed to help students bring critical thinking skills into their experience as theatergoers. Students will be introduced to the theater arts - acting, directing, and design. Students will survey the history of Western theater, focusing on the art as a reflection of society's changing social and cultural values. Plays representing several genres and historical periods will be read and discussed. Writing assignments include critical reviews of plays attended. Lab fee: $5.00. Prerequisites: ENGL 101 or ENGL 111.

THEA 180 Theater Practicum **0-9-3**
Supervised practical experience in two or more of the following areas - acting, lighting, set, sound, costuming, house management, stage managing, or directing. Enrollment is limited to students who have been cast in a theater production on campus or who have been selected to work on technical areas of the production. With the advanced approval of the instructor, credit can be earned by working on off-campus theater productions. Repeatable to nine credits. Lab fee: $5.00. Prerequisite: THEA 100 (COMM 130) and permission of instructor.

THEA 210 Technical Production Fundamentals: Stage Lighting (SP) **1-4-3**
An introduction to the basic principles and functions of stage lighting. Experience in creating a lighting design, hanging and focusing sighting instruments, and executing the design with the Status 24/48 control board. Brief overview of the work of other members of the production staff with whom a lighting designer collaborates. Lab fee: $3.00. Prerequisite: THEA 100 (COMM130) or permission of instructor.

THEA 231 Literature for the Theater I (W) **3-0-3**
A survey of selected world drama from the classical Greek period through the mid-nineteenth century. The focus is on the plays as potential theater. Lab fee: $3.00. Prerequisite: ENGL 101 or 111; Concurrent: ENGL 101 or 111.

THEA 232 Literature for the Theater II (SP) **3-0-3**
A survey of selected western drama from the eighteenth century through the mid-nineteenth century. The focus is on the plays as potential theater. Lab fee: $3.00. Prerequisites: ENGL 101 or ENGL 111; Concurrent: ENGL 101 or ENGL 111.

THEA 233 Literature for the Theater III (SU) **3-0-3**
A survey of selected western drama from the mid-nineteenth century to the present. The focus is on the plays as potential theater. Lab fee: $3.00. Prerequisite: ENGL 101 or ENGL 111, THEA 100 or COMM 130; Concurrent: ENGL 101 or ENGL 111, THEA 100 or COMM 130.

THEA 280 Fundamentals of Acting (W) **1-4-3**
Introduction to the basic principles of stage acting with a focus on practical experience. Areas of emphasis include stage movement, vocal delivery, body language, concentration techniques and basic script analysis and scoring. Lab fee: $3.00. Prerequisite: THEA 100 (COMM 130) or permission of instructor.

THEA Writing Plays (SP) **5-0-5**
(See ENGL 283)

THEA 290 Capstone Experience in Theater (SU) **0-6-3**
Fulfills the capstone requirement for Associate of Arts and Associate of Science degree students at Columbus State. Students will carry out and present a major project in theater - in performance, technical theater, or research. Students will complete a personal portfolio covering their studies in theater and related areas. Lab fee: $10.0. Prerequisite: 75 credits toward the Associate of Arts or Associate of Science degree, including at least 12 credits in THEA beyond THEA 100 (COMM 130).

Veterinary Technology (VET)

VET 111 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: $75.00. Prerequisite: Admission to program.

VET 114 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. Prerequisites: Admission to program and CPT 101. Concurrent: VET 111.

VET 122 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: $75.00. Prerequisite: VET 111.

VET 124 Principles of Veterinary Radiology (W,SP) **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. Prerequisites: BIO 161 and VET 136.

VET 126 Principles of Veterinary Anesthesia (SP,SU) **3-0-3**
Study of systemic and inhalation anesthetic agents, premedication agents, ventilators, respirators and monitoring equipment, preanesthetic physical, emergency drugs and CPR. Prerequisites: BIO 161, BIO 169 and VET 136. Concurrent: VET 133.

VET 131 Veterinary Anatomy and Physiology (SP) **3-0-3**
Presentation and discussion of the comparative anatomy and physiology of the canine, feline, equine and bovine species. The anatomy and physiology of these domestic species will be compared using a systems approach and clinically applied for the veterinary technician. Prerequisites: BIO 161 and BIO 169.

VET 133 Clinical Application I (SP,SU) **0-6-3**
Laboratory exercises for VET 138, VET 124 and VET 126. Students practice techniques of surgery, anesthesia, radiology, venipuncture and injection. Lab fee: $70.00. Prerequisites: VET 136 and VET 124. Concurrents: VET 126 and VET 138.

VET 135 Veterinary Hematology (SP,SU) **2-6-5**
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. Lab fee: $75.00. Prerequisite: BIO 169 and VET 136.

VET 136 Animal Health and Disease I (W) **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: VET 111 and VET 114. Concurrents: VET 122 and BIO 169.

VET 138 Veterinary Surgical Techniques (SP,SU) **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. Prerequisites: VET 111, VET 136 and BIO 161.

VET 254 Clinical Seminar I (SU,A) **2-0-2**
Discussion of issues relating to clinical experience including euthanasia, problem solving models and change strategies. Prerequisite: VET 126. Concurrent: VET 291.

VET 262 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: MATH 100 and VET 136.

VET 263 Clinical Application II (A,W,SU) **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: $75.00. Prerequisites: VET 133 and VET 291.

VET 266 Animal Health and Disease II (A,W,SP,SU) **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: VET 136.

VET 267 Veterinary Urinalysis and Clinical Chemistry (A,W) **2-6-4**
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: VET 135.

VET 269 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. Prerequisites: VET 135 and VET 136 or permission. Concurrent: VET 266.

VET 274 Clinical Seminar II (W,SP) **2-0-2**
Continuation of VET 254, seminar course, which addresses issues emanating from the students clinical experience. Strategies for job hunting are discussed, and simulation job interviews are practiced. Prerequisite: VET 291. Concurrent: VET 293.

VET 275 Seminar A (A) **1-0-1**
Discussion relating to clinical experiences and euthanasia and problem solving models. Prerequisites: VET 133; evening program registration. Concurrent: VET 294.

VET 276 Seminar B (W) **1-0-1**
A continuation of discussions relating to clinical experiences, Myers-Briggs evaluation, and problem solving. Prerequisites: VET 275; evening program registration. Concurrent: VET 295.

VET 277 Seminar C (SP) **1-0-1**
A continuation of VET 276 to address issues emanating from clinical experience. Strategies to enhance employment opportunities are investigated. Prerequisites: VET 276; evening program registration. Concurrent: VET 296.

VET 278 Seminar D (SU) **1-0-1**
A continuation of VET 277 to discuss issues concerning clinical experience. Strategies which enhance employment opportunities are continued to be discussed. Prerequisites: VET 277; evening program registration. Concurrent: VET 297.

VET 291 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: $75.00. Prerequisite: 30 technical credits

VET 293 Clinical Experience II (W,SP) **0-30-6**
Continuation of VET 291. Lab fee: $75.00. Prerequisites: All VET courses.

VET 294 Clinical Experience A (A) **0-15-3**
Observation and practical application of techniques used in veterinary medicine. Students will be assigned to various private practitioners for a period of ten weeks or the teaching hospital of the College of Veterinary Medicine for this period. Designed for the evening veterinary technology program. Lab fee: $37.00. Prerequisites: 30 technical hours completed; evening program registration.

VET 295 Clinical Experience B (W) **0-15-3**
A continuation of clinical experience where observation and practical application of techniques used in veterinary medicine will be further performed. Students will be assigned to various private practitioners for a period of ten weeks or the teaching hospital of the College of Veterinary Medicine for this period. Designed for the evening veterinary technology program. Lab fee: $38.00. Prerequisites: VET 294; evening program registration.

VET 296 Clinical Experience C (SP) **0-15-3**
Clinical experience and observation and practical application of techniques used in veterinary medicine will be further performed. Students will be assigned to various private practitioners for a period of ten weeks or the teaching hospital of the College of Veterinary Medicine for this period in the area of large animal (equine and food animal medicine). Designed for the evening veterinary technology program. Lab fee: $37.00. Prerequisites: VET 295; evening program registration.

VET 297 Clinical Experience D (SU) **0-15-3**
Clinical observation and practical application of techniques used in veterinary medicine will be further performed. Students will be assigned to various private practitioners for a period of ten weeks or the teaching hospital of the College of Veterinary Medicine for this period in the area of emergency and intensive care animal medicine. Designed for the evening veterinary technology program. Lab fee: $38.00. Prerequisites: VET 296; evening program registration.

ARTS AND SCIENCES DIVISION
Technical Communication

CAREER AND TECHNICAL PROGRAMS
Accounting
- EDP Auditing Major
- Bookkeeping Certificate
- Certificate of Accounting Concentration
- Certificate of Taxation

Architecture
Automotive Technology
- Automotive Service Management Major
- Ford ASSET Program
- TechLink Program

Aviation Maintenance Technology
- Airframe Certificate
- Powerplant Certificate

Business Management
- Business Management Major
- Small Business Management Major
- Training and Development for the Non Trainer Certificate

Civil Engineering Technology
- Surveying Certificate

Computer Programming Technology
- AS/400 Programming Language Certificate
- Networking and Distributed Systems Certificate
- Object-Oriented Programming Certificate

Construction Management
Dental Hygiene
Dental Laboratory Technology
Early Childhood Development
Electro-Mechanical Engineering Technology
Electronic Engineering Technology
- Computer Electronics Major

EMS/Fire Science (ATS)
Emergency Medical Services Technology
- EMT-Basic Certificate
- EMT-Intermediate Certificate
- EMT-Paramedic Certificate
- EMS Administration Certificate
- EMS Rescue Certificate
- Advanced Cardiac Life Support Certificate
- Advanced Rescue Certificate
- Basic Trauma Life Support Certificate
- CPR Instructor Certificate
- EMS Dispatcher Certificate
- First Responder Certificate
- Hazardous Materials Certificate
- River Rescue Certificate

Environmental Technology
- Health and Safety for Hazardous Waste Operations Training Program Certificate

Facility Management
Financial Management Technology
Fire Science
Gerontology
- Gerontology Certificate
- Activities Programming for the Elderly in Long Term Care Cert.

Graphic Communications Technology
Health Information Management Technology
- Medical Coding Specialist Certificate
- Medical Transcription Certificate

Heating, Ventilating and Air Conditioning Technology
- High Pressure Boiler License Training Program

Hospitality Management
- Chef Apprenticeship Major
- Dietetic Technician Major
- Food Service/Restaurant Management Major
- Travel/Tourism/Hotel Management Major
- Dietary Manager Certificate

Human Resources Management Technology
Interpreting/Transliterating
- American Sign Language/Deaf Studies Certificate
- Teaching American Sign Language Certificate

Landscape Design/Build
Law Enforcement
- Corrections Major
- Law Enforcement Major
- Law Enforcement Management Major
- Law Enforcement Major - Academy Track

Legal Assisting
- Workers' Compensation Certificate

Legal Medical Consulting (ATS)
Logistics
- Purchasing Major

Marketing
- Customer Service Major
- Direct Marketing Major

Mechanical Engineering Technology
Medical Assisting Technology
Medical Laboratory Technology
Mental Health/Chemical Dependency/Mental Retardation
- Advanced Level Chemical Dependency Certificate
- Community Living Specialist Certificate
- Entry Level Chemical Dependency Certificate
- Foster Parent Treatment Specialist Certificate

Microcomputing Technology
- PC Hardware/Software Installation & Maintenance Certificate

Multi-Competency Health
- EMT - Paramedic Degree Track
- Histology Degree Track
- Patient Care Degree Track
- Animal Assisted Therapy in Education Certificate
- Basic Electrocardiography Certificate
- EMT - Basic Certificate
- EMT - Intermediate Certificate
- Health Care Manager Certificate
- Histology Certificate
- Home Health Aide Certificate
- Mammography Certificate
- Nurse Aide Training Certificate Program
- Phlebotomy Certificate
- Registered Nurse First Assistant Certificate
- Registered Nurse Home Care Certificate
- Respiratory Care Rehabilitation/Home Care Certificate
- Sleep Studies Certificate
- Train the Trainer Certificate

Multimedia Production Technology
- Authoring Systems Track
- Computer Graphics Track

Nursing
Office Administration
- Executive Office Administration Major
- Legal Office Administration Major
- Medical Office Administration Major
- Word Processing Certificate

Quality Assurance Technology
Radiography
Real Estate
Respiratory Care
- Registered Nurse/Registered Respiratory Therapist Program

Retail Management
Sports & Fitness Management
- Exercise Specialist Certificate
- Massage Therapy Certificate

Surgical Technology
Veterinary Technology