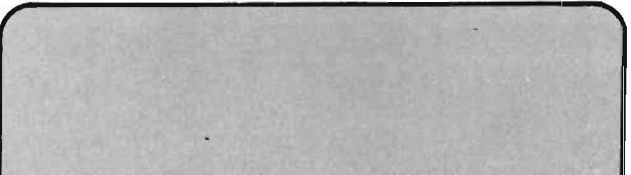
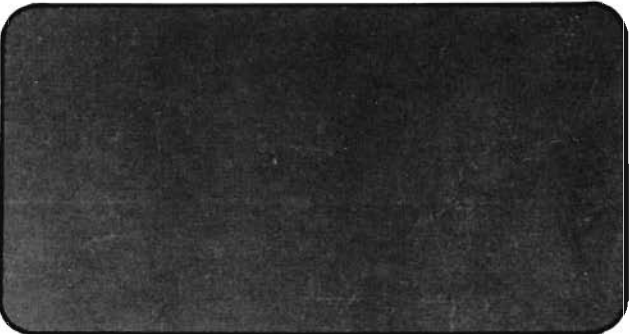
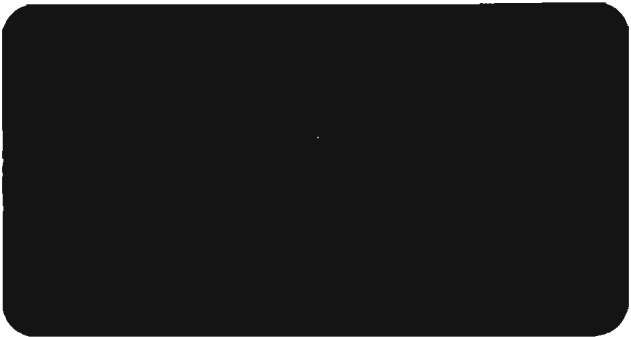
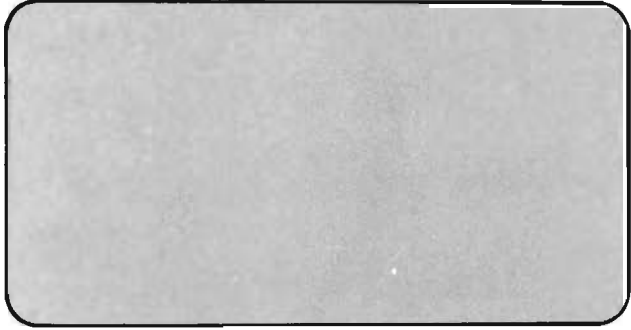
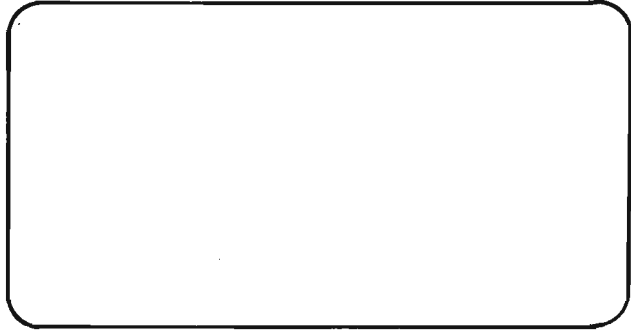


# Columbus Technical Institute

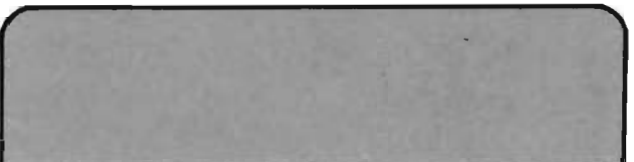
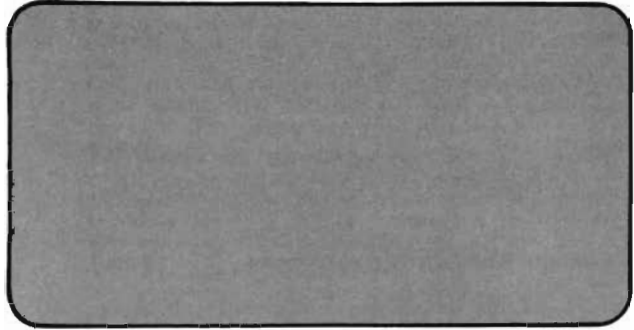
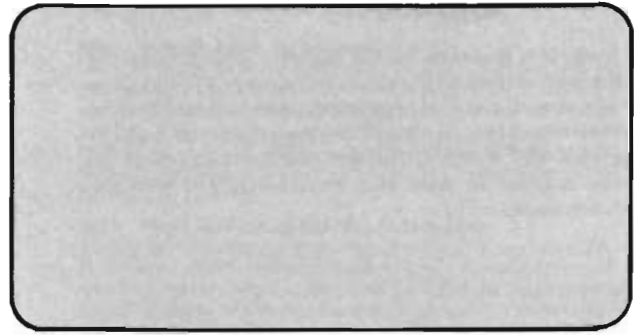
1976-77 Bulletin



# Columbus Technical Institute

1976-77 Bulletin

Addendum



Second Quarter

COURSE	CH	LH	Cr
8492 or 8493 or 8494	0	12	4
8422 or 8423 or 8424	4	0	4
1523 Child Psychology*	4	0	4
1323 General Health Problems	5	0	4
XXXX Communication Skills	3	0	3
	<u>16</u>	<u>12</u>	<u>18</u>

Third Quarter

8492 or 8493 or 8494	0	12	4
8422 or 8423 or 8424	4	0	4
1524 Adult Psychology*	4	0	4
1526 Abnormal Psychology	3	0	3
XXXX Communication Skills	3	0	3
	<u>14</u>	<u>12</u>	<u>18</u>

SECOND YEAR

Fourth Quarter

8492 or 8493 or 8494	0	12	4
8422 or 8423 or 8424	4	0	4
8434 Advanced Helping Skills	5	0	4
1542 Social Psychology I*	3	2	4
	<u>12</u>	<u>14</u>	<u>16</u>

Fifth Quarter

8495 MH/MR Advanced Clinic I	2	18	6
8426 Social Problems/Community Resources	5	0	5
1024 Speech	3	0	2
1541 Community Sociology*	3	2	4
	<u>13</u>	<u>20</u>	<u>17</u>

Sixth Quarter

8496 MH/MR Advanced Clinic II	2	18	6
8416 Therapeutic Methods	4	0	4
1527 Contemporary Social Anthropology	3	0	3
	<u>9</u>	<u>18</u>	<u>13</u>

Seventh Quarter

8497 MH/MR Advanced Clinic III	2	18	6
8437 Career Seminar	2	0	1
1525 Marriage & Family Relations	3	0	3
1004 Technical Writing	3	0	2
	<u>10</u>	<u>18</u>	<u>12</u>

\*Students may substitute Behavioral Science courses with approval of Technology Chairperson.

Mental Health and Retardation Department

8401 Introduction to Mental Health

4-0-4

Overview of history and development of mental health services. Theories of mental health. Mental health care delivery system. Roles and functions of the traditional and non-traditional mental health worker. The mental health needs of residents of Columbus and Franklin County. Contemporary legislation. Medical model vs. Human Service Model. A survey of agencies employing MHT's, field trips, and guest lectures.

8411 Introduction to Mental Retardation

3-0-3

This is an introductory course covering key concepts in retardation at a basic level. Identification and classification of the retarded are looked at historically and in light of contemporary methods. Legal aspects, civil rights, services, and community resources are covered.

8416 Therapeutic Methods

4-0-4

To provide the student/trainee with knowledge and skills in counseling using group and individual methods; to be able to function as a team member; to be able to evaluate the effectiveness of a particular therapeutic method; to expose the student/trainee to various therapeutic methods; to enhance the student/trainee's performance in their clinical experience.

8421 Values and Attitudes for the MHT

2-0-2

A study of the values, beliefs, and attitudes, necessary for effective helping relationships. Values clarification and exploration for the beginning trainee. Conducted through a small group experience to facilitate interpersonal understanding.

8422 Community Mental Health\*

4-0-4

This is one of a three-part modular series of courses designed to provide the trainee with knowledge of key concepts and theories as well as some specific skills related to a particular area. History of community mental health movement in U.S. of America. The 648 system; services of 648 agencies. Introduction to helping skills. Interviewing, taking social histories. Client assessment, action program planning, referrals, and crisis intervention.

\*Must take 8492 concurrently

8423 Residential Treatment\*

4-0-4

This is one of a three-part modular series of courses designed to provide the trainee with knowledge of key concepts and theories as well as some specific skills related to a particular area. A history of institutional care will be taught; contemporary concepts of a-day care, treatment, and rehabilitation; therapeutic programming, the treatment team, impact of institutionalization, problems of community acceptance.

\*Must take 8493 concurrently.

8424 Mental Retardation\*

4-0-4

This is one of three-part modular series of courses designed to coordinate clinical (practical) experiences with theoretical and academic knowledge in a particular area. This course will analyze in depth specific approaches used with retarded clients in a variety of settings, emphasis is on skill development at an intermediate level as well as knowledge of theory.

\*Must take 8494 concurrently.

8426 Social Problems/Community Resources

5-0-5

An examination of the social welfare institutions in the U.S. i.e., the family, the church, economic institutions, and government. A look at national social welfare policies and programs related to housing, health care, and income maintenance.

8434 Advanced Helping Skills

5-0-4

This is an intensive course in the theoretical and practical aspects of effective helping through the counseling relationship. There is a heavy emphasis on practice using the counseling laboratory, videotape, small study groups, and role-play sessions.

8437 Career Seminar

2-0-1

A small group seminar designed to prepare the trainee to seek and find employment. Survey of employers, job opportunities, pay scales, etc. Review of resume writing for a professional MH/MR position, filling in application forms, presentation of self, interview conduct.

8492 Clinic in Community Mental Health

0-12-4

This is one of a three-part series of clinical experiences, designed to give the trainee a broad overview of modalities of delivery of mental health services. To give the trainee an opportunity to observe all service components of a community mental health center and to practice basic skills under close supervision.

8493 Clinic in Residential Treatment

0-12-4

This is one a three-part series of clinical experiences designed to give the trainee a broad overview of modalities of delivery of mental health services. To give the trainee an opportunity to observe all the service units of a residential treatment facility and to practice basic skills under close supervision.

**8494 Clinic in Mental Retardation** 0-12-4

This is one of a three-part series of clinical experiences designed to give the trainee a broad overview of modalities of delivery of mental health services. To give the trainee an opportunity to observe all service components of a facility which gives a broad range of services to mentally retarded individuals and to provide opportunities to practice basic skills under close supervision.

**8495 Advanced MH/MR Clinic I** 2-18-6

**8496 Advanced MH/MR Clinic II** 2-18-6

**8497 Advanced MH/MR Clinic III** 2-18-6

Three advanced clinical experiences for the second year student which take place in settings that will match the student's interest and training needs. The trainee has a solid grounding in the fundamental skills requisite for being an effective helper and works with a minimal to moderate amount of supervision. The trainee plans on extended placement of 2 or 3 consecutive quarters in the same agency in order to carry a small caseload and become involved in on-going work with clients. The trainee acts as part of the agency staff and is responsible for professional conduct and regular work habits.

**Board of Trustees** Page 74

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- Frank S. Williams, ... Senior Vice President, *Columbia Gas of Ohio*  
*(Retired)*

**Administration** Page 75

- Ken Leslie ..... Director of Personnel,  
*B.S., Ohio State University; M.B.A., Xavier University*

**Advisory Committees** Page 78

**General Education Advisory Committee**

- Dr. Marvin Deviney ..... Ashland Chemical Company
- Dr. William Moore ..... The Ohio State University
- Mary Moyer ..... Battelle Memorial Institute
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550 EAST SPRING STREET  
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 COLUMBUS, OHIO 43216  
 (614) 221-6743

# Course Descriptions

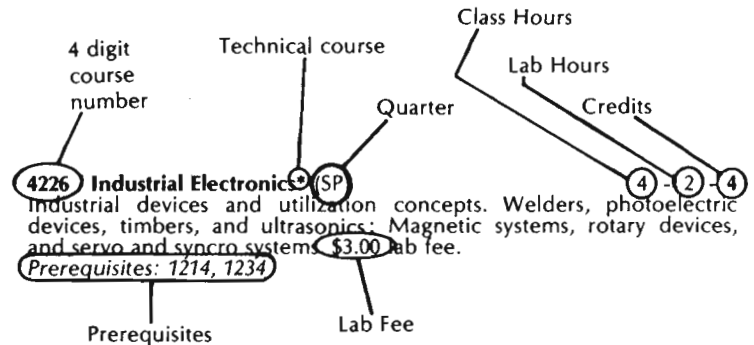
## Columbus Tech's course numbering system

To make scheduling move more smoothly, no two courses at Columbus Tech have the same number. The first two digits of a course's four digit number identify for you the department; the last two numbers identify the individual course within the department.

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

02XX ROTC	4100 Automotive
09XX General Courses	42XX Electronic Engineering
10XX Communication Skills	43XX Industrial
11XX Mathematics	46XX Mechanical Engineering
13XX Basic Science	51XX Architecture
15XX Behavioral Science	53XX Civil Engineering
	75XX Social Services
	76XX Safety
22XX Food Service	78XX Law Enforcement
24XX Graphics	79XX Fire Science
25XX Aviation	80XX Medical Lab
27XX Business Data Processing	81XX Dental Laboratory
28XX Banking/Finance	84XX Mental Health
29XX Retailing	85XX Nursing
30XX Wholesaling	86XX Respiratory Therapy
31XX Sales Marketing	89XX Animal Health
33XX Secretarial Science	
37XX Accounting	
38XX Business Management	

## Explanation of course description codes



**Four digit course number** - first two digits indicate the department; the second two identify the specific course. Two digits followed by XX, indicate an elective requirement for which only the department is specified; here the student may choose the specific course, subject to approval of his advisor. Where no digits appear, the elective may come from more than one department. It usually connotes a course from the General Education Division.

**Technical course** - identifies courses within the student's major field. These may be used to work toward fulfilling departmental regulations that require students to take a certain number of technical courses.

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

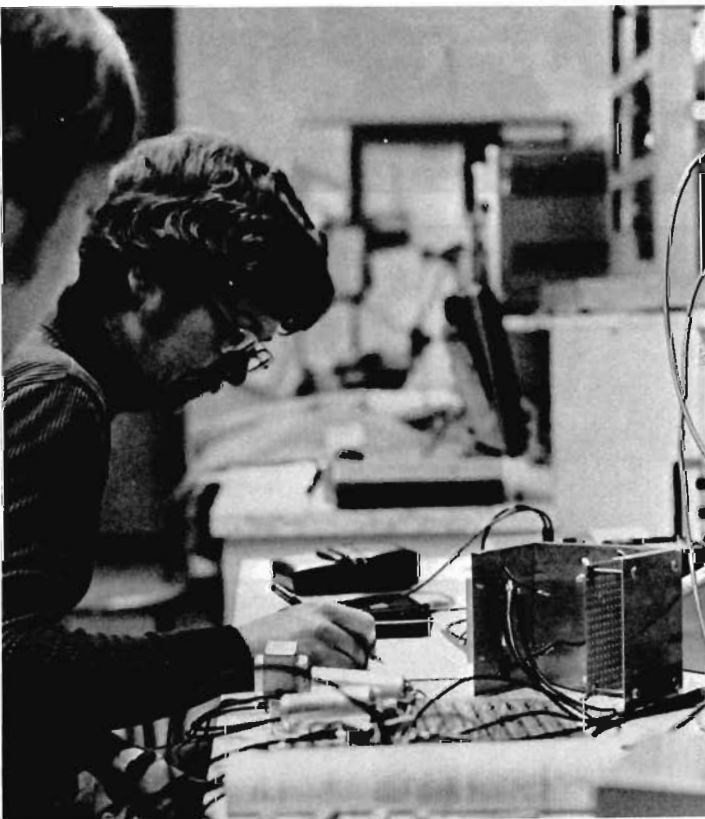
**Prerequisites** - identifies any course work that must have been successfully completed before the student is eligible to enroll for the course. For example, if the number 1002 were listed as a prerequisite for a course, then only students who have completed 1002 would be eligible to register for the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

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

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

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

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



# ACCOUNTING DEPARTMENT

- 3701 Principles of Accounting I\*** 8-0-5  
An introductory course in accounting including: the meaning and purpose of accounting; accounting statements: balance sheet, income statement, and statement of retained earnings; the theory of debits and credits, ledger accounts and the trial balance, journalizing and posting; statement preparation; accounting records; adjusting and closing entries; accounting for notes and interest; and accounting for pre-paid, unearned, and accrued items. Application of accounting principles to sole proprietorships and partnerships. \$2.00 lab fee.
- 3702 Principles of Accounting II\*** 8-0-5  
A continuation of course no. 3701 including discussion of: valuation and cost allocation in accounting for a firm's investment in productive resources (inventories, plant and equipment and intangibles); accounting problems peculiar to corporations, focusing on long-term liabilities and stockholders' equity sections; and analysis of accounting data for planning and interpretation.  
*Prerequisite:* 3701
- 3703 Intermediate Accounting\*** 8-0-5  
A continuation of accounting theory. An in-depth study of the accounting process and accounting records; the nature and content of accounting statements: balance sheets, income statements, statements of retained earnings; analysis of working capital; analysis and methods of valuation and statement presentation of the following items: cash and temporary investments, receivables, and inventories.  
*Prerequisite:* 3702
- 3704 Intermediate Accounting II\*** 8-0-5  
A continuation of course no. 3703 including analysis and methods of valuation and statement presentation of the following items: current liabilities—contractual and contingent items; investments in plant, and equipment—their acquisition, use, retirement, depreciation and depletion, and revaluation; intangible assets, deferred charges and long-term liabilities. \$3.00 lab fee.  
*Prerequisite:* 3703
- 3705 Money and Banking\*** 3-0-2  
Analysis of our "present day" monetary system to include discussion of the roles played by the institutions of the money and banking system as they affect money supply; and monetary theory to discover the effect of money on economic growth and stability.  
*Prerequisite:* 3802
- 3711 Basic Business Machines\*** 1-2-1  
Instruction and practice in operation of office machines, including rotary calculators; printing calculators, electronic calculators, 10-key and full keyboard adding-listing machines. Familiarization with the operation of office reproducing machines. \$7.00 lab fee.
- 3712 Accounting Machines\*** 2-2-2  
Systems Fundamentals: Areas of systems activity within an organization: the systems department, its personnel and its operation, charting, systems communications and instruction manuals. Machine indoctrinations: punch cards, card-punch machines, card collators and reproducing machines and an introduction to computer hardware. \$10.00 lab fee.
- 3713 Data Processing for Accountants\*** 2-2-3  
A survey of computer systems, hardware and software systems. Extensive work is done on FORTRAN programming techniques and debugging methods. The use and application of terminals and computer service centers. \$12.00 lab fee.  
*Prerequisite:* 3712
- 3714 Cost Accounting\*** 8-0-5  
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; by-products and joint products; fundamental cost-volume-profit relationships (break-even analysis); flexible and standard costs. \$4.00 lab fee.  
*Prerequisite:* 3703
- 3716 Auditing\*** 4-3-4  
Independent and internal audits, professional ethics, legal liability, internal control, auditing standards and procedures. Evidential matter, auditors approach and techniques, reports, statistical sampling, management advisory services. \$3.00 lab fee.  
*Prerequisite:* 3703
- 3723 Business Finance\*** 3-2-3  
Forms of business organization; corporate securities; financing through securities; sources and management of working capital; administration of income; expansion and combination, reorganization, receivership, and dissolution.  
*Prerequisite:* 3704

- 3724 Systems Analysis\*** 3-2-3  
Developing, organizing, and using accounting data, analyzing and improving accounting systems, systems review, flow process charting, structural flow charting, internal check, internal control, forms and paper flow analysis. \$2.00 lab fee.  
*Prerequisite:* 3713
- 3725 Financial Statement Analysis\*** 3-2-3  
Tools of analysis, percentages, comparisons—past performance, industry standards. Basic ratios—equity, current, quick, working capital, return on equity. Turnovers, inventories, receivables.  
*Prerequisite:* 3723
- 3726 Office Management and Procedures\*** 3-2-3  
Organization of the office, managerial considerations, office furniture and equipment, office machines, working conditions, office layout, records and reports, personnel and training, office manuals, budgets and costs. \$4.00 lab fee.  
*Prerequisite:* 3712
- 3735 Taxation I\*** 3-2-3  
Payroll taxes, withholding and reports. Unemployment, industrial insurance contributions, workmen's relief funds. Franchise taxes. Personal property taxes. Classified and intangible taxes. City income taxes. Sales and use taxes. Real estate taxes. Vehicle and other taxes. \$5.00 lab fee.  
*Prerequisite:* 3704
- 3736 Taxation II\*** 5-2-4  
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. \$3.00 lab fee.  
*Prerequisite:* 3704
- 3745 Advanced Accounting\*** 8-0-5  
Problems peculiar to partnerships, receiverships, fiduciaries, installment sales, consignments, insurance, estates and trusts; compound interest applications; governmental accounting; branches, consolidations, mergers and foreign exchange.  
*Prerequisite:* 3714
- 3746 Accounting Practice\*** 4-2-4  
A detailed study of accounting systems as applied to specific industries. Industries studied: retailing, construction, utilities, and government. Material from all previous courses applied. Accounts from local firms presented and problems discussed with the class. \$6.00 lab fee.  
*Prerequisite:* 3704

# ANIMAL HEALTH DEPARTMENT

- 8902 Animal Health Technology I (A)** 5-0-5  
Discussion of the career opportunities and duties of a technician. The laws and ethics related to animal care and to animal health technicians. Pertinent records kept in an animal facility and a veterinary hospital. Other management information and basic accounting principles. An introduction to animal species, including physiological data, gestation, breeding information, important concepts of genetics, nutrition and research usage. \$30.00 lab fee.
- 8904 Animal Health and Diseases (W)** 3-0-3  
This course deals with animal health, disease prevention and signs of diseases in each of the species.  
*Prerequisites:* 1321, 8902
- 8907 Animal Health Technology II (W)** 4-2-5  
Study of animal caging systems including kennel management, physical handling of the animals, proper restraint for certain procedures, environmental temperature control, sanitation and sterilization, basic animal science and the principles of gnotobiotics. In addition, a general study of clinic operations from the front desk through all sections including the clinical laboratory. \$30.00 lab fee.  
*Prerequisites:* 8902, 1321
- 8916 Clinical Procedures I (Surgery) (SP)** 3-0-3  
Discussion of surgery room preparation, animal preparation, animal aftercare, and assisting the veterinarian during surgery.  
*Prerequisites:* 8902, 1322, 8904
- 8917 Clinical Procedures II (Radiology) (SP)** 3-0-3  
Lectures, demonstrations and laboratory exercises covering the following topics: terminology, care and maintenance of radiological equipment and techniques of exposing and developing radiographs. Radiographic positioning, animal measurement, and instrument settings are studied.  
*Prerequisites:* 1322, 8907, 8904

- 8918 Clinical Procedures III (Pharmacology) (SU)** 3-0-3  
The study of disinfectants, insecticides, anthelmintics, antibiotics and other drugs commonly used in veterinary medicine. The administration and calculation of the proper dosage is studied. \$30.00 lab fee.  
*Prerequisite:* 1322
- 8919 Clinical Procedures (Anesthesiology) (A,W)** 3-0-3  
The study of anesthetic agents and the use and maintenance of inhalation anesthetic equipment. Ancillary monitoring equipment, are studied. Special surgical instruments are discussed.  
*Prerequisites:* 8916, 8986
- 8926 Clinical Laboratory I (SP)** 2-6-5  
Course designed to teach the use of equipment necessary to perform complete blood counts. Students learn to use the hemocytometer, pipet, centrifuge and spectrophotometer. Emphasis on the differential white blood counts and reticulocyte counts and most other tests utilized in a clinical hematology laboratory.  
*Prerequisite:* 8907, 8904
- 8927 Clinical Laboratory II (A,W)** 2-6-5  
Student performs tests on urine, including protein, glucose and ketones, and other tests performed in routine urinalysis laboratory. Students learn characteristics of and tests performed on transudates, exudates, and cerebrospinal fluid. Students perform blood chemistries, including glucose, BUN, creatinine, bilirubin and enzymes. Special emphasis on the methods used in the clinical laboratory at the Ohio State University College of Veterinary Medicine.  
*Prerequisite:* 8986
- 8928 Clinical Laboratory III (A,W)** 2-6-5  
Course includes processes necessary to identify causative agents of bacterial infections. Student performs susceptibility testing to identify chemical or antibiotic agents necessary for treatment. Basic bacteriologic procedures which include isolation of colonies on culture plate and Gram stain are taught. Serologic procedures, identification of leptospirosis and brucellosis by antigen-antibody detections, are introduced.  
*Prerequisite:* 8986
- 8931 Clinical Application I (SP)** 0-6-3  
Practical application of procedures used in Veterinary clinics and hospitals. Includes drug and fluid administration, radiographs, surgical and anesthesiology procedures, collecting laboratory samples and any other task performed in Veterinary facilities. \$30.00 lab fee.  
*Prerequisites:* 8907, 8904
- 8932 Clinical Application II (A,W)** 0-6-3  
A continuation of course 8931. \$30.00 lab fee.  
*Prerequisites:* 8931, 8986
- 8986 Clinical Experience I (SU,A)** 0-30-6  
A rotation through various departments and areas of the Ohio State University Veterinary Hospital. The student will work closely with junior and senior veterinary medical students under the supervision of College of Veterinary Medicine faculty. \$30.00 lab fee.  
*Prerequisite:* 27 technical credits
- 8987 Clinical Experience II (W,SP)** 0-30-6  
A continuation of course 8986. \$30.00 lab fee.  
*Prerequisite:* All 89XX courses.
- 8988 Research Report (W,SP)** 1-0-1  
Selected research projects for senior students which may include both library research and laboratory investigation under supervision of the faculty, in the student's major field of interest. Presentation of a formal research paper is required.  
*Prerequisite:* 36 technical credits

## ARCHITECTURE DEPARTMENT

- 5101 Architectural Graphics I\* (A)** 3-6-3  
Lettering, line work, orthographic projections, isometric and oblique drawings, and preliminary drawing techniques used in the architect's office. Field trips. \$5.00 lab fee.
- 5102 Architectural Graphics II\* (W)** 3-6-3  
Descriptive geometry with the objective of developing problem solving techniques in three dimensions including the intersection of lines and surfaces, the intersections of surfaces with surfaces, the development of irregular shapes, the intersection of solids and shades and shadows. \$5.00 lab fee.

- 5103 Architectural Graphics III\* (SP)** 4-8-5  
Site development requirements including coordination with local government authorities for right-of-way, utilities, zoning and codes, development of topography and meets and bounds of property. Introduction of construction surveying and the use of the level and transit on the construction site. Field trips. \$5.00 lab fee.

- 5104 Architectural Graphics IV\* (A)** 4-8-4  
Line presentation with one, two, and three point perspective techniques and perspective chart techniques. Freehand and presentation drawing techniques used in the Architects' offices. \$5.00 lab fee.

- 5105 Architectural Graphics V\* (W)** 4-8-4  
Generation of selected details utilized by trade mechanics involved with items as wall construction, elevator construction, roof structure and crantry construction. Multiple material floor and wall finish details, and the coordination of details within working drawings. Working drawing organization and specification notes. Field trips. \$5.00 lab fee.

- 5106 Architectural Graphics VI\* (SP)** 5-10-5  
Complete working drawing project with office procedures and requirements emphasized. Detailed coordination with consultants' drawings and manufacturer's literature. Independent use of office product files and technical information. Field trips. \$5.00 lab fee.

- 5111 Materials and Processes of Construction I\* (A)** 2-4-4  
The properties, standards, unit measurements, production processes, and economics of material systems. The materials considered are concrete, masonry, wood, steel and non-ferrous metals and alloys. Field trips will be taken to local manufacturing plants and fabrication shops. \$3.00 lab fee.

- 5112 Materials and Processes of Construction II\* (W)** 2-4-4  
The properties, standards, unit measurements, production processes, and economics of materials and their use in buildings are studied. The materials considered are plaster, acoustical finishes, waterproofing, roofing, flooring, wall coverings, doors, windows, hardware, glass, paints, and sealouts. Field trips will be taken to construction sites as related to various materials. \$3.00 lab fee.

- 5114 Mechanical Systems I (Heating and Ventilating)\* (W)** 2-4-4  
Fundamentals of comfort conditioning. Methods of heating, ventilating, and air conditioning; coordination with the elements of the building. Job construction techniques, detailing, schedules, trade association recommendations, shop drawings. Conventional symbols and nomenclature. Economic evaluations & research forecasts. Field trips. \$3.00 lab fee.

- 5115 Mechanical Systems II (Electrical Equipment)\* (SP)** 2-4-4  
Fundamentals of lighting, electrical systems equipment for buildings. Essentials of electrical code and association standards. Conventional symbols, nomenclature and layouts. Coordination of electrical work with the elements of the building, computer techniques fixture and equipment schedules, electrical work economics, and research forecasts. Field trips. \$3.00 lab fee.

- 5116 Mechanical Systems III (Plumbing and Sanitation)\* (A)** 2-2-3  
Plumbing codes and standards, layout techniques, conventional symbols and nomenclature, coordination with other elements of building, schedules, details, shop drawings, economics, research forecasts, and computer analysis techniques. Field trips. \$3.00 lab fee.

- 5121 Survey of Architecture\* (A)** 5-0-4  
A survey of architecture in America from 1600 to present. The men and ideas that shaped construction. Emphasis on modern construction.

- 5122 Structural Systems I (Wood)\* (SP)** 2-4-3  
Wood construction techniques and detailing of conventional, post and beam, panel, prefabrication, light and heavy truss, millwork and laminated plywood systems. Shop drawing techniques and checking. Field trips. \$3.00 lab fee.

- 5123 Structural Systems II (Steel)\* (A)** 2-4-3  
Drafting room use of steel construction handbook and steel detailing. Structural plan layout, details, schedules, shop drawing techniques and checking, coordination of steel elements with other parts of building. Computer techniques in structural work, and economics of steel construction. Field trips. \$3.00 lab fee.

- 5124 Structural Systems III (Concrete and Masonry)\* (W)** 2-4-3  
Drafting room use of concrete reinforcing steel handbook and masonry handbook. Fundamentals of construction details and detailing, shop drawings, shop and job fabrication. Job layout and construction techniques. Coordination with other elements of the building, computer techniques, and economics of concrete and masonry construction. Field trips. \$3.00 lab fee.

**5125 Estimating\*** (SP) 2-4-3  
 Building cost estimating methods, detailed materials and labor takeoff methods, contractors' overhead costs, wage withholding, and payroll deductions. Insurance, tax, bond, and economics of construction costs. \$3.00 lab fee.  
*Prerequisites: 5111, 5112*

**5127 Specifications, Codes and Standards\*** (W) 2-4-4  
 The fundamentals of specifications organization into trade division, the content and referencing to other bidding and construction documents including contracts. Familiarization with Building Codes and Regulations used in the drawing production process. Utilization of manufacturer's and association standards used in the drawing production process. \$5.00 lab fee.  
*Prerequisites: 5111, 5112*

## AUTOMOTIVE TECHNOLOGY

**4111 Brake Systems** 2-4-4  
 Nomenclature and theory of operation of conventional and disc brakes, both powered and unpowered. Service procedures for brake systems, wheels and tires. Lab Fees \$5.00.

**4121 Suspension and Steering Systems** 2-4-4  
 Nomenclature and theory of operation of suspension and steering systems. Service procedures, repair, maintenance, and alignment of these systems. Lab Fees \$5.00.

**4101 Service Writing** 2-5-4  
 Develops an understanding of the role and function of an automotive service writer, automotive service representative, and automotive service manager. Staff responsibilities and procedures for completing the service of customer vehicles. Custom relations, consumer laws, and legal liabilities are stressed.

**Automotive Powerplants** 3-6-5  
 Principles of the internal combustion engine including diesel. Proper use and care of hand tools. Disassembly, inspection and repair of internal combustion engines (valve grinding, broken stud repair, etc.) Proper use of precision measuring and inspection equipment. Lab Fees \$10.00.

**4102 Service Management** 1-3-2  
 Various types of business organizations are studied in relation to the automotive industry, wholesale, and retail as directed to the automotive service department. Service management of the large organization and the smaller shops is studied. Customer relations, consumer laws, and legal liabilities are stressed. *Prerequisite: 4101.*

**4113 Basic Automotive Electricity** 3-3-4  
 Basic principles of electricity and magnetism. AC and DC circuits, batteries: Types, construction, servicing, testing and changing. Use of testing and troubleshooting equipment. Lab Fees \$8.00.

**4103 Inventory Control** 2-3-3  
 Repair parts management, stock level determinations and management. Warranty problems and procedures.

**4123 Induction Systems** 2-4-4  
 Carburetors and fuel injectors—their theory, construction, operation, troubleshooting, maintenance and overhaul. Supercharging systems. Lab Fees \$5.00.

**4114 Automotive Electricity II** 2-5-4  
 Electrical engine starting systems. Alternators, generators, and their associated control devices. Inspect, check, service, and trouble shoot start and charging systems. Lab Fees \$8.00.  
*Prerequisite 4113*

**4134 Environmental Systems** 2-3-3  
 Theory, operation and maintenance of pollution control systems in an internal combustion engine. Lab Fees \$5.00

**4124 Electrical and Vacuum Systems** 2-6-4  
 Review of electricity fundamentals. Study of vacuum devices. Interpretation of chassis wiring diagrams and vacuum systems. Diagnosis of malfunctioning lights, gages, signals, warning devices and actuator. Replacement and repair of electrical and vacuum devices. Use of instruments used in the diagnosis. Lab Fees \$5.00.  
*Prerequisite 4114.*

**4144 Air Conditioning** 2-3-3  
 Air conditioning fundamentals and installations in automotive equipment. Diagnosis of malfunctioning components and servicing as required. Disassembly and repair of components. Diagnosis of malfunctioning controls (Manual and automatic). Lab Fees \$8.00.

**4104 Automotive Welding** 1-3-2  
 Gas and electric welding on typical automotive parts and the use of a cutting torch for disassembly. Lab Fees \$10.00.

**4105 Automotive Systems Integration** 3-3-4  
 Theory and operation of various miscellaneous automotive systems plus the interdependency of such systems as carburetion, ignition, and emission control. Lab Fees \$5.00.  
*Rerequisites fifth quarter status.*

**4125 Automotive Accessories** 2-4-4  
 Service and repair of power-operated accessories, signaling devices, speed control, washers and wipers, etc. Lab Fees \$5.00.  
*Prerequisite 4124.*

**4115 Diagnosis and Tune-up** 1-5-3  
 Diagnosis and tune-up of the engine and engine systems such as carburetion, ignition, charging, and starting systems. Use of the dynamometer. Lab Fees \$5.00.  
*Prerequisite fifth quarter status.*

**4135 Transmissions and Clutches** 2-5-4  
 Theory of operation, maintenance and servicing of clutches, manual transmissions and automatic transmissions. Lab Fees \$5.00.

**4106 Service Orientation and Maintenance** 1-10-5  
 Automotive service and troubleshooting. Procedures and techniques for diagnosing and repairing automotive systems, replacement of components, appearance reconditioning or used cars. Preparing new cars for delivery. May be accomplished in the school's facilities or selected local automotive establishments.  
*Prerequisite sixth quarter status.*

**4116 Drive Line and Differentials** 1-5-3  
 Drive line operation and maintenance, balancing problems and techniques. Operation and maintenance of differentials and final drives. Practical experience in disassembly and reassembly of working units. Lab Fees \$5.00

**4126 Industrial Systems** 2-10-6  
 Study of systems used in trucks, busses, and industrial equipment such as lifts, etc. Lab Fees \$5.00.

## AVIATION MAINTENANCE DEPARTMENT

**2501 Aviation Theory\*** (A, SP) 4-3-5  
 Basic science for the aviation maintenance technician, including aerodynamics of lifting and control surfaces, conditions for flight stability, weight and balance effects, center of gravity limits, reports. Federal Air Regulations. \$8.00 lab fee.

**2502 Aircraft Construction and Design\*** (A,SP) 3-4-5  
 Blueprint reading and interpretation, fundamentals of drawing, drawing sketches of hardware and materials used in construction of aircraft. \$8.00 lab fee.

**2504 Basic Aviation Maintenance\*** (A,SP) 4-6-6  
 Fabricating and installing fluid lines and fittings. Selecting and performing non-destructive testing methods. Aircraft cleaning and corrosion control. \$8.00 lab fee.

**2505 Aircraft Structures I (Welding)\*** (W,SU) 2-3-3  
 Development of sufficient proficiency for the A and P maintenance technician's license. Practice in oxyacetylene welding and analyzing welding faults during routine inspection of airframe components. \$8.00 lab fee.

**2506 Aircraft Structures II** (SU,SP) 7-13-12  
 Identification of aircraft metals and plastics, properties of aircraft metals, heat treatment of fabricated parts, layout from blueprints, bending and bending allowances, protective finishes, identification, selection and use of inspection, and repair of wood structures, maintenance and repair of fabric and fiberglass. \$8.00 lab fee.  
*Prerequisites: 2501, 2502, 2503, 2504*

**2508 Aircraft Environmental Control Systems\*** (SP,SU) 3-3-4  
 Inspection and repair and cabin atmosphere control systems; inspection check, troubleshooting, service and repairing of ice and rain control systems. Maintenance of aircraft fire control system. \$8.00 lab fee.  
*Prerequisites: 2501, 2502, 2503, 2504*

**2509 Aircraft Fluid Systems\*** (A,W,SP,SU) 8-9-12  
 Basic hydraulic and pneumatic principles. Basic hydraulic systems. Brake systems. Hydraulic lines, fittings, fluids, pumps, and actuating devices. Inspection, troubleshooting, repair. Vacuum systems: maintenance, inspection, and repair. Aircraft fuel systems. \$8.00 lab fee.  
*Prerequisite: 2501, 2502, 2503, 2504.*



**2511 Aircraft Rigging, Assembly and Inspection\*** (A,W,SP,SU) 2-6-5  
 Airplane nomenclature. Disassembly and assembly sequence and procedure. Alignment procedures. Airplane overhaul. Fundamentals and methods of rigging. Stability in flight, control surfaces. Control cables: inspection, installation, splicing. Landing gear assembly: types, maintenance, repair, Ruel systems. Aircraft appliances and miscellaneous equipment. Servicing and handling of aircraft. Heating, pressurization, and other internal systems. Instrument installation and inspection. Weight and balance review. Inspection of complete aircraft. FAA report forms. Helicopter theory and maintenance. Aerodynamics of the helicopter. \$8.00 lab fee.  
*Prerequisites: Aviation Courses 2501 through 2509*

**2512 Powerplant Theory and Maintenance (Reciprocating Engines)\*** (W,SU) 7-12-11  
 Principles, development, and design of internal combustion engines. Engine maintenance, repair, and overhaul. Inspection and troubleshooting. Identification of aircraft materials, parts, and components. Calibration of tools and testing equipment. Engine run-in, testing, and maintenance. Hazards of aircraft engine operation. Lubrication systems. \$8.00 lab fee.  
*Prerequisites: 2501, 2502, 2503, 2504*

**2513 Powerplant Theory and Maintenance (Turbine Engine)\*** (SP,SU) 3-3-4  
 Principles, development, design and classification of turbine engines. Engine inspection, maintenance, repair and overhaul. Installation and removal of turbine engines. \$8.00 lab fee.  
*Prerequisites: 2501, 2502, 2503, 2504*

**2514 Magnetos and Ignition Systems\*** (W,SP) 7-8-10  
 Basic electrical principles in ignition systems. Magneto theory, construction, operation, overhaul. Review of combustion principles. Types of magnetos, distributor. Magneto timing: internal and external. Harness construction, inspection, overhaul and testing. Booster systems. Low tension ignition systems. Battery ignition systems. \$8.00 lab fee.  
*Prerequisites: 2501, 2502, 2503, 2504*

**2515 Carburetion and Fuel Controls\*** (W,SP) 4-6-6  
 Float carburetors: theory, construction, operation, troubleshooting maintenance, and overhaul. Pressure injection carburetors: theory, construction, inspection, maintenance, and troubleshooting. Direct pressure injection systems. Fuel systems and requirements: gravity and pressure systems. Induction systems and supercharging. \$8.00 lab fee.  
*Prerequisites: 2501, 2502, 2503, 2504*

**2516 Propellers\*** (A,SP) 5-6-7  
 Aerodynamic principles of propellers. Propeller types, construction and materials. Inspection, repair, and troubleshooting. Installation, removal, tracking and balancing. Controllable propellers. Constant speed governor control: construction, operation, maintenance, adjustment, troubleshooting. Reversible propellers. Hazards of propeller operation. \$8.00 lab fee.  
*Prerequisites: 2501, 2502, 2503, 2504*



**2517 Powerplant and Powerplant Systems Inspection\*** (A,W,SP,SU) 6-8-9  
 Condensation and coordination of previously accumulated knowledge. Inspection of powerplants and powerplant systems, use of inspection equipment and aids. Procedures for returning aircraft to active service. \$8.00 lab fee.  
*Prerequisites: 2501, 2502, 2503, 2504, 2512, 2513, 2514, 2515, 2516*

**2553 Basic Aviation Theory\*** (SU,W) 5-8-9  
 Basic electricity for the aviation maintenance system including reading and interpreting electrical circuit diagrams utilized in troubleshooting aircraft electrical systems. Batteries and generators. Performing ground operation and servicing of aircraft. Understanding maintenance publications, forms and records. \$8.00 lab fee.

**2557 Aircraft Electrical Systems\*** (SP,SU) 6-10-9  
 Review of fundamentals of electricity. Generator control systems. Direct current motors. Electrical engine starting systems: types, inspection, maintenance, overhaul, troubleshooting. Review of basic alternating current principles. Alternating current motors. Alternating current instrument systems. Reading electrical blueprints. Wiring practices, bonding, shielding. Electrical systems. Electrical power units. Radio installations, and inspection. \$8.00 lab fee.

## BANKING/FINANCE DEPARTMENT

**2801 Introduction to Consumer Credit\*** 3-0-3  
 A study of the history of consumer credit and social institutions, social aspects of consumer credit, institutions of consumer credit, customer relations in consumer credit, and operational aspects of consumer credit.

**2803 Money and Banking\*** 5-0-5  
 Control and operation of banking and monetary systems with emphasis on supply and demand and governmental control.  
*Prerequisites: 1802, 1841*

**2805 Analyzing Financial Statements** 4-0-4  
 A fourth edition of the textbook is used for this course and is organized into two main sections: Characteristics of Financial Statements and Financial Statement Analysis. The first section serves as a useful review of basic accounting principles for those students who have studied accounting. For those who have not, this section provides the minimum accounting background necessary for profitable study of financial statement analysis.

**2806 Principles of Bank Operations** 4-0-4  
 This course presents the fundamentals of bank functions in a descriptive fashion so that the beginning banker may acquire a broad (and operational) perspective. The descriptive orientation is intentional. Banking is increasingly dependent upon personnel who have the broad perspective so necessary for career advancement.

**2807 Operation of a Consumer Credit Institution\*** 3-0-3  
 Family credit counseling. The "informative" contribution to sound credit. Restrictive and regulatory obstacles to consumer credit. Regulations of finance charges on consumer installment credit.

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

**2811 Federal Reserve System** 4-0-4  
 This course examines the operations and policies of the Federal Reserve System during critical periods over the past 60 years. The approach taken is topical rather than chronological, thereby enabling students to compare and contrast Federal Reserve policies dealing with similar problems at different periods in time. Attention is given to international monetary affairs and economic developments affecting the American fiscal system.

**2813 Credit Administration\*** 5-0-5  
 An analytical study of credit control, and management of collections. Topics include: management and analysis of consumer and commercial credit, business credit, government credit, and foreign credit.  
*Prerequisites: 1802, 1841, 1813*

**2814 Personal Financial Management\*** 3-0-3  
 Methods of counseling the financially over-extended client, and recognizing danger signals in granting credit. Credit, borrowing, budgeting, relationships with financial institutions, savings, insurance, real estate and taxation.

*Prerequisites:* 1802, 1841, 1813

**2815 Business Financial Management** 4-0-4  
 This new five-volume set's primary objective is to acquaint the student thoroughly with the principles of finance as applied to the operations of a profit-seeking (nonbank) firm. Active participation in the process of financial administration and decision-making teaches the student to use the tools and techniques necessary for the efficient financial management of a modern business enterprise. An up-to-date overview of the activities of the modern business financial manager is provided.

**2816 Agricultural Finance** 4-0-4  
 Reflecting the rapid growth of the off-farm agribusiness sectors (the suppliers of farm inputs), this course emphasizes general principles associated with the evaluation of management and the use of capital, rather than stressing the examination of land and labor resources, which are more closely aligned with agricultural production. An understanding of agricultural finance should help the banker in satisfying the credit needs of modern agriculture.

**2818 Installment Credit** 4-0-4  
 In this course, the techniques of installment lending are presented concisely. Emphasis is placed on establishing the credit, obtaining and checking information, servicing the loan, and collecting the amounts due. Each phase of a bank's installment credit operation is carefully scrutinized. Other topics discussed are inventory financing, special loan programs, business development and advertising, and the public relations aspect of installment lending.

**2823 Corporation Finance\*** 5-0-5  
 A study of business organization. Means of financing, financial management of working capital, administration of income, expansion and merger, reorganization, receivership, and dissolution.  
*Prerequisites:* 1802, 1841

**2824 Consumer Finance Seminar\*** 1-2-2  
 Preparation of the student for taking his place in the profession. Seminars covering the following topics: ethics, supervisory responsibilities, continuing education, human relations, and business promotions.  
*Prerequisites:* 2882, 2886

**2827 Trust Functions and Services** 4-0-4  
 This course presents a complete picture of the services rendered by institutions engaged in trust business. Providing an introduction to the services and duties involved in trust operations, the course is intended for all bankers, not only those who are engaged in trust business. It endeavors to keep clear the distinction between business and legal aspects of trust functions.

**2831 Savings and Time Deposits** 4-0-4  
 This course reflects recognition of the fact that a knowledge of the historical development of savings institutions and an awareness of the basic economic function of the savings process are necessary to an

understanding of the current operations and policies of these institutions. It begins with a review of the economics of the savings process in order to clarify important differences between financial savings by individuals or organizations and real savings that appear as capital formation. Different types of financial savings are reviewed in order to describe the system of financial flows of income to capital investment.

**2834 Management of Commercial Bank Funds** 4-0-4  
 This course deals with those necessary principles from which the student can derive an adequate philosophy of funds management. Differences between practices in large banks and smaller institutions are spelled out so that this text is useful to bankers in institutions of all sizes.

**2836 International Banking** 4-0-4  
 The second edition of this text is an introduction to a vast field for those working in international departments, as well as for those involved in the domestic activities of their banks. The essential objective of this course is to present the basic framework and fundamentals of international banking: how money is transferred from one country to another, how trade is financed, what the international agencies are and how they supplement the work of commercial banks, and how money is changed from one currency to another.

**2838 Law and Banking** 4-0-4  
 An introduction to basic American Law, presenting the rules of Law which under-ly banking. Topics include jurisprudence, the court system and civil procedure, contracts, quasi-contracts, property, torts and crimes, agencies, partnerships, corporations, sales of personal property, commercial paper, bank deposits and collections, documents of title, and secured transactions. Emphasis is on the Uniform Commercial Code.

**2881 Internship I** 6  
 Supervised on-the-job application of knowledge and skills acquired in the classroom.

**2882 Internship II** 6  
 A continuation of 2881.  
*Prerequisite:* 2881

**2883 Internship III** 6  
 A continuation of 2882.  
*Prerequisite:* 2882

**2885 Special Problems in Consumer Finance I\*** 2  
 The first of three courses taken concurrently with the work experience. Selection of a particular problem or area of the job to be studied and reported on.

**2886 Special Problems in Consumer Finance II\*** 2  
 A continuation of 2885.  
*Prerequisite:* 2885

**2887 Special Problems in Consumer Finance III\*** 2  
 A continuation of 2886.  
*Prerequisite:* 2886



# BASIC SCIENCES DEPARTMENT

## 1301 Special Topics in Biological and Physical Sciences (on demand) 1-6-X

Selected materials from the regular course offerings, designed to meet specific needs. May be used for independent studies. Lab fee determined according to content.

## 1311 Basic Inorganic Chemistry (A,W,SU) 4-3-5

An introductory course in fundamental chemical concepts and laboratory techniques. Atomic structure, periodic classification of elements, chemical equations, chemical calculations, solutions, acids and bases, oxidation-reduction reactions, and the gas laws. \$8.00 lab fee.

## 1312 Introduction to Organic Chemistry (W,SU) 4-4-5

A course in fundamental organic chemistry. The study of carbon compounds: aliphatic hydrocarbons, alcohols, ethers, aldehydes, ketones, organic acids, esters, amines, and aromatic compounds. An introduction to carbohydrates, lipids, and proteins. Related laboratory. \$8.00 lab fee.

*Prerequisite:* 1311

## 1313 General and Biological Chemistry (a,SP) 4-3-4

The first half of the quarter is devoted to basic inorganic and organic chemistry as preparation for biological chemistry. The second half is devoted to the chemistry of life functions and emphasizes those aspects needed for later courses in physiology. \$8.00 lab fee.

*Prerequisite:* 1180 or equivalent, 1341 or equivalent.

## 1315 General Microbiology (W) 3-4-4

Use of a bright field microscope and demonstration and explanation of other types. A study of bacteria and bacteriological techniques for cultivation and isolation in pure culture. Use of various stains and certain reagents used in biochemical techniques for identification. Aseptic and anaerobic techniques. Susceptibility testing. Introduction to mycology and parasitology. \$20.00 lab fee.

*Prerequisite:* 1311 or equivalent

## 1321 Anatomy and Physiology I (A,SP) 3-4-4

Basic biological concepts are presented with emphasis on the cell, metabolic activities of the cell, genetics, and tissues. Organ systems covered are skeletal, muscular, digestive, reproductive, and urinary as oriented to man. The cat is utilized as a representative mammal in the laboratory. \$12.00 lab fee.

## 1322 Anatomy and Physiology II (W,SU) 4-2-4

This is a continuation of 1321 with emphasis on the integumentary, nervous, endocrine, respiratory, and circulatory systems of man. \$8.00 lab fee.

*Prerequisite:* 1321

## 1323 General Health Problems (W) 5-0-4

Emphasis is placed on contemporary problems associated with physical and social health within the community. The etiologic causes as well as sociologic causes of the problems are discussed and analyzed. The scope of the course encompasses prenatal situations through old age.

## 1341 Physical Science I (W,SU) 4-2-4

Basic concepts of the physical sciences with an emphasis on the physical and chemical properties of matter. Related laboratory work and demonstrations. \$5.00 lab fee.

## 1342 Physical Science II (A,SP,SU) 4-2-4

Emphasis is placed on the various forms of energy and their utilization. Forms of energy studied include heat, wave, sound, light, and electrical. The basic principles of Newton's Laws are also introduced. Related laboratory work and demonstrations. \$3.00 lab fee.

## 1343 Introduction to Biological and Physical Sciences (A,W,SP,SU) 4-0-4

Fundamental principles of chemistry are presented during the first five weeks with emphasis towards the biological sciences. Topics include scientific method, metric system, atomic structure, elements and compounds, basic chemical reactions and a brief introduction to biochemistry, acids, bases, buffers, and enzymes. The second five weeks cover basic biological concepts with emphasis on the cell, metabolic activities of the cell, genetics, and tissues.

## 1344 Introduction to Anatomy and physiology (A,W,SP) 3-0-3

A general overview of normal human anatomy and physiology. Topics include the cell, tissues, musculo-skeletal, nervous, cardiovascular, genito-urinary, digestive, respiratory and endocrine systems.

## 1361 Human Anatomy and Introduction to Function (A,SP) 2-4-3

The anatomy of the entire body is presented in detail with superficial physiology of the digestive, genito-urinary and musculo-skeletal systems included. \$10.00 lab fee.

## 1362 Human Development (W,SU) 4-0-3

The embryological development of humans from fertilization to birth and biological growth in the first year of life are presented. Human genetics and reproduction are included.

*Prerequisite:* 1361

## 1363 Human Physiology I (W,SU) 5-2-5

The functioning of the various systems of the human body is presented in detail. Systems covered are the cardiovascular, respiratory, digestive, musculo-skeletal and genito-urinary. \$5.00 lab fee.

*Prerequisite:* 1361

## 1364 Human Physiology II (A,SP) 5-2-5

Continuation of 1363. The following topics are presented in an integrative manner: Nervous system, fluids and electrolytes, acid-base balance, and the endocrine system. \$5.00 lab fee.

*Prerequisite:* 1363

## 1371 Physics and Technology (on demand) 4-0-3

A study of the development of physics and technology from antiquity to the present. Diverse attitudes of many scientists, writers and philosophers toward physics and technology, particularly in the nineteenth and twentieth centuries, are presented. Students are encouraged to look at all sides of controversial questions concerning present-day physics and technology.

## 1381 Physics I (Mechanics) (A,W,SP) 4-2-4

A course in the basic principles of mechanics. Major topics include equilibrium of rigid bodies, particle motion, Newton's laws of motion, work and energy, conservation principles, and rotational motion. Related laboratory and demonstrations. \$1.00 lab fee.

*Prerequisite:* 1100 or equivalent

## 1382 Physics II (Electricity and Magnetism) (W,SP) 4-2-4

A course in the basic principles of electricity and magnetism. Major topics include electric charge and fields, capacitance and resistance, currents, DC circuits, magnetic forces and fields, magnetic properties of matter, induced electromotive force, and alternating current. Related laboratory and demonstrations. \$1.00 lab fee.

*Prerequisite:* 1100 or equivalent

## 1383 Physics III (Heat, Matter, and Waves) (A,SP,SU) 4-2-4

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. \$1.00 lab fee.

*Prerequisite:* 1100 or equivalent

## 1384 Physics IV (Light and Modern Physics) (on demand) 4-2-4

A course in the basic principles of electromagnetic waves, physical and geometric optics, and atomic theory. Applications of the principles to optical instrumentation, electron vacuum tubes, solid state electron devices, X-ray tubes, and lasers are featured. Related laboratory and demonstrations. \$1.00 lab fee.

## 1391 Physics Preparation for Physiology (A,SP) 2-2-2

The course is intended to familiarize the student with basic physical concepts and terminology with emphasis on application to human function. \$1.00 lab fee.

*Prerequisite:* 1180 or equivalent

## 1392 Medical Physics I (Mechanics and Heat) (on demand) 4-2-4

A course in the basic principles of mechanics and heat. The relationship between theory and experiment is emphasized through problem-solving, laboratory exercises and demonstrations. Applications to physiology are featured, and include such topics as biomechanics, circulation, respiration, body heat production and heat transfer. \$1.00 lab fee.

*Prerequisite:* 1181 or equivalent

## 1393 Medical Physics II (Electricity, Magnetism, and Optics) (A,W,SP) 4-2-4

A course in the basic principles of electricity, magnetism, and optics which emphasizes the relationship between theory and experiment. Laboratory exercises and demonstrations are intended to provide practical experience in the use of measuring instruments, particularly those of the medical sciences. \$1.00 lab fee.

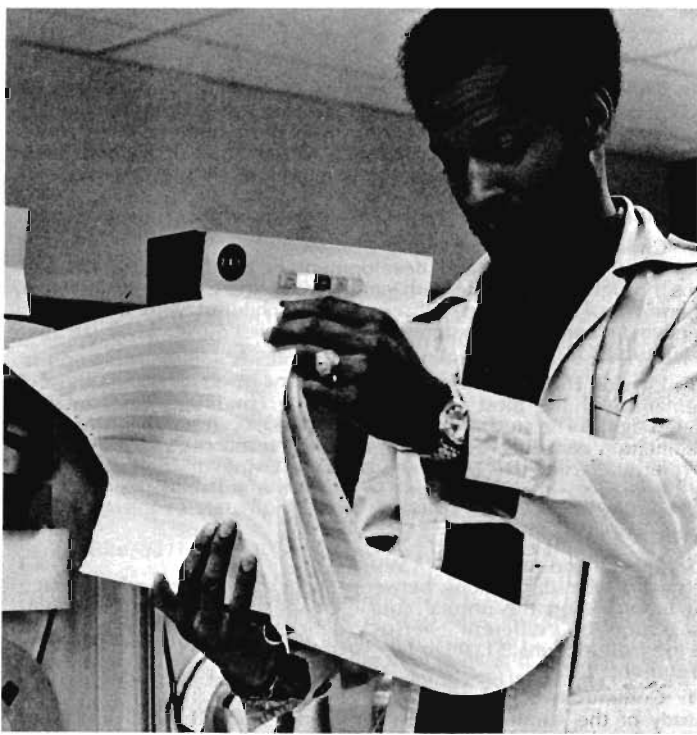
*Prerequisite:* 1181 or equivalent

# BEHAVIORAL SCIENCES DEPARTMENT

## 1501 Beginning Philosophy (A,SP) 3-0-3

A study of the definitions of philosophy and its historical development. A survey of the great thinkers, systems of logic and scientific method. A survey of Existentialism. An emphasis on the student gaining awareness of his own philosophy. \$1.00 lab fee.

- 1505 General Economics (A,W,SP,SU)** 3-0-3  
An introductory course designed to help the student gain an understanding of basic economic issues and of fundamental problems pertaining to our market economy. The students are exposed to major tools and principles used in making economic decisions and for analysis of economic problems and issues. Students are presented opportunities to acquire skill in using the tools and principles in economic analysis. \$1.00 lab fee.
- 1514 General Sociology (A,W,S,SU)** 3-0-3  
An introductory course which draws heavily from the mainstream of empirical literature incorporating the use of sociological method and logic with emphasis on obtaining knowledge about what IS. Emphasis on fundamental concepts of human society and factors affecting its development. \$1.00 lab fee.
- 1515 Human Behavior (A,W,SP,SU)** 3-0-3  
An introductory course designed to help the student develop his awareness of human behavior patterns, interpersonal communication and realization of self and other's interaction. \$1.00 lab fee.
- 1516 Political Science (A,W,SP,SU)** 3-0-3  
An introductory course emphasizing the relationship between citizens and government, and the roles played by each in policy making decisions. Five themes are expanded in the study of political behavior: political participation, political thinking, political feelings, political persuasion and political change. \$1.00 lab fee.
- 1518 Sociology of Urban Life (SP)** 3-0-3  
An introduction to the history, nature and problems of modern urbanism with an emphasis on social trends and life styles of the people of the city and their contributions to American society. A look at the evolution and future trends of urbanism with its influences, consequences and ramifications for mankind. \$1.00 lab fee.  
*Prerequisite: 1514*
- 1522 General Psychology (A,W,SP,SU)** 3-0-3  
An introductory course demonstrating application of the scientific method in treatment of traditional topics as well as the presentation of research procedures and modern findings in the fields of general psychology. \$1.00 lab fee.
- 1523 Child and Adolescent Psychology (W,SP,SU)** 4-0-4  
A course encouraging the student to examine and experience psychological aspects of the developmental stages of childhood and adolescence. Attempts to bring together the results of significant research of how children develop from infancy through adolescence. While "normal" development is emphasized a wide range of behavior is included in the concept of normality. \$1.00 lab fee.  
*Prerequisite: 1522*
- 1524 Adult Psychology (A,SP,SU)** 4-0-4  
A course encouraging the student to examine and experience psychological aspects of the developmental stages of adulthood from young adulthood through old age. Attempts to bring together the results of significant research of how adults develop from youthhood through the aged, terminal illness, death and dying. While "normal" development is emphasized a wide range of behavior is included in the concept of normality. \$1.00 lab fee.  
*Prerequisite: 1522, 1523, or permission of instructor*
- 1525 Marriage and Family Relations (A,SP,SU)** 3-0-3  
An examination of the impact of modern culture upon the family as to courtship, size of family, member relationships, economic problems and stability factors associated with success in marriage. Includes a survey of family types and relationships of the modern world. \$1.00 lab fee.  
*Prerequisite: 1514 or 1515 or 1522*
- 1526 Abnormal Psychology (A,W,SP,SU)** 3-0-3  
Abnormal Psychology is a course that presents to the students information revealing the dramatic changes which have been taking place in the field of mental health, illness and retardation. The course illumines many practitioners labels and labeling systems as it helps the student understand the myths and philosophies based on authoritative, and scientifically accurate recent advances that have had greater input and significance than the combined developments of the previous half century. \$1.00 lab fee.
- 1527 Contemporary Social Anthropology (A,W,SP,SU)** 3-0-3  
A study of the roots and characteristics of major and minor sub-cultural groups represented in the United States and in the state of Ohio. Includes an examination of the roots and the characteristics of these groups in terms of major themes regarding families, beliefs, values, attitudes, life styles and the impact of these sub-cultures on the American Society and the impact of the American Society upon them. \$1.00 lab fee.
- 1531 Child Development I (W)** 3-0-3  
A study of the developmental patterns of children from conception to age six with emphasis on physical, social and emotional maturation, environmental influences and guidance. Observation of children with the use of objective techniques is an integral part of this course. \$1.00 lab fee.  
*Prerequisite: 1522*
- 1532 Child Development II (SP)** 3-0-3  
A study of the growth and development of children from the age of six through adolescence with emphasis on developmental patterns and individual differences. Observation of children with the use of objective techniques is an integral part of this course. \$1.00 lab fee.  
*Prerequisite: 1531*
- 1533 Physical Handicaps (A)** 3-0-3  
Orientation of the most common disabling conditions from infancy through aging. The study of etiology, physical manifestations, and basic rehabilitation concepts; available community resources and procedures for referral; basic ADL (Activities of Daily Living) modifications that can be made within the home to assist the rehabilitation process. \$1.00 lab fee.  
*Prerequisite: 1522*
- 1535 Speech and Audiology (A,W)** 3-0-3  
A study of the distinctions between speech, hearing and language with emphasis on the normal course of speech sound development. Recognition of "different" versus "deficient" speech patterns and hearing malfunctions. \$1.00 lab fee.  
*Prerequisite: 1522*
- 1541 Community Sociology (A,W,SP,SU)** 3-2-4  
A study of the community and its influence upon the individual and the individual upon the community. The influences that mores, education, employment, friends, attitudes, history, values, etc., have upon the American society. \$1.00 lab fee.  
*Prerequisites: 1514 and two Behavioral Science courses (Suggested: 1501, 1505, 1516, 1522)*
- 1542 Social Psychology I (SU)** 3-2-4  
A study of understanding behavior through the socio-cultural approach to psychological phenomena. This course will explore how groups and subgroups reinforce behavior; what behavior they reinforce; stress on the individual when changing between groups with divergent norms; group mind; mob psychology; communication between group and individual, and between groups; evolution of role definitions. Group dynamics is an integral part of the course. \$1.00 lab fee.  
*Prerequisites: 1515; 1514 or 1522*
- 1543 Social Psychology II (A)** 3-2-4  
Students experience how to be a sensitive participant in a group. Group dynamics is incorporated with emphasis on understanding how one is perceived by the participant and observer. \$1.00 lab fee.  
*Prerequisite: 1542 or permission of instructor*
- 1545 Institutional Racism (On Demand)** 3-0-3  
The purpose of this course is to provide students with knowledge and understanding on how institutional racism affects minorities from all levels of institutions. \$1.00 lab fee.  
*Prerequisite: 1514*
- 1573 Adaptive Behavior I (A)** 3-0-3  
An overview of the anthropology, genetics, sociology and psychology of man's learning to cope with the natural and social demands of his environment. The course includes discussions on coping processes from birth through infancy, childhood, adolescence, adulthood and geriatrics. \$1.00 lab fee.  
*Prerequisite: 1514 or 1522*
- 1574 Adaptive Behavior II (W)** 3-0-3  
An overview of problems of exceptionality, defect and maladaptive behavior as reflected by the failure to develop appropriate coping strategies. The course includes discussion of behavior modification and rehabilitation for all age groups. \$1.00 lab fee.  
*Prerequisite: 1573 or permission of instructor*
- 1575 Industrial Psychology (SP)** 3-0-3  
A course emphasizing organization behavior, group behavior, and individualized adjustments. The personnel-psychology aspects of selection, training, supervision and labor-management relations of front-line management. Development and use of personnel statistics and application to the production process. The satisfaction of human needs in both work and living. \$1.00 lab fee.  
*Prerequisite: 1515, 1522*
- Independent Studies (On Demand)**  
Course No. 1591 Independent Study I 1 credit  
Course No. 1592 Independent Study II 2 credits  
Course No. 1593 Independent Study III 3 credits  
Each of the above is an individualized, student-structured elective course that permits the student to pursue his own interests within the context of a faculty-guided program.  
*Prerequisite: one course in Psychology or Sociology or related subject and approval by instructor.*



## BUSINESS DATA PROCESSING DEPARTMENT

- 2712 Systems Analysis I (A)** 2-0-2  
Introduction to Systems Analysis, to include introduction to models, simulation, and business systems.
- 2713 Systems Analysis II (W)** 2-0-2  
Continuation of Course 2712, concentrating study on business systems and sub systems, and an introduction to systems documentation.  
*Prerequisite:* 2712
- 2715 COBOL I (A)** 3-5-4  
Introduction to the concepts and techniques of the COBOL programming language. Coding formats and processing methods are examined, e.g. direct access methods, table handling. \$25.00 lab fee.  
*Prerequisite:* 2729
- 2717 RPG II (SP)** 2-3-3  
Study of the fundamentals of Report Program, Generator (RPG) programming language particularly as it applies to small computer. \$25.00 lab fee.  
*Prerequisite:* 2729
- 2718 Fortran IV\* (SP)** 2-3-3  
Introduction to the Fortran IV programming language as used in a business environment through the use of lecture and lab problems. \$25.00 lab fee.  
*Prerequisite:* 2729
- 2719 P.L./1 (SP)** 2-3-3  
Introduction to the concepts and techniques of the PL/I language, including the procedures concept, the declare verb, read, get, put, write features, page formatting; the use of the computer in solving problems in PL/I. \$25.00 lab fee.  
*Prerequisite:* 2729
- 2724 Business Systems I (A)** 3-0-2  
Explanation of systems flow charting and documentation standards as they apply to business environment, and detailed discussion of common business application (i.e. Payroll, Inventory, General Ledger, etc.)  
*Prerequisite:* 2713
- 2725 Business Systems II (W)** 3-0-3  
A continuation of Course Business Systems I - 2724, using a systems case study. The case study method is used to study how science of Systems Analysis can be applied to a medium size business.  
*Prerequisite:* 2724

**2729 Principles of Business Data Processing (A)** 5-1-4  
History and development of computers; basic steps of data processing; input-output preparation; number systems; problem solving; Key-punch. \$5.00 lab fee.

**2731 Introduction to Programming I\* (W)** 3-7-5  
Introduction to programming in Assembly Language. Proficiency in programming is achieved by the coding and running of lab problems on the computer. \$25.00 lab fee.  
*Prerequisite:* 2729

**2732 Introduction to Programming II\* (SP)** 3-7-5  
Introduction to magnetic disk properties and file organization concepts. Students code and run Assembly Language programs which process sequential disk files. \$25.00 lab fee.  
*Prerequisite:* 2731

**2734 Programming I\* (A)** 3-7-5  
The utility sort/merge program is introduced and all aspects of programming indexed sequential files are studied in theory and in the lab environment using Assembly Language. \$25.00 lab fee.  
*Prerequisite:* 2732

**2735 Programming II\* (W)** 2-3-3  
Physical characteristics and programming considerations for magnetic tape. Utility programs and their use with magnetic tape and disk. Advanced Assembly Language, programming techniques including sub-programs, macros and libraries are discussed in both the classroom and lab environment. \$25.00 lab fee.  
*Prerequisite:* 2734

**2755 COBOL II (W)** 3-5-4  
A continuation of 2715, COBOL I. Advanced topics in the COBOL language are examined including the SORT feature, Indexed, Sequential, acc methods and COBOL linkage conventions. \$25.00 lab fee.  
*Prerequisite:* 2715

**2757 Final Project\* (SP)** 2-12-6  
System design and implementation of a challenging computer project of student's choice with department approval. \$25.00 lab fee.  
*Prerequisites:* 2735, 2755, 2725

**2781 Survey of Business Data Processing (A,W,SP)** 2-1-2  
Introduction to data processing technology, equipment & business applications - NOTE: Not for BDP majors.

## BUSINESS MANAGEMENT DEPARTMENT

**3800 Small Business Systems** 3-0-3  
An overview of business management. How a business operates. Factors of production. Financial considerations. Personal Supervision. Credit not applicable toward degree.

**3801 Marketing** 5-0-5  
A study of marketing fundamentals, consumption and consumer behavior, retailing and wholesaling structures. The functions performed in marketing, marketing policies, and a critical appraisal of the field of marketing.

**3802 Economics** 3-0-3  
Concepts basic to an understanding of business economics. Scarcity, specialization, competition, monetary and fiscal operations, employment, international trade, comparative economic societies, stabilization of the economy, economic growth and economic distribution.

**3803 Personal Finance\*** 3-0-3  
The organization and function of our modern economic society with emphasis on personal investing, insurance programs, capital requirements for business, and return on invested capital.

**3810 Salesmanship - Customer Relations** 3-0-3  
Sales as they relate to service industries. Customer relations with customer in the home and shop. Course for people in home service fields working directly with selling as they service products. Credit not applicable toward degree.

**3812 Government and Business\*** 3-0-3  
A study of various government legislation and regulations and how they effect business, the consumer, and society as a whole.

**3813 Management** 3-0-3  
A study of the principles and practices of management.

- 3815 Salesmanship** 5-0-5  
A study of selling, including preparation for selling, sales processes, and an introduction to sales management. Advertising and sales promotion as it applies to retail, industrial, and other types of business establishments. Market research as applied to promotional activities.
- 3821 Introduction to Business (A,W,SP)** 3-0-3  
A general introduction to business activities, the capitalistic system, and business terminology. Personnel, finance, managerial controls, law, regulated industries, and taxation.
- 3823 Business Law I (A,W,SP)** 3-0-3  
A survey of the legal framework of business, including contracts, agency, sales, negotiable instruments, bankruptcy, partnerships, and corporation law.
- 3824 Business Law II\* (W,SP)** 3-0-3  
A continuation of Business Law I, covering government regulations, trust, and insurance.
- 3832 Personnel Management\* (A,W,SP)** 3-0-3  
The philosophy, principles, and methods of personnel management: organizational structure, areas of responsibility and authority, policy making, procurement, and placement, training, evaluation, wage and salary administration, and benefit programs.
- 3833 Management Decisions\*** 3-0-3  
A practical presentation of the concepts underlying the steps in the process of decision-making. Case studies and a business game. Simulations are used as a practice in the decision-making process.
- 3835 Industrial Relations\* (SP)** 3-0-3  
A survey of industrial relations, including the history of the labor movement, labor legislation, collective bargaining, daily contract administration, and grievance procedures.
- 3841 Accounting\* (A,W,SP)** 4-0-4  
Basic bookkeeping principles. Interpretation and use of accounting data and financial reports for managerial decisions and administrative control. Methods of evaluating alternative courses of action, planning for the future, and controlling current operations. Application of the data card system concept.
- 3885 Special Problems in Business I\* (A,W,SP)** 2  
An individualized research problem in the area of business which is of primary concern of the student. Research is to be approved by and under the guidance of the student's advisor.
- 3886 Special Problems in Business II\* (A,W,SP)** Arr  
An individualized research problem in the area of business which is of primary concern of the student. Research is to be approved by and under the guidance of the student's advisor.  
*Prerequisite: 3885*

## CIVIL ENGINEERING DEPARTMENT

- 5301 Engineering Graphics I\*** 0-6-3  
Use of basic drafting instruments, tools and equipment. Geometric constructions. Line work with emphasis on lettering, symbols and conventions. Mapping and construction details. Graphical problem solutions. Emphasis on precision. \$7.00 lab fee.
- 5302 Engineering Graphics II\*** 0-9-4  
Advanced drawing procedures and methods for contract drawings with emphasis on ink work, formality and accuracy. \$7.00 lab fee.  
*Prerequisite: 5301*
- 5303 Advanced Study\*** 3-3-3  
Advanced study. Second year students who have achieved a grade of "B" or better in any civil engineering technical course may choose the subject of that course for advanced study. A grade of C or better in course 5303 is required for graduation. To be eligible for enrollment in course 5353, students must each have achieved a cumulative average technical grade of 2.25 or better at the end of the fifth quarter.
- 5304 Structural Drafting\*** 0-6-3  
Standard methods used in preparation of informal and semi-formal drawings. Detailing for steel, reinforced concrete and timber structures. \$2.00 lab fee.  
*Prerequisite: 5302*

- 5305 Descriptive and Projective Geometry\*** 2-4-4  
Graphical representation and solution of three dimensional space problems on two dimensional surfaces.  
*Prerequisite: 5302.*

- 5306 Construction Methods and Estimating\*** 3-3-4  
Computation of basic quantities for labor and material costs. Utilization of general and detail data for cost analysis. Preparation of bills of material. Measurement of contract quantities for acceptance and payment.  
*Prerequisite: 5304*

- 5311 Surveying I\*** 2-6-4  
Full scale application of field methods. Collection of record data. Conversion of field data for use in maps and plats. Preparation of plats and incidental drawings. Emphasis on precision in use of tools and equipment. Computations to determine precision of field work. Boundary description, resolution of conflicts, replacement of missing data. \$4.00 lab fee.

- 5312 Surveying II\*** 2-6-4  
Advanced surveying and mapping problems including introduction to celestial observation, establishment of meridians, parallels of latitude, section and subdivision lines; horizontal and vertical curvature; transition curves; introduction to photogrammetry; legal considerations for boundary descriptions. \$4.00 lab fee.  
*Prerequisite: 5311*

- 5313 Materials and Testing\*** 3-4-5  
Methods of manufacture and properties of commonly used construction materials. Standard methods for conducting tests of physical properties; direct observation of production processes and plant fabrication. Visits to operating laboratories and construction projects.  
*Prerequisite: 1111*

- 5314 Public Works Structures\*** 3-0-3  
Standards for street improvement including pavements, bases, curbs, etc.; principal elements and accessories for storm water drainage, sanitary sewer systems, and water distribution systems.  
*Prerequisite: 5304, 5316*

- 5315 Highway Construction\*** 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. Financing.  
*Prerequisites: 5312, 5313*

- 5316 Elementary Hydraulics\*** 3-0-3  
Study of water at rest and in motion; criteria for measurement of pressure, velocity, friction and capacity of open channels, pipe lines and metering devices.  
*Prerequisite: 1113*

- 5324 Structural Stress Analysis\*** 5-0-5  
Statics, centroids, moments of inertia, shear, bending moment diagrams and stress distribution in civil engineering structural elements.  
*Prerequisites: 1113, 1381*

- 5325 Town Site and Landscape Engineering\*** 3-4-5  
City and subdivision planning, calculations and preliminary cost considerations. Public regulation and private interest. \$2.00 lab fee.  
*Prerequisites: 5302, 5312*

- 5326 Office Practice and Legal Procedures\*** 3-0-3  
Economics of engineering office procedures. Coordination techniques, supervision, time schedules. Standard operating methods. Legal responsibilities and contract documents.  
*Prerequisites: 1003, 1004*

- 5336 Structural Systems\*** 4-6-5  
Computation of forces, reactions, shears, moments and stresses in members of structures. Comparisons of advantages and disadvantages of alternate arrangements of materials for performance of specific tasks. \$2.00 lab fee.  
*Prerequisites: 5304, 5324*

## COMMUNICATION SKILLS DEPARTMENT

- 1001 Language Development (A,W,SP,SU)** 5-0-3  
A course aimed at developing confidence in speaking, writing, reading, and listening. Concentration on English essentials for writing.  
*Prerequisite: placement as a result of essay placement test.*

- 1002 Beginning Composition (A,W,SP,SU)** 3-0-3  
A course aimed at developing skills in writing paragraphs developing toward the theme.  
*Prerequisite: 1101 or placement.*
- 1003 Essay and Research (A,W,SP,SU)** 3-0-3  
A continuation, in part, of Communication Skills 1002, expanded to include expository narration and research techniques and papers.  
*Prerequisite: 1002 or placement*
- 1004 Technical Writing (A,W,SP,SU)** 3-0-2  
Principles and practice in writing required of engineering and scientific technicians, including resumes, letters, memos, and various technical reports as required of a student's technology.  
*Prerequisite: 1003 and at least two quarters or equivalent in the technology.*
- 1007 Creative Writing (SU)** 3-0-3  
A discussion and in-depth study of the techniques of creative writing, and the actual writing of poetry, or short stories, or plays.  
*Prerequisite: 1003*
- 1010 Technical Terminology for the Hearing Impaired (SU)** 5-0-3  
Emphasis on building a strong technical vocabulary. Learning definitions of words students will be confronted with in his technology and their usage. Course content includes a variety of methods: sound, coined signs, and lipreading. Credit not applicable toward degree.
- 1014 Business Communications (A,W,SP,SU)** 3-0-2  
Emphasis on learning to write business letters by doing. Grammar and mechanics of writing are integrated with instruction and practice in writing business letters and other business communications. Business etiquette, written and oral reports.  
*Prerequisite: 1003 and at least two quarters in a technology or equivalent*
- 1024 Speech (A,W,SP,SU)** 3-0-2  
The stimulation of the imagination and its application to the spoken word through the student's practice of the tools of effective communication in a supervised classroom situation. \$1.00 lab fee.
- 1027 Conference Table and Debate (On Demand)** 3-0-3  
A course in argument and debate using the various conference forms and parliamentary procedures.  
*Prerequisites: 1002, 1024*
- 1037 Twentieth Century American Literature (On Demand)** 3-0-3  
The study of modern essays, short fiction, poetry, and the novel or drama with emphasis on appreciation of literature.  
*Prerequisite: 1002*
- 1038 Afro-American Literature (On Demand)** 3-0-3  
A survey of Afro-American literature from slavery to the present including a study of slave narratives, folklore, short stories, drama, and poetry.  
*Prerequisite: 1002*
- 1039 Survey of World Literature (On Demand)** 3-0-3  
Survey course in literature of African, Asian, and European countries. Emphasis on the beauty of literature of these countries and how it reflects the history and culture of the people.  
*Prerequisite: 1002*
- 1041 Journalism (On Demand)** 3-0-3  
An introduction to mass media, centered on the newspaper. Lab work on the TECHNIGRAM in one or more of the following: reporting, news writing, feature writing, editing, make-up, and critical writing.  
*Prerequisite: 1002*
- 1051 Language Development for the Hearing Impaired (SU)** 5-0-3  
This course emphasizes language development for the hearing impaired. Course content includes a review of basics that the hearing impaired need before entering composition.
- 1061 Survey of Modern Drama (On Demand)** 3-0-3  
Emphasis on drama as a unique form of literature in that it is written with the specific purpose of being seen. Plays will be read and studied; these plays will be selected from world authors of the last 60 years. When appropriate, the class will act out portions of the play to see the story from the eye of the characters.  
*Prerequisite: 1002*
- 1071 Poetry (On Demand)** 3-0-3  
An intense study of the soul, sound, and structure of rhymed, blank, and free verse.  
*Prerequisite: 1002*

## DEVELOPMENTAL COURSES

- 0880 Spelling and Vocabulary (A,W,SP,SU)** 2-0-1  
For development of spelling skills through the use of phonics, personal word lists and basic spelling rules. Credit not applicable toward degree. \$5.00 lab fee.
- 0890 Reading and Study Skills (A,W,SP,SU)** 3-0-1  
For development of reading speed, comprehension and study skills to become more effective students. Credit not applicable toward degree. \$5.00 lab fee.

A student may register for no more than three credits total of 1080 and 1090 during his career at Columbus Tech.

## DENTAL LABORATORY DEPARTMENT

- 8108 Dental Materials I** 3-0-3  
A knowledge of chemical and physical properties of gypsum products, casting waxes and related investments, dental alloys, impression materials and in introduction to chrome-cobalt-nickel base alloys will be presented in this course.
- 8109 Dental Materials II** 3-0-3  
A comprehensive study of acrylic resins, wrought metal, dental amalgam alloys, dental cements and direct filling gold alloys, introduction to dental porcelain and non-precious alloys, an introduction to solid state reactions, tarnish and corrosion of metals also an introduction to restoration resins and solidification and structure of metals will complete formal instruction of dental materials.
- 8115 Dental Morphology** 2-3-3  
Instruction will be presented in the areas of anatomic characteristics of human dentition and reproduction of teeth in wax. The student will develop manual dexterity, with the knowledge of and the ability to duplicate functional occlusion. \$40.00 lab fee.
- 8121 Complete Dentures I** 1-3-2  
This course involves an introduction to complete dentures and includes a study of the procedure from preliminary impression through wax contouring, with special emphasis placed upon artificial tooth arrangement.
- 8122 Complete Dentures II** 1-3-2  
This course is a continuation of the study of complete dentures and includes procedural steps from flasking through articulation remount and occlusal remount. \$40.00 lab fee.
- 8124 Complete Dentures III** 1-3-2  
Dealt with in this presentation is procedures required to solve specific problems which may develop after the appliance has been inserted, the immediate denture, repairs, relines and rebases.
- 8124 Complete Dentures IVS** 1-3-2  
The student fabricates maxillary and mandibular complete dentures with emphasis upon individual characterization. A maxillary and mandibular complete denture will be fabricated from dentist's prescription.
- 8132 Occlusion I** 1-3-2  
This period of instruction will be concerned with relating the occlusal surface aspects of teeth of opposing arches in a manner which will function to preserve the health of the masticatory system.
- 8133 Occlusion II** 1-3-2  
The concepts of occlusal rehabilitation are presented in lecture and laboratory exercise covering the concepts of P.K. Thomas and Pankey Mann.
- 8142 Removal Partial Dentures I** 1-6-3  
This quarter presentation is a comprehensive study incorporating design and fabrication of the maxillary removable partial denture and related procedural steps to fabrication.
- 8143 Removable Partial Dentures II** 1-3-2  
A continuation of R.P.D. I, to include fabrication of the mandibular appliance and the relating of this appliance to the maxillary with the arrangement of artificial teeth and packing and processing of acrylic resin to frameworks. \$40.00 lab fee.
- 8144 Removable Partial Dentures III** 1-3-2  
This final quarter of R.P.D. will deal with extensive R.P.D. design and fabrication. Actual patient cases shall be fabricated with dentist prescription where applicable.

- 8153 Fixed Partial Dentures I** 1-3-2  
This period of instruction and laboratory exercise shall cover the non-removable prosthesis, with emphasis placed on utilization of terminology, morphology and individual crown fabrication in simulate gold alloy.
- 8154 Fixed Partial Dentures II** 1-3-2  
This quarter's instruction and laboratory exercise will further extend areas of F.P.D. #1, and go into pontic fabrication, bridge assembly, finishing and polishing of finished appliance. \$40.00 lab fee.
- 8155 Fixed Partial Dentures III** 1-3-2  
This course is presented to extend learning and working abilities of the student in the area of fixed bridge construction related to assembly, soldering, pontic fabrication and finishing of the fixed appliance.
- 8156 Fixed Partial Dentures IV-S** 2-6-4  
This period of instruction and laboratory fabrication is presented to provide the student with extended working ability and in selected situations the fabrication of actual patient appliances. \$40.00 lab fee.
- 8166 Maxillo-Facial (Elective)** 1-3-2  
Maxio-facial course will be presented as an elective course dependent upon request by students. The course will provide the student an introductory knowledge and working ability in the area of maxillo-facial prosthetic fabrication. Students will construct intra-oral appliance and receive lecture related to facial rehabilitation.
- 8175 Ceramics I** 1-3-2  
This course involves the study and construction of porcelain crown and porcelain fused to metal restorations.
- 8176 Ceramics II** 2-6-4  
This quarter is a continuation of the study of porcelain fabrication including the assembly of the porcelain bridge and finishing of the completed appliance. \$40.00 lab fee.
- 8185 Orthodontics and Pedodontics** 1-3-2  
The students laboratory skills ar related to children's dentistry and the movement of teeth. The level of this course is an introductory level.
- 8196 Applied Laboratory I** 0-8-3
- 8197 Applied Laboratory II** (\$40.00 lab fee) 0-20-7  
The students will utilize their knowledge and skills in selected dental laboratory appliances. Interpretation of written work authorizations from the dentists will be utilized in fabrication of cases.

## ELECTRONIC ENGINEERING DEPARTMENT

- 4201 Electronic Drafting\* (A,W)** 0-4-2  
An elementary course. Fundamentals of drawing and drafting. Use of templates, including lettering and electronic templates. Electrical circuit drawing, terms, symbols, and standards. \$3.00 lab fee.
- 4210 Basic Electronics Mathematics** 3-0-0  
A basic course in algebra designed to prepare the student to handle the problems encountered in basic electricity. Applications oriented. (Not open to students enrolled in Associate degree program). Credit not applicable toward degree. Evening only.
- **4211 DC Fundamentals (A,W)** 4-0-4  
An introduction to direct current fundamentals, electronics physics, current and voltage. Work, power, series and parallel resistances. Network theorems, magnetic circuits, electrical measurement devices, inductance and capacitance.
- **4212 AC Fundamentals (W,SP)** 5-0-4  
Analysis of alternating-current fundamentals. Reactance, complex algebra, and impedance. Networks and power. Transformers, coupled circuits and polyphase systems.  
*Prerequisites: 1112, 4211, 4261*
- **4213 Introductory Electronic Devices\* (SP,SU)** 4-0-4  
Introduction to electronic devices. Vacuum tubes and transistors. Auxiliary components. Rectifiers, filter, and regulators. Basic amplifiers.  
*Prerequisites: 4212, 4261*
- **4214 Electronic Devices Circuit Analysis\* (A)** 5-0-4  
Analysis of vacuum tube and transistor circuits. Small-signal and large-signal methods. Amplifiers and coupling. Special amplifiers, feedback, and oscillators.  
*Prerequisites: 4212, 4262, 4213*

- 4215 Electronics Communications\* (W)** 4-0-4  
An introduction to electronic communication circuits and systems. The evolution of modern communications from early systems through modern multiplex and color television. Basic transmitter and receiver systems are discussed.  
*Prerequisite: 4214*
- 4216 Digital Computers\* (SP)** 4-0-4  
Digital computer operations and applications. Boolean algebra. Logic circuits and design. Computer systems.  
*Prerequisites: all first year courses, 4214, 4215, 4234, and respective labs.*
- **4217 Calculus for Electronics I (A)** 3-0-3  
Practical application of differential calculus to electronic circuitry. Functions, limits, algebraic differentiation, differentials, higher derivatives, maxima and minima, and introduction to integrals.  
*Prerequisite: 1113*
- 4218 Calculus for Electronics II (W)** 3-0-3  
A continuation of calculus for electronics I. Define integrals, trigonometric functions, logarithmic and exponential functions, hyperbolic functions.  
*Prerequisite: 4217*
- 4219 Calculus for Electronics III (S)** 3-0-3  
A continuation of calculus for electronics II. Partial derivatives, integration techniques, double integrals, Maclaurin's series, Taylor's series, Fourier series. Introduction to Differential Equations.  
*Prerequisite: 4218*
- 4220 Electronics Circuit Fabrication** 0-3-0  
An introduction to layout, sheet metal work, soldering and printed circuit fabrication. A basic course in circuit construction from layout to completion. Credit not applicable toward degree. Evenings only. \$10.00 lab fee.
- 4225 Pulse and Logic Circuits\* (W)** 4-0-4  
Nonsinusoidal circuits. Pulse amplification and wave-shaping. Multivibrators. Time-base and logic circuits. Transient analysis.  
*Prerequisites: all first year courses, 4213, 4234*
- 4226 Industrial Electronics\* (SP)** 4-2-4  
Industrial devices and utilization concepts. Timbers, welders, photo-electric devices and ultrasonics. Magnetic systems, rotary devices, and servo and synchro systems. \$3.00 lab fee.  
*Prerequisites: 4214, 4234*
- 4230 Basic Electricity (A)** 5-6-0  
This is a basic course which covers the fundamentals of DC and AC electricity. Electrical physics, current, voltage, and power. Ohm's law, and Kirchoff's laws are thoroughly studied. Network theorems are introduced then applied to series and parallel networks. Inductance and capacitance completes the first half of the course. The second half of the course is devoted to AC electricity. Alternating coupling circuits are the major topics of study. Credit not applicable toward degree. (Not open to students enrolled in associate degree program.) Evenings only. \$3.00 lab fee.
- 4234 Modern Semiconductor Devices\* (A)** 4-0-4  
A study of field effect transistors, integrated circuits, operational amplifiers, opto-electronics, and miscellaneous electronic devices.  
*Prerequisite: 4213*
- 4235 Computer Programming\* (W)** 1-2-1  
An introduction to computer programming. Computer language. A Digiac 3080 computer available for student to use throughout the program. \$1.00 lab fee.
- 4236 Communications Electronics II\* (SP)** 3-2-3  
A continuation of Communications I. Ultra-high frequency, transceiver, microwave, principles and systems and antennas. \$3.00 lab fee.  
*Prerequisite: 4215*
- 4246 Analog Computers\* (SP)** 2-1-2  
Fundamentals of analog computers covering circuits and equipment. \$1.00 lab fee.  
*Prerequisite: 1125*
- 4250 Electronic Devices I (W)** 5-5-0  
Principles of operations of vacuum tubes and solid state devices lay the foundations for a thorough study of amplifiers, coupling methods, feedback, biasing, stability, and oscillators. Credit not applicable toward degree. (Not open to students enrolled in associate degree program.) \$4.00 lab fee.



- **4261 DC Laboratory (A,W)** 0-5-2  
Laboratory study of DC fundamentals, electrical measurement devices, network theorems. \$6.00 lab fee.
- **4262 AC Laboratory (W,SP)** 0-5-2  
Laboratory study of signal sources, oscilloscopes, reactance, AC networks, transformers and filter circuits. \$6.00 lab fee.  
*Prerequisite: 1112, 4211, 4261*
- **4263 Introductory Electronic Devices Laboratory\* (SP,SU)** 0-5-2  
Laboratory study of thermionic emissions, vacuum tube characteristics and amplifiers and transistor characteristics and amplifiers. \$6.00 lab fee.  
*Prerequisites: 4212, 4262*
- **4264 Electronic Devices Circuit Analysis Laboratory\* (A)** 0-6-2  
Laboratory study of amplifiers, oscillators, special purpose devices, response, and feedback. \$6.00 lab fee.
- 4265 Communications Laboratory\* (W)** 0-5-2  
Laboratory study of communication circuitry, AM, FM, commercial systems. \$6.00 lab fee.
- 4266 Digital Computer Laboratory\* (SP)** 0-6-2  
Laboratory study of complete systems utilizing logic trainers, memory core trainers, the Digiac 3080 and SCM 7816 computers. \$6.00 lab fee.
- 4270 Electronic Communication Systems (SP)** 4-6-0  
AM systems, FM systems, single side band, multiplex, basic television system, antenna and transmission lines. Credit not applicable toward degree. Evenings only. \$5.00 lab fee.
- **4274 Modern Semiconductor Devices Circuit Laboratory (A)** 0-6-2  
Laboratory study of the FET, integrated circuit and other modern devices. \$6.00 lab fee.
- 4275 Pulse and Logic Laboratory\* (W)** 0-6-2  
Laboratory study of pulse, wave shaping circuits, logic circuits, and transients. \$6.00 lab fee.
- 4280 Communications Electronics I\* (W)** 5-6-0  
Communication circuits and systems. Power supply, transducers, transmission. AM & FM transmitters and receivers. Television. Single side band and multiplex. Credit not applicable toward degree.  
*Prerequisite: 4214*
- 4290 Color Television Systems I (SU)** 3-0-0  
Fundamentals of color television systems. Maintenance, alignment, and troubleshooting. Credit not applicable toward degree.



## FIRE SCIENCE DEPARTMENT

- 7901 Introduction to Fire Protection\*** 3-0-3  
Survey of fire protection: the role, history, and development of the fire service. Organization 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.
- 7902 Fire Prevention Practices\*** 3-0-3  
A study of buildings and other structures with emphasis on fire protection procedures and practices. Fire ratings of materials. Inspection practices, explosive flammable storage, and codes and fire ordinances.
- 7904 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 losses in flowing hydrants. Practice in application of hydraulic principles. Flow and pump testing as well as a study of water distribution systems.  
*Prerequisites: 1171, 1341*
- 7905 Fire Investigation Methods\*** 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.
- 7909 Chemistry of Hazardous Materials I\*** 3-2-4  
Concepts of Chemistry needed to understand hazardous materials.

- 7911 Fire Fighting Tactics\*** 5-4-5  
Techniques and procedures of fire fighting with emphasis upon the role of the individual fireman. Methods of extinguishing fires, life saving procedures, special fire fighting equipment, salvage, prevention of 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.
- 7912 Fire Protection Systems\*** 3-0-3  
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 re-establishment after use. Fire protection engineers serve as guest lecturers.
- 7913 Chemistry of Hazardous Materials II\*** 3-2-4  
An analysis of chemical reaction as the causative agent of fire. Topics discussed: redox reactions, reaction rates, toxic compounds, and hazardous combinations of chemicals. Hazards of radioactive materials, poisonous gases and LP gases. Methods of transportation of hazardous materials, DOT regulations and markings.  
*Prerequisite: 7909*
- 7914 Fire Fighting Command I\*** 4-0-4  
Group operations and command strategy at the company officer level. The training of the company to operate as a team. Methods implementing plans developed at the chief level.
- 7915 Fire Fighting Command II\*** 3-0-3  
Group operations and command strategy as the chief officer level. Preplanning of firefighting operations, employment of personnel and equipment. Specific tactical problems analyzed. Operation and tactics including mutual and outside aid in fire fighting. Elective.  
*Prerequisite: 7914*
- 7916 Legal Aspects of Fire Protection\*** 3-0-3  
Introduction to law, civil and criminal actions, and the judicial system. Municipal liability for acts of the fire department and its members. Pensions, salary and compensation, and termination. Duty owed by the public to members of the fire department. The initiation, operation, liability, and legal aspects of mutual aid, primary response contracts, and private contracts. Elective.
- 7917 Community Affairs I—Local Government (A)** 3-0-3  
The role of local government in the community; its structure, organization, and responsibility. Local government politics and the community. Methods and principles of local budgeting. Urban, suburban, rural and community structure.
- 7918 Supervision of Public Service Personnel (W)** 3-0-3  
Supervision techniques applied to public service personnel. The study of the need for job descriptions and job procedures, civil service requirements, report, oral and written directions, work evaluation, and conference leadership. Methods of instruction effective in teaching and motivating personnel.
- 7919 Personnel Training Methods (W)** 4-0-3  
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. Methods of evaluation.

**7924 Emergency Rescue Operations\*** 3-0-4  
Advanced first aid. Emergency rescue operations including the heavy rescue unit. Use of special tools and rigging. Study and practice of rescue operations on water, highways, and industrial locations. Relationships of the fire department and civil defense, auxiliary, and volunteer units. Elective.

**7926 Fire Protection Seminar\*** 3-0-3  
Discussions of particular problems related to the fire fighting services. Students research and report on areas of special interest. Authorities invited to present special interest programs. Elective.

**7931 History of Fire Protection\*** 3-0-3  
Fire protection methods from early civilization through organization of fire departments. Reference to notable fires of history, their cause, course, damage, and result. An appreciation for the profession of fire fighting. Elective.

**7932 Industrial Fire Protection\*** 3-0-3  
The organizations and operations of in-plant fire companies; purchase of supplies and equipment, special fire fighting tactics, training of personnel, and relations to the municipal fire department. Elective.

**7933 Special Fire Fighting Problems\*** 3-0-3  
Methods of fighting aircraft and marine fires. Methods of fighting fires in industrial processes involving hazardous or unknown materials. Elective.

**7934 Fire Insurance\*** 3-0-3  
The history and principle of fire insurance. The principles and practices of inspection for the purpose of determining premium rates. Elective.

**7935 Building Construction\*** 3-0-3  
An introduction to the present practices of building construction. Local and state building codes and laws as applied to fire protection. An insight into the contents of concealed space, location of ventilation equipment, plumbing and electrical cut-offs. Relationships between construction materials and fire damage of a building.

**7936 Recent Developments of Fire Fighting\*** 3-0-3  
A study of recent equipment developments and methods for extinguishing fires. Survey of new combustible materials and chemicals and methods for their handling. Elective.

## FOOD SERVICE MID-MANAGEMENT DEPARTMENT

**2201 Survey of Food Service Industry\* (A)** 3-0-3  
Introduction to management of restaurants and of institution food services. An overview of the food industry with the following food services studied: restaurant, vending, hospital, nursing home, school and college, business and industrial. Field trips provide a general background of the organization, operation, and management.

**2202 Food Service Equipment\* (W)** 5-3-6  
A study of the equipment vital to the successful operation of a restaurant facility. Mechanical equipment: food preparation machines and cleaning equipment. Counter, hot and cold food equipment, refrigeration equipment. \$5.00 lab fee.

**2203 Bar Management and Wine Technology\* (A)** 3-2-4  
Classification, history, and control of wines and spirits. The Ohio laws and regulations of alcohol control. The art of mixology. \$10.00 lab fee.

**2205 Records and Cost Control\* (A)** 3-2-4  
Record keeping and controls needed in food service operations. Consideration given to: preparation of budgets, determination of selling prices of operations, ratio analysis of existing operation's income statements and balance sheets, scheduling employees and maintaining prescribed labor and food cost percentages.

**2211 Food Preparation I\* (A)** 3-6-5  
A laboratory course in basic food preparation including basic chemistry and physics of foods, definitions and terminology of food preparation, use of standardized recipes, detailed study of protein foods, egg, milk and dairy products, meats, seafoods and poultry, and fats. Preparation of small quantities of a variety of foods in order to master basic skills required for all types of food preparation. \$25.00 lab fee.

**2212 Food Preparation II\* (W)** 3-6-5  
A laboratory course in quantity food preparation. Detailed study of fruits, vegetables, starches, baked goods and desserts, use of equipment

required for quantity food production; preparation and evaluation of quality of standardized quantity recipes; estimation of raw material needs and management of the lab. \$25.00 lab fee.  
*Prerequisite:* 2211

**2214 Gourmet Cooking\* (SP)** 1-8-4  
The principle and preparation of gourmet foods and classical cuisine. International specialties. \$30.00 lab fee.

**2222 Sanitation and Safety\* (A)** 3-2-4  
Detailed study of the control of bacteria in the food service industry. Good practices in housekeeping, sanitary food handling, and personal cleanliness. Practical problems concerned with protection of health and with prevention of food spoilage and contamination. Importance of safety and accident prevention. \$5.00 lab fee.

**2223 Food Purchasing and Specifications\* (SP)** 5-3-6  
USDA codes, grading, regulations, and classifications of meats, produce and dry-goods. The development of uniform specifications of food and supplies for individual operations. Discussion of the restaurant supply industry. Guest speakers and field trips. Methods of receiving and storing foodstuffs. \$5.00 lab fee.

**2224 Management of Food Service Establishments\* (A)** 3-2-4  
Supervisory techniques applied to restaurant management. Job descriptions, job procedures, reports, schedules, oral and written directions. Recruitment and interviewing techniques. Communication with employees, and employee training.

**2225 Restaurant Menu Planning\* (W)** 2-2-3  
Historical background of menus. Principles of menu making. Sample menus. Merchandising the menu. Food, labor, and overhead costs in determining prices. Customer market in pricing.

**2237 Food Services Layout and Planning\* (W)** 2-5-4  
Food service layout, planning and analysis. Space requirements. Layout flow line charts. Receiving and storage facilities. Selection of materials for floors, walls and ventilation systems. Time and motion studies. Consideration given to convenience food production.  
*Prerequisite:* 2202

**2241 Hotel-Motel Management Survey (W)** 2-2-3  
Covers the history of the lodging industry and club management. Internal operations and management skills are studied. This course follows the guidelines for course nos. 103 and 106 from the Educational Institute of the American Hotel and Motel Association. EIAHMA certificates will be awarded to those who successfully complete the Challenge Examinations.

**2242 Food and Beverage Management Survey (SP)** 3-0-3  
Surveys entire food and beverage operations from purchasing, receiving and storage to preparation and service. It follows the guidelines of course no. 309 from the Educational Institute of the American Hotel and Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the Challenge Examination.

**2243 Hotel-Motel Law (SP)** 3-0-3  
Provides a general knowledge of the law as it applies to the hotel-motel industry. This course follows guidelines of course no. 307 from the Educational Institute of the American Hotel and Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the Challenge Examination.

**2244 Hotel-Motel Accounting (SP)** 2-2-3  
Correlates basic accounting principles to the accounting activities relevant to the lodging industry. This course follows guidelines of course nos. 302 from the Educational Institute of the American Hotel and Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the Challenge Examination.

**2245 Front Office Procedure\* (SP)** 3-0-3  
The principles required to organize, operate and manage a front office in a hotel or motel. Guest needs, salesmanship and procedures used in different types of front office operations. This course follows guidelines of Course No. 301 from the Educational Institute of the American Hotel and Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the Challenge Examination.

**2246 Hospitality Sales\* (W)** 2-2-3  
Selection of an advertising media to convey a particular message to a selected market. Preparation of advertisements (layout and copy). Market analysis and consumer surveys. Customer relations. This course follows guidelines of Course No. 305 from the Educational Institute of the American Hotel and Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the Challenge Examination.

# GENERAL COURSES

- 2253 Nutrition (SP)** 4-2-5  
A study of normal nutrition and its role in promoting good health. Includes composition and functions of foods, nutritional needs throughout the life cycle, and contemporary concerns.
- 2264 Menu Planning\* (W)** 2-2-3  
Principles and practices of menu planning related to schools and industries, hospitals and health care institutions. Consideration of costs, utilization of employees, equipment, purchasing, inventory, and storage.  
*Prerequisite:* 2275
- 2273 Food Service and Catering\* (A)** 2-4-4  
Determination of the type of service best suited for an operation. Planning, implementing, and evaluating meals served for special activities.
- 2275 Diet Therapy\* (A)** 4-3-5  
Ways in which variations in caloric content, consistency and nutrient composition may be employed to meet individual dietary requirements. Rationale for dietary modifications and related medical terminology. Special diet meals prepared and tasted. \$5.00 lab fee.  
*Prerequisite:* 2253
- 2281 Food Service Internship\* (Quarter Arranged)** 0-40-6  
Participation in actual working situations requiring 40 hours per week on varying shifts in affiliated restaurant, hotel, motel, hospital food service for patients and personnel, public school, college, nursing home, retirement center, industrial cafeteria or other food facility. Practical application of principles learned in the classroom. Student performance rated jointly by the supervisor at the affiliated institution and by the Institute coordinator. Student will register for 2285 concurrently.
- 2282 Introduction to Food Service Employment\* (W,SP)** 0-15-3  
Open only to the second or third quarter student with no previous food service work experience and upon the advice of his advisor. The student will be employed in an approved food service facility fifteen hours per week for the purpose of being exposed to the industry and to learn basic skills. Periodic written reports will be submitted to the advisor. A pass or fail grade will be given based upon evaluation by the advisor and the job supervisor.
- 2285 Special Problems in Food Service Administration\* (Quarter Arranged)** 2  
A problem of special interest to the student, requiring library and/or on-the-job study selected and reported by the student with advice from a faculty member.



- 0901 Career Planning** 3-0-3  
A course aimed at exploring career attitudes and objectives with emphasis on theories of career choices, sources of career information and the problems involved in choosing a career. \$2.00 lab fee.
- 0902 Career Options for Women** 3-0-3  
A course designed to assist women explore career opportunities that have traditionally been closed to them, as well as the educational opportunities for support of these careers.
- 0941 The Black Leaders in America and Their Philosophies** 3-0-3  
The purpose of this course is to give students a deeper insight on different black leaders and their philosophies.
- 0942 The Black Man and His History** 3-0-3  
The purpose of this course is to give students a better understanding of the history of the black man during the building of America.
- 0943 Traditional African Religions and Western Culture** 3-0-3  
The purpose of this course is to give students new insights on the influence of Africa on new World black culture. This course will cover the way African people understood their religion, philosophy and other social roles within their own culture.
- 0944 Perspectives on Black Culture (W,SU)** 3-0-3  
A course designed to help the student understand the historical and cultural roots of Black Americans and to illuminate the nature of the struggle of Black People.
- 0945 Black Civilization and Western Culture** 3-0-3  
The purpose of this course is to give students a better understanding of early black civilization, and the downfall of black civilization, with African influence on the Western Culture.

# GRAPHICS COMMUNICATION MANAGEMENT DEPARTMENT

- 2401 Introduction to the Graphic Communications Industry\*** 3-0-3  
A comprehensive study of the development of the printing industry to include present production processes, advertising agencies, art studios and the various supply firms and specialty operations, and the makeup of the graphic arts industry.
- 2403 Production Operations** 2-5-4  
Techniques of lithographic offset pressoperation, press design, register systems, dampening systems, cylinder preparation and operational procedures. \$10.00 lab fee.
- 2404 Printing Production Management\*** 2-5-4  
A comprehensive study of printing management, practices and procedures. An analysis of job components, from layout to bindery and shipping department. Practical application of above by work in the laboratory. \$10.00 lab fee.
- 2406 Production Planning\*** 2-5-4  
An analysis of the principles of efficient production control systems. The theory and practice of production and scheduling, material and service purchasing, and material handling. \$10.00 lab fee.
- 2407 Estimating & Costing\*** 2-5-4  
Principles of estimating and pricing printing. Analysis of specifications, determination of material and the use of production data for assigning time to personnel and machines. Theory and practice of cost determination in the graphic arts industry. \$10.00 lab fee.
- 2411 Printing Processes I\*** 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. \$10.00 lab fee.
- 2412 Copy Preparation\*** 2-5-4  
An introduction to drawing board composition and the fitting of copy, selection of type and paste-up of mechanicals for the camera. \$15.00 lab fee.
- 2413 Layout & Design\*** 2-5-4  
A study of the theory and practice of layout and design for production of the printed message. The development of efficient procedures in the preparation of roughs, layouts and comprehensives. \$15.00 lab fee.

**2416 Printing Management Education\*** 3-0-3  
A practical study and application of the research and education facilities as applied to Graphic Communications Management. A discussion of services available from supporting organizations.

**2417 Printing Processes II\*** 2-5-4  
A study of stripping operations. The assembly of photographic film for sequence and position. Preparation of masks, screens, surprints and reverses. Proofing system, contacting and duplicating film. \$25.00 lab fee.

**2423 Printing Papers\*** 3-0-2  
A study of the manufacture and selection of paper used in printing operations: sizes, colors, characteristics, limitations and packaging of printed papers. Field trips to a paper mill and a paper distributor.

**2426 Personnel Training & Supervision\*** 3-0-3  
Supervisory and training techniques as applied to printing management. The use of job description, procedures, reports and schedules. Methods of job instruction in teaching and training employees.

**2435 Technique of Production I \*** 2-5-4  
A study of film, film development, camera optical systems, camera calibration and exposure determination of line and halftone. Litho darkroom procedures. \$25.00 lab fee.

**2436 Technique of Production II** 2-5-4  
A study and application of photo-typesetting equipment, autotape keyboards, video display terminals for editing, correcting and storing of formats, and programs. Output and processing procedures. \$25.00 lab fee.

**2445 Seminar on Production\*** 3-0-1  
Conference session with production personnel of commercial graphic arts installations followed by discussion, critique and written reports.

**2446 Seminar on Management\*** 3-0-1  
Conferences with suppliers and manufacturers representatives for new innovations of machinery and processes. Discussion with managers of commercial plants for a study of estimating, sales, technical assistance and related matters.

## INDUSTRIAL DEPARTMENT

**4301 Industrial Organization and Management (A)** 2-3-3  
A review of industrial management principles, problems, and practices as viewed from the policy-making level. An overview of modern management principles; organization structure; operational planning, organization, and control; managerial functions; and related subjects.

**4302 Industrial Supervision I - Principles and Practices (W)** 2-3-3  
A functional analysis of the industrial supervisor's job. Problems in dealing with employees, machines, and processes. A review of supervisory management principles, functions, and their application at the front-line supervisory level.

**4303 Industrial Supervision II - Labor Relations** 2-3-3  
Principles and practices of recruiting, selecting, developing compensating, and utilizing manpower resources at the front-line supervisory level. Collective bargaining agreements and application at the working level in the management process.

**4304 Industrial Supervision III - Safety and Environment (A)** 2-3-3  
The industrial supervisor's role in safety management. Problems of the front-line supervisor in handling safety and accident control. Review of O.S.H.A. Activities and environmental protection movements as related to the industrial environment.

**4305 Purchasing, Stores, and Inventory Control (A)** 2-3-3  
The purchasing function. Inventory maintenance and control. Principles and practices of material handling and management in the production process. The supervisor's responsibility for materials, supplies, and equipment.

**4306 Time and Motion Study\* (A)** 2-4-4  
The student is taught a logical treatment of motion and time study. The how, why, when, and where of motion and time study are carefully kept in focus. Time standards by mathematical analysis is only one of many problem solving techniques taught.

**4307 Industrial Electricity\* (A)** 3-2-4  
Students are provided the knowledge of electrical machine control. Subjects covered are electrical components, circuit design, power factors, trouble shooting, and maintenance.

**4308 Production, Scheduling, and Control\* (SP)** 3-2-4  
Controlling the flow of production items for the time the raw material is received until the shipping of the products. Flowcharts, bar charts, and other schedule control items are reviewed and practiced.

**4309 Quality Planning for Industry\* (SP)** 3-2-4  
The primary objective of the course is to present to the student the current state-of-the-art of the management, engineering, and economical control and assurance of quality.

**4311 Cost Estimating\* (SP)** 2-3-3  
The student learns to estimate the cost of material, labor, and overhead for typical products manufactured by production methods.

## LAW ENFORCEMENT DEPARTMENT

**7801 Introduction to Law Enforcement\* (A)** 3-0-3  
A survey of law enforcement, its role, history, and development. English Common Law. An introduction to modern police practices and the functions of other agencies involved in the administration of criminal justice. Law enforcement officers ethics. An introduction to local, state, and federal court procedures.

**7802 Crime Prevention Techniques\* (W)** 3-0-3  
Survey of the use of patrol procedures in crime prevention. Included are the purpose and types of patrol, deviant behavior, police communications including radio, teletype and computerized communication systems are examined. Observation and perception, identification and description of individuals and property, a summary of the use and types of weaponry and techniques by call. Required by requests for police service.

**7803 Traffic Administration\*** 3-0-3  
An orientation to highway traffic administration. Discusses the responsibilities of agencies involved in the highway transportation system with emphasis on the police function. Included are supervision enforcement definitions and rates, accident prevention and control problems, basic principles of traffic law enforcements, and the federal standards for highway safety that have a direct bearing on police operations. Elective.

**7804 Juvenile Procedures\* (A)** 4-0-4  
Organization, functions, and jurisdiction of juvenile agencies. Processing and detention of juveniles. Statutes and court procedures relating to juveniles. Police services for juveniles and neglected children. Rights and liabilities of minors and their parents.

**7805 Ohio Criminal Code\* (W)** 5-0-5  
The study of the statutes of Ohio to crime and criminal procedures with emphasis on the specific elements necessary to constitute individual crimes. An introduction to civil law as it related to the law enforcement officer.

**7811 Criminal Evidence and Procedures I\* (A)** 4-0-4  
Analysis of statutes and court decisions on the accumulation, presentation, and admissibility of criminal evidence. The origin, development, and philosophy of the rules of evidence. \$1.00 lab fee. *Concurrent with 7861*

**7812 Criminal Evidence and Procedures II\* (W)** 4-0-4  
Tests for admissibility of evidence and types of evidence. Arrest, search, entrapment, and opinion testimony. *Prerequisite: 7811; Concurrent with 7862*

**7813 Traffic Accident Investigation\* (SP)** 5-0-5  
An in depth study of the procedure and objectives in accidents, gathering facts from road, vehicle and witnesses, hit and run investigation, measurements and diagrams, utilization of skid marks evidence, proper method of recording accident data, use of accident template and a practical application of the recommended method of submitting the Ohio State Traffic Crash report.

**7816 Case Preparation\* (SP)** 3-2-4  
A study of the necessary reports, review of case and conference with prosecutor, witnesses and technical reports. Proper submission of physical evidence, psychology of courtroom testimony. Participation in mock trials followed by actual courtroom trial visitations.

**7819 Supervision of Public Service Personnel\* (W)** 3-0-3  
Supervision techniques applied to public service personnel. The study of the need for job descriptions and job procedures, civil service requirements, report, oral and written directions, work evaluation, and conference leadership. Methods of instruction effective in teaching and motivating personnel.

**7821 Community Affairs I—Local Government (A)** 3-0-3  
The role of local government in the community; its structure, organization, and responsibility. Local government politics and the community. Methods and principles of local budgeting. Urban, suburban, rural and community structure.

**7824 Investigation and Interviewing\*** 3-0-3  
An analysis of the use of interviewing as a tool in investigation. Covering preparation of an interview, types of interviews, interview techniques and their psychological application to obtaining accurate and admissible statements.

**7825 Constitutional Law\* (A)** 5-0-5  
A study of Federal and State Constitutional Law and the Bill of Rights with emphasis on the rights to 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.

**7827 Criminology (SP)** 3-0-3  
A sociological approach to the crime problem. Some of the topics are: crime and the population, the handling of the problem, the role of the victim, explanation of crime, treatment methods.

**7828 Municipal Finance\* (SP)** 3-0-3  
An administrative view of municipal finance. A summary of budgeting, cost accounting, salaries, taxes, monthly allocations, balance sheets, operating expenses, purchasing and requisitioning are studied.  
*Prerequisites: 7819 or 7826*

**7831 Police Photography\*** 1-4-3  
Photography at specific crime scenes. Photography of criminal evidence. Micro and macro photography. Preparing the court exhibit. Darkroom techniques. Use and care of photographic equipment. Elective. \$4.00 lab fee.

**7832 Fingerprinting\*** 3-0-3  
A study of fingerprinting recognition and classification procedures. Analysis of distinguishing features of fingerprint patterns. Instruction in photography of latent prints prior to listing. Proper methods of lifting and preserving evidence. Elective. \$1.00 lab fee.

**7833 Police Department Intelligence\*** 3-0-3  
The collection and evaluation of information dealing with security and safety of the municipality. Methods of observation of criminal and subversive organizations, checking on rumors, intro-police communications, and the use of informants. Elective.

**7834 Police Department Organization\*** 3-0-3  
An introduction to the principles governing the organization and administration of law enforcement organizations. Included for study are: functions and activities, development of policy, significance of community relations in effective police work, and training and control of police forces. Elective

**7835 Family Crisis Intervention\***  
An analysis of the changing role of the law enforcement officer. Police have historically dealt with family problems on the basis of keeping the peace. The police officer must resolve more than just the disturbance. A study of the methods and procedures of family crisis intervention. Elective.

**7836 Juvenile Delinquency\*** 3-0-3  
The philosophy and methods of police programs for the prevention and control of juvenile delinquency and youth crime. Emphasis on specific techniques and consideration of the issues and problems to be resolved by police, desirable principles and practices based upon prevailing professional thinking, public policy, existing law, juvenile rights and knowledge of current delinquent behavior theories. Elective.

**7838 Vice Squad Operations I\*** 3-0-3  
Methods of law enforcement related to illegal traffic in liquor, gambling, morals, and prostitution. Elective.

**7839 Vice Squad Operations II\*** 3-0-3  
A study of narcotics and hallucinogenics, with emphasis on the addict, the drugs, controls, local, state, and federal and United Nations efforts to control drugs. The illegal sale and use of drugs, and drug addiction. Elective.

**7841 Major Crime I\*** 3-0-3  
Principles and techniques of investigation and prosecution of major crimes. Emphasis on methods involving homicide, suicide, assault, and rape. Human physiology as applied to police investigation. Elective.

**7842 Major Crime II\*** 3-0-3  
Principles and techniques of investigation and prosecuting of major

crimes. Emphasis on methods involving auto theft, burglary, and grand larceny. "Methods of Operation" techniques. Elective.

**7843 Techniques of Instruction (W)** 4-0-3  
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. Methods of evaluation.

**7844 Safety Education\*** 3-0-3  
Methods of motivation and instruction of children and adults with emphasis on the subject of safety education. Principles of automobile, bicycle, motorcycle, pedestrian, and firearm safety. Elective. \$1.00 lab fee.

**7845 Penology\*** 3-0-3  
A study of the admitting, quartering, and releasing of prisoners. Emphasis on city and county systems, for handling prisoners. Elective.

**7846 History of Law Enforcement\*** 3-0-3  
A study of law enforcement from early civilization through the modern police department. Reference to notable crimes in history, their particulars, and results in law enforcement procedures change Scientific advances and their role in law enforcement. An appreciation for the profession of law enforcement. Elective.

**7847 Police Records\*** 3-0-3  
The necessity, techniques, and details of keeping records in a police department. Criminal records, filing, and cross-reference system. Officer report writing. Elective.

**7849 Crime Laboratory Techniques\*** 3-0-3  
A study of special chemical and physical procedures used in the crime laboratory. The use of specialized instrumentation: microscope and micro-photography, x-ray equipment, and spectrophotometers. Elective. \$4.00 lab fee.

**7861 Criminalistics I\* (A)**  
The laboratory includes examination techniques for blood, hair and fiber, firearms identification, toolmark comparison, latent fingerprints, questioned document examination and trace evidence. \$3.00 lab fee. *Concurrent with 7811.*

**7862 Criminalistics II\* (W)**  
The laboratory includes the recognition, collection and preservation of evidence and its preparation for court presentation. An introduction to fingerprint comparison. \$3.00 lab fee. *Prerequisite: 7861; concurrent with 7812*

## MATHEMATICS DEPARTMENT

**1100 Review of Algebra — I (D-SU) (E-A,W,SP,SU)** 4-0-4  
Fundamentals from arithmetic to algebra; signed numbers; elementary algebraic operations; simple linear equations and formulas; problem solving by equation; factoring. Credit not applicable toward degree.

**1101 Mathematics for B.D.P. I** 4-0-4  
A study of a Real Number System, definitions, symbols and operations in set theory. A comparison of decimal, octal, hexadecimal, and binary number systems; conversion principals and procedures. Basic algebraic operations. Linear equations and inequalities in one and two variables.

**1102 Mathematics for B.D.P. II** 4-0-4  
Relations and functions. An introduction to the theory of equations. Exponential and logarithmic functions. Matrices and determinants and their use in solving simultaneous equations. *Prerequisite: 1101*

**1103 Mathematics for B.D.P. III** 4-0-4  
An introduction to logic with truth tables and associated flow charts. Boolean Algebra. Linear programming with solutions by graphing, algebraic, matrix, and simplex methods. *Prerequisite: 1102*

**1106 Probability and Statistics for B.D.P.** 4-0-4  
Fundamental probability distributions, Markov Chains, game theory, linear programming, sample statistics, method of least squares, decision theory, with applications to business problems. *Prerequisite: 1103*

**1107 Advanced Topics in B.D.P. Math** 3-0-3  
A review of arithmetic and geometric progressions. Limits of sequences and of functions. An introduction to differential calculus: the derivative and its use in marginal cost and optimization theory. An introduction to integral calculus: the integral and its use, such as in determining cost functions. *Prerequisite: 1106*

- **1110 Introduction to Technical Mathematics** (D-A,SU) (E-A,W,SP,SU) 4-0-4  
 Algebraic fractions and operations; exponents, roots, and radicals. Solutions of equations, quadratic, systems of linear, graphs, logarithms. Right triangle trigonometry, vectors, and radian measure. Credit not applicable toward degree.
- **1111 Technical Mathematics I** (D-A,W,SU) (E-A,W,SP,SU) 4-0-4  
 Algebraic expressions and operations. Linear equations in one variable. Dimensional analysis. Cartesian coordinate plane and the trigonometry of right triangles. Graphs of the trigonometric functions.
- **1112 Technical Mathematics II** (D-A,W,SP,SU) (E-W,SP,SU) 4-0-4  
 Exponents, oblique triangles, linear equations, graphing, complex numbers, logarithms, and the binomial expansion.  
*Prerequisite: 1111*
- **1113 Technical Mathematics III** (D-W,SP) (E-A,W,SP,SU) 4-0-4  
 Quadratic equations and approximation of roots. Polar coordinates. Linear equations and determinants. The straightline, circle, and conic sections. Trigonometric identities. Progressions.  
*Prerequisite: 1112*
- **1114 Technical Mathematics IV** (E-A,SU) 4-0-4  
 The nature of calculus — What it is all about. Differential calculus and comprehensive applications. Maxima and minima and applications. The integral and area under a curve. Volumes and volumes of revolution.  
*Prerequisite: 1113*
- **1115 Technical Mathematics V** (E-A,W) 4-0-4  
 Centroids and moments; centroids of two or more areas and centroids of volumes. First and second moments; moments of inertia. Infinite, Maclaurin, Taylor, and Fourier Series. Elementary differential equations.  
*Prerequisite: 1114*
- **1131 Business Mathematics** (D-A,W,SP,SU) (E-SP,SU) 4-0-4  
 Fundamental arithmetic processes emphasizing common and decimal fractions. Percentage methods are applied to cash and trade discounts, commissions, markup and depreciation. Simple interest on promissory notes and unpaid balances. Bank discount, compound interest, tables and formulas. Payroll computations. Income statement and balance sheet analysis. Statistics and graphs.

**1141 Introduction to Business Statistics**  
 Fundamental concepts of probability, distribution estimation and testing hypotheses, with applications.

**1154 Survey Closures by Computer**  
 Provides instruction in application of electronic to programmed automatic solution of algebraic problems such as are frequently encountered in surveying operations. The course is structured or based computer language with special reference ships.

**1155 Computer Application to Mathematics** (on Basic language, using terminals, writing computer solving typical mathematical problems, and writing to the student's own technology. \$10.00 lab fee.

**1171 Public Service Mathematics** (on demand) (I The review of arithmetic including definitions decimal fractions, percentage, ratio, proportion; Basic algebra: notations, definitions, operations, etc. Geometry: triangles, circles, cylinders, sphere Trigonometry: right triangles and vectors.

**1180 Nursing Math** (D-SU) (E-A,W,SP)  
 Review of fundamental arithmetic including whole and decimal fraction operations. Work with percentages, measurements and applications. An introduction to concepts using the field properties leading to equations. Credit not applicable toward degree.

**1181 Math for Health Technologies I**  
 Algebraic expressions and operations. Linear equations. Scientific notation. Ratio-proportion. Logarithmic functions. Cartesian plane. Standard deviation of groups.

**1182 Mathematics for Health Technologies II** (D Further work in ratio-proportion; exponents function; linear equations in two variables; right  
*Prerequisite: 1181*





# MECHANICAL ENGINEERING DEPARTMENT

- 4600 Introduction to Drafting\*** (SU,A,W,SP) 0-6-3  
Fundamentals of drafting: line work, lettering, orthographic projection, and isometric drawing. A remedial course for students who have never had drafting. Credit not applicable toward degree. \$6.00 lab fee.
- 4601 Mechanical Drafting I\*** (W,W,SP,SU) 0-6-3  
A beginning course including principles of orthographic, isometric, and oblique projection, Dimensioning, sectioning, and applied descriptive geometry. Emphasis on making complete detail and assembly drawings. \$6.00 lab fee.  
*Prerequisite:* 4600 or H.S.
- 4602 Mechanical Drafting II\*** (A,W,SP,SU) 0-6-3  
A continuation of Mechanical Drafting I, including advanced drafting practices, industrial standards, and the drawing of machine elements.  
*Prerequisite:* 4601  
\$6.00 lab fee.
- 4603 Materials of Industry\*** (W) 2-2-3  
A study of the mechanical and physical properties of the materials of construction. Emphasis on the use of reference data and calculations for applying these materials to the best practical and economic advantage. Standard testing procedures used to evaluate these materials, including steel, cast iron, wood, brick, cementing materials, concrete, rubber and plastics.  
*Prerequisite:* 1112
- 4604 Basic Mechanisms\*** (A) 1-6-4  
A study of the basic mechanisms used in the construction of industrial machinery, such as linkages, cams, and gear trains. \$6.00 lab fee.  
*Prerequisites:* 4602, 1113
- 4605 Machine Design\*** (SP) 0-8-4  
A study of the design of machine elements: beams, bearings, shafts, gears, clutches, power screws, and fasteners. Emphasis on loading and stress considerations in the design. \$6.00 lab fee.  
*Prerequisites:* 1113, 4602
- 4606 Tool Design\*** (SP) 0-10-5  
A study of the principles of design of production tooling, including jigs, fixtures, and various types of dies. \$6.00 lab fee.  
*Prerequisite:* 4602
- 4610 Shop Math** 3-0-3  
Simple addition, multiplication, subtraction and division problems with fractions, decimals and the metric system. Practical problems relating to the machine tools lab. Gear ratios, gear geometry, pulley ratios, axial movement of threaded shaft relative to revolutions. Feed and speed problems coupled with problems involving time elements.
- 4611 Machine Tools\*** (W) 3-6-6  
A study of the operation of the basic machine tools and the related theory. Cutting tool materials, cutting tool geometry, machining time, indexing, and helical milling. \$15.00 lab fee.
- 4612 Manufacturing Processes I\*** (A) 2-2-3  
A course in the basic manufacturing processes used in production of machine parts. Study of the extraction and refinement of metals, production machining methods and production machine tools, precision dimensional inspection methods, hotforging methods, cold-working methods, metal stamping and foundry methods.
- 4613 Manufacturing Processes II\*** (SP) 3-1-3  
Continuation of Manufacturing Processes I. Laboratory work in welding and visits to manufacturing plants. Further study of cast metals. Welding equipment and procedures, welds, and weld inspection. Injection molding and powdered metals, plus Quality Control. \$4.00 lab fee.
- 4616 Design Problems\*** (A) 0-10-5  
An advanced project. Student uses his knowledge and initiative to analyze a problem in machine design; gathers data, makes sketches, calculations, and working drawings, and checks his work. \$5.00 lab fee.  
*Prerequisites:* 1113, 4602
- 4620 Geometry** 3-0-3  
Problems relative to manufacturing such as volume and weight of steel, aluminum, and other materials. The correct method for calculating the weight of a very small production part, regardless of the material it is made from, to the approximate weight of a large machine tool, die, or fixture.
- 4626 Hydraulics and Pneumatics\*** (W) 4-2-5  
A course in the elementary theory of fluid flow and power transmission in hydraulic machine. Emphasis on the design, the principles of operation, and the use of hydraulic components in hydraulic and pneumatic circuits. \$3.00 lab fee.  
*Prerequisite:* 1113
- 4630 Trigonometry** 3-0-3  
The solving of problems that are right triangles, equilateral triangles, parallelograms, circles, and other shapes. The use of trigonometric functions is emphasized as well as logarithms and slide rule. The extraction of square root and the solving of compound angles are also covered.
- 4634 Fortran IV\*** (W) 1-2-2  
Elementary computer science concepts. The language rules of Fortran. Writing programs. Testing on the IBM 370/135. \$5.00 lab fee.  
*Prerequisite:* 1113
- 4635 Numerical Control\*** (SP) 2-4-4  
A fundamental course, including principles of numerical control, operation sheets, transfer of references, programming manuscript, tape preparation, and basic numerical control systems. Programming of a machine part requires a point-to-point application, and production of the part on the numerical control machine tool. Programming and production of a more complex machine part on the numerical control machine. An introduction to the APT programming. Study of advanced applications of numerically controlled manufacturing equipment. Numerical control aspects of tooling. \$5.00 lab fee.
- 4640 Algebra (Related to Manufacturing)** 3-0-3  
Solution of actual manufacturing problems in addition, subtraction, multiplication and division of fractions; decimal fractions; percentage; metric conversions; exponents and logarithms; geometry of areas and volumes; solution of linear and quadratic equations; polynomial addition, subtraction, multiplication and division; algebraic fraction addition, subtraction, multiplication and division; rectangular coordinates; graphs of equations; interest and depreciation; numerical tables; trigonometry; sines, cosines, tangents; ratio and proportion; statistical frequency and sampling curves.
- 4644 Statics\*** (A) 3-2-4  
The study of loads as applied to structures, including study of reactions, shears, and bending moments by analytical and graphical methods. Study of centroid location and moments of inertia.  
*Prerequisite:* 1113
- 4645 Strength of Materials (W)** 3-2-4  
A continuation of statics, including stresses in beams, deflections of beams, statically indeterminate beams, columns, eccentrically applied loads, combined stresses and stress concentration.  
*Prerequisite:* 4644
- 4650 Mechanical Drafting III** 0-6-3  
A continuation of 1602 with more emphasis on components of machine tools. The correct procedure for drawing gears and racks, motors, motor housing, table ways, ball screws, etc.  
*Prerequisite:* 4602
- 4660 Mechanical Drafting IV** 0-6-3  
A continuation of Mechanical Drafting III with strong emphasis on hydraulic system components. Pumps of all types, valves, accumulators, reservoirs, and piping.  
*Prerequisite:* 4650
- 4661 Plant Mechanical Systems (SP)** 2-2-3  
The course is designed to familiarize students prospectives in the facilities design and plant maintenance areas.
- 4662 Principles of Metallurgy (A)** 2-2-3  
Course work includes studies of crystal formation, grain structure, hot and cold working, heat treatment and control of mechanical properties.
- 4670 Welding (Gas and Electric)** 2-2-3  
Classroom and laboratory time is spent studying the correct procedure for welding sheet metal, steel castings, mild steel, and the exotic steels. Actual welding problems are done in the lab, except those problems related to exotic steels. These problems can only be studied in theory in the classroom.
- 4690 Casting and Forging Control** 2-2-3  
The course is a scientific study of the methods used in the manufacturing of castings and forgings. Emphasis is put on the correct use of draft angles, fillets, and rounds. The balancing of cross-sections for maximum strength, minimum distortion, and limitations of the process. A study is made of a particular casting from its design concept through the wood pattern, to the mold, the molding sand control, to the pouring and solidification of metal or iron, and then the final matching of the casting. The types of forging are studied, their advantages, limitations and dimensional tolerances. The dies for a drop-forging and for a press forging are designed.



# MEDICAL LABORATORY DEPARTMENT

**8001 Medical Technology I (A,SP)** 2-4-2  
Orientation to the field of medical technology; defining the role of the medical laboratory technician, overview of working conditions and places of employment, medical terminology, reporting methods and charts. \$25.00 lab fee.

**8002 Medical Technology II (W,SU)** 2-4-3  
Study concerning the use and maintenance of laboratory equipment including the microscope, spectrophotometer, centrifuges and analytical balance. Stress is also made on the mathematical approach to solution concentrations and dilutions. \$50.00 lab fee.  
*Prerequisite:* 8001 or permission of Department Chairman

**8005 Blood Banking (W,SU)** 5-12-7  
Procedures are stressed in ABO and Rh typing, antibody screening, and crossmatching of patient and donor bloods. Studies and laboratory techniques also include discussion of most all blood group systems, phenotyping, identification of atypical antibodies, and the selection of proper donor blood in cases of crossmatching incompatibilities. Sufficient time is also spent studying transfusion reaction investigations, the use of blood components in transfusion therapy, and the problems concerning fetal-maternal blood incompatibilities. \$50.00 lab fee.  
*Prerequisites:* 8003, or permission of Department Chairman

**8007 Hematology (A,SP)** 5-15-8  
The origin and formation of blood cells, the coagulation mechanism and its factors are studied and practiced. This includes techniques in counting of red blood cells, white blood cells, platelets, reticulocytes and eosinophiles. Differential morphology including staining qualities and recognition of cells is stressed. Hemoglobinometry is reviewed. Methods of counting blood cells in other body fluid are demonstrated and practiced. This includes procedures such as the prothrombin time, partial thromboplastin time, thromboplastin generation test, bleeding time, coagulation time and prothrombin consumption. Laboratory work will also include work on anemias, leukemia, and hemoglobinopathies. \$50.00 lab fee.  
*Prerequisite:* 8002, 1322 or permission of Department Chairman

**8017 Microbiology I (A,SP)** 5-18-11  
Includes the study of bacteriology, mycology and parasitology. Bacteriology includes the cultivation and identification of organisms through the utilization of primary and secondary culture techniques, staining techniques, anaerobic techniques, biochemical techniques, serological techniques, and microscopic examination. Other methods studied include antibiotic sensitivity testing, concentration of mycobacteria, blood cultures and the preparation of culture media and stains. Parasitology includes staining and concentration or flotation techniques, host parasite relationships, microscopic examination of the various helminths and protozoa. Mycology includes the study of various types of fungi. \$50.00 lab fee.  
*Prerequisite:* 8005 or permission of Department Chairman

**8023 Urinalysis (A,SP)** 2-4-3  
The study of this course includes the complete laboratory procedures, qualitative and quantitative, for routine urine examination. Various chemical tests are taught and practiced. The theory and application of kidney function are included. \$25.00 lab fee.  
*Prerequisite:* 8001 or permission of Department Chairman

**8025 Clinical Chemistry I (W,SU)** 5-18-11  
This course includes topics of general chemistry in relation to their applications in the medical laboratory. The student studies colorimetry, photometry, gasometry, enzymes, flame photometry, preparation of solutions and reagents with emphasis on quality control and instrumentation. The study of diagnostic isotopology, steroid determinations and fluorometry is introduced. \$50.00 lab fee.  
*Prerequisite:* 8017 or permission of Department Chairman

**8081 Medical Laboratory Internship I (A,W,SP,SU)** 13  
Two-quarter internship providing a practical application of the skills and abilities learned during the previous six quarters. The students are assigned to an accredited hospital laboratory as a trainee. Students will apply their talent as members of the laboratory department. The student will be involved for six weeks each in the Hematology and Urinalysis Section and Chemistry Section of the laboratory; four weeks each in the Bacteriology and Serology Section and the Blood Banking Section of the laboratory; and will elect a two-week period in the Histology Section, the Isotopology Section, or the Special Chemistry Section of the Laboratory.  
*Prerequisite:* All Medical Laboratory courses

**8082 Medical Laboratory Internship II (A,W,SP,SU)** 13  
Continuation of 8081.

**8085 Special Problems in Medical Laboratory Technology I (A,W,SP,SU)** 2-0-2

During the internship period, the student will keep a weekly log indicating scope and degree of activity in the laboratory. A copy of this work will be filed with the hospital and a copy filed with the Institute. A problem of special interest to the student, requiring library and/or laboratory study will be selected by the student and the faculty coordinator. This course includes open discussion of intern related problems, lectures on laboratory management, demonstration of other employment opportunities, interviewing techniques, and case studies.  
*Prerequisite:* All medical laboratory courses.

**8086 Special Problems in Medical Laboratory II (A,W,SP,SU)** 2-0-2  
Continuation of 8085.

# MENTAL HEALTH AND RETARDATION DEPARTMENT

**8401 Introduction to Mental Health & Mental Retardation (A)** 4-0-4  
A survey of the field of human services and related helping professions and agencies, employing, films, field trips, and guest lecturers, to enable the student to understand the role of the direct service worker, the nature of mental health technology and its relationship to the various agencies and organizations which form the delivery system for mental health and mental retardation services.

**8413 Introduction to Casework (SP)** 5-0-4  
A study of the techniques of interviewing, taking histories, referrals, inter-agency cooperation, etc. Emphasis is on assessment and intervention in relation to casework in the mental health areas.

**8415 Techniques of Behavior Modification\* (A)** 4-0-4  
Introduction to operant and respondent conditioning with emphasis on human behavior. The focus is on conditioning techniques used in modifying behavior.

**8416 Therapeutic Methods I\* (W)** 4-0-4  
A survey course of techniques used in treating patients and serving clients. Includes forms of psychotherapy, activities, groups, etc., in use today. To help the student understand the patients or clients and to be helpful to the therapist.

**8417 Therapeutic Methods II\* (SP)** 4-0-4  
A continuation of Therapeutic Methods I with greater in-depth study of the various techniques used in treating patients and clients.

**8426 Social Problems/Community Resources\* (W)** 5-0-4  
A study of the nature, extent, causal factors, and suggested solutions to major modern problems. The general social processes underlying most social problems are considered, as well as the more specific factors responsible for the particular problems. Governmental, health and welfare organizations will be reviewed, and related to general problems. Community resources for specific problems will be identified and unmet needs considered.

**8427 Seminar on Mental Health and Retardation\* (SP)** 5-0-5  
A study of modern methods, innovations, and procedures with in-depth study. Instructor introduces material not covered elsewhere in the curriculum and strengthens other materials.

**8482 Mental Health and Retardation Clinic I (W)** 4-12-6  
Students are assigned 12 hours per week in an agency and two two-hour sessions in the classroom for discussion of field problems, case study, and development of specific skills related to individual and group counseling and treatment program planning. Each student must have a minimum of one quarter each in a residential agency, retardation facility, and community mental health center. Additional placements for concentrated experience are taken in fifth, sixth, and seventh quarters.

**8483 Mental Health and Retardation Clinic II\* (SP)** 4-12-6  
Students are assigned 12 hours per week in an agency and two two-hour sessions in the classroom for group discussion field problems. Assignments are made in a psychiatric, retardation, rehabilitation, or community agency. Placement is made on the basis of student's preference, instructor's recommendations, and availability of opportunities.

**8484 Mental Health and Retardation Clinic III\* (SU)** 4-12-6  
Students work in same agency as the preceding quarter, but develop individual projects and responsibilities. Written reports by the student at the end of each week are reviewed and discussed with the students on an individual basis by the instructor.

**8485 Mental Health and Retardation Clinic IV (A)** 2-18-6  
Students concentrate in an area of preference with instructor approval. Students are fully engaged in the helping process; developing and refining specific skills, knowledge of community resources, and working on independent projects.

**8486 Mental Health and Retardation Clinic V (W)** 2-18-6  
Students concentrate in an area of preference with instructor approval. Students are fully engaged in the helping process; developing and refining specific skills, knowledge of community resources, and working on independent projects.

**8487 Mental Health and Retardation Clinic VI (SP)** 2-18-6  
Students concentrate in an area of preference with instructor approval. Students are fully engaged in the helping process; developing and refining specific skills, knowledge of community resources, and working on independent projects.



## NURSING DEPARTMENT

**8515 Health and Safety Needs I (SP,A)** 2-3-3  
An orientation to the health care system and nursing practice including the legal and ethical responsibilities of health care providers. An overview of basic human needs theory is provided, with emphasis on understanding the health and safety needs and normal changes experienced by elderly persons who are relatively healthy. Learning experiences are planned to provide a basic understanding of normal nutrition and students are also introduced to the study of pharmacology.  
*Prerequisite: Enrollment in Nursing Technology*

**8516 Introduction to Nursing Process and Skills (SP,A)** 2-12-6  
An overview of nursing as a systematic process is provided to assist students to develop an approach to patient care. The focus is on systematic data gathering and assessment relative to basic needs of elderly persons. Learning experiences are planned to provide students opportunities to gain beginning observation and interviewing skills as well as the psychomotor skills needed to assist with activities of daily living. Students care for elderly persons with minor health interruptions or whose health state is relatively stable. \$6.00 lab fee.  
*Prerequisite or Concurrent: Enrollment in Nursing Technology, 1313 General and Biological Chemistry, 1361 Human Anatomy and Introduction to Function*

**8519 Physiological Needs I (SU,W)** 2-12-6  
The needs approach to patient care is utilized to introduce those illness problems which disturb homeostasis and bring about disturbances in the following essential needs: nutrition, rest and activity comfort, and elimination. Opportunities are provided for students to learn to gather relevant patient information in a systematic manner. Students care for adult patients with uncomplicated health problems in hospital settings. \$6.00 lab fee.  
*Prerequisite: 8515 — Health and Safety Needs I, 8516 — Physiological Needs I; Prerequisite or concurrent: 1315 General Microbiology, 1362 Human Development, 1002 Beginning Composition*

**8522 Health and Safety Needs II (SP,A)** 2-12-6  
Students are introduced to the means for promoting high level wellness for the family during the child-bearing years and for the child through early adulthood. The emphasis is on systematically assessing needs and planning care. Opportunities to implement the plans are provided by caring for families during the reproductive process and by nurturing

children. Students care for children and families with con-complex problems in hospitals and community agencies. 6 hours  
*Prerequisite: 8519 — Physiologica Needs I; Prerequisite or concurrent: \$4.00 lab fee*  
*Prerequisite or concurrent: 1391 Physics, 1522 General Psychology or 1514 General Sociology, 1003 Essay & Research; Concurrent: 8523 Growth & Development*

**8523 Growth and Development (SP,A)** 2-3-3  
Opportunities are provided for students to gain knowledge of the factors that influence the growth and development of the normal infant, child and adult as an individual and as a member of the family and the community. The learning experiences assist students to understand conditions which disrupt the fulfillment of basic needs. Observations and selected experiences with normal infants, children and adults are provided.  
*Prerequisite: 8519 Physiological Needs I; Concurrent: 8522 Health and Safety Needs II; Prerequisite or Concurrent: 1391 Physics, 1522 General Psychology or 1514 General Sociology, 1003 Essay and Research*

**8525 Physiological Needs II (SU,W)** 3-15-8  
The needs approach to patient care is continued to provide students an opportunity to study and to develop added skill to resolve those illness problems which bring about alterations in patients' ability to maintain cellular transport and oxygen-carbon dioxide exchange. Implementing care and determining its outcome is emphasized. Students employ the nursing process to provide care for children and for adults in hospital settings. \$4.00 lab fee.  
*Prerequisite: (8522) Health and Safety II, 8523 Growth and Development; Prerequisite or Concurrent: 1363 Human Physiology I, 1514 General Sociology or 1522 General Psychology*

**8526 Trends in Health Care Delivery (SP,A)** 2-0-2  
The course provides students with an opportunity to study the evolution of nursing in the social order as a means of understanding and responding to the problems, issues and trends that effect nurses and nursing. Topics include the history of nursing, establishment and development of an educational system in nursing, standard setting and the health care delivery system.  
*Prerequisite: (8525) Physiological Needs II, 1004 Technical Writing or 1014 Business Communication*

**8528 Physiological Needs III (SP,A)** 3-15-8  
The needs approach to patient care is extended to study and resolve those more complex needs which produce changes in patients' ability to balance fluids, electrolytes, acids and bases; to regulate cell maturation and proliferation; and to maintain body processes through chemical and neural regulation. The process of patient assessment, and of planning and implementing care is evolved in more complexity and detail (level II). Students care for acutely ill patients in hospital setting. \$4.00 lab fee.  
*Prerequisite: (8525) Physiological Needs II; Prerequisite or Concurrent: 1364 Human Physiology II, 1004 Technical Writing or 1014 Business Com.*

**8531 Health and Safety Needs III (SU,W)** 1-6-3  
A study of personal value systems, life style, society and culture as influences on mental health and on how behavior is perceived. Students are encouraged to become aware of their personal dynamics and coping mechanisms and to examine their level of need fulfillment using examples of self-actualized persons as a model. Clinical experience with families and individuals is provided in community mental health centers. \$2.00 lab fee.  
*Prerequisite: (8525) Physiological Needs II; Concurrent: (8532) Sociological Needs I; Prerequisite or Concurrent: 1541 Community Sociology*

**8532 Sociological Needs I (SU,W)** 2-6-4  
The needs approach to patient care is expanded to study and develop beginning competence to resolve problems based on alterations in the patients need for self-esteem and for love and belonging. The course builds upon the concept of trust and upon basic nurse-patient relationship skills. Students care for patients in in-patient psychiatric settings whose primary diagnosis is one of deviate behavior, organic impairment or mental illness. \$2.00 lab fee.  
*Prerequisite: (8525) Physiological Needs II; Concurrent: (8531) Health and Safety Needs III; Prerequisite or Concurrent: 1541 Community Sociology*

**8535 Health and Safety IV\*\* (A,SP)** 2-24-10  
The purpose of the course is to assist students to integrate prior learning around a needs approach and to apply the nursing process (level II) systematically. At the end of the course, students are expected to demonstrate the competencies expected of a beginning technical nurse and to have acquired added ability to care for and to promote the health of patients with non-acute problems. Clinical experiences are provided in general hospitals and in agencies that serve the chronically ill, that furnish rehabilitative services and that provide primary care. \$9.00 lab fee.  
*Prerequisite: (8531) Health and Safety III, (8532) Sociological Needs I, (8528) Physiological Needs III; Prerequisite or Concurrent: Elective as defined in curriculum plan*

**8536 Physiological Needs IV\*\*** (A,SP) 2-24-10  
 The purpose of the course is to assist students to integrate prior learning around a needs approach and to apply the nursing process (level II) systematically. At the end of the course, students are expected to demonstrate those competencies expected of a beginning technical nurse and to have acquired added ability to care for patients with acute health problems. Clinical experiences are provided so that students may care for patients who evidence an urgent need for assistance, precarious stability of condition (but not a clearly unstable condition) and/or an acute (but not critical) health problem. \$9.00 lab fee.  
*Prerequisite: (8531) Health and Safety Needs III, (8532) Sociological Needs I, (8528) Physiological Needs III; Prerequisite or Concurrent: Elective as defined in the curriculum plan*

\*\*Students register either for (8535) or (8536)

## OPTOMETRIC ASSISTING DEPARTMENT

**8201 Introduction to Optometric Technology** 2-3-4  
 Development of optometry, optometric technicians and optometric education; scope of the services of the optometrist and the optometric technician and their role in today's health care, sources of vision information, observation in the clinic.

**8202 Optometric Technology I** 4-4-6  
 Techniques for gathering preliminary patient information such as visual acuity, visual fields, and similar procedures. \$25.00 lab fee.

**8203 Optometric Technology II** 4-4-6  
 Verification of contact lenses; teaching insertion and removal of contact lenses, proper hygiene, special procedures for soft contact lenses, contact lens instrumentation; minor modification procedures. \$25.00 lab fee.

**8204 Ophthalmic Optics I** 4-4-6  
 Measurement and inspection of ophthalmic lenses with emphasis on use of the lensometer, proper care of ophthalmic lenses. \$25.00 lab fee.

**8205 Anatomy and Physiology of the Eye and Orbit** 3-2-4  
 A study of the anatomy and physiology of the eye and orbit. Related laboratory exercises are included. \$25.00 lab fee.

**8206 Ophthalmic Optics II** 4-4-6  
 Theory and practice in fitting and adjusting spectacles; repair and modification procedures for spectacle frames. \$25.00 lab fee

**8207 Practice Management** 3-2-4  
 The study of office management, including recall systems, telephone techniques, bookkeeping, pegboard accounting, laboratory control; patient management; legal and ethical responsibilities. \$25.00 lab fee.

**8208 Optometric Technology III** 4-4-6  
 Instrumentation and procedures for visual screening and orthoptics training; clinical training procedures for patients with binocular vision problems. \$25.00 lab fee.

**8281 Optometry Clinic Experience I** 0-12-4  
 Clinical experience in the dispensary verifying spectacle lenses, pre-examination screening for patients of optometry students, and office duties. \$25.00 lab fee

**8282 Optometry Clinic Experience II** 0-12-4  
 Clinical experience in style design of eye wear, verification of eye wear, pre-examination screening, contact lens verification, and office duties. \$25.00 lab fee.

**8283 Optometry Clinic Experience III** 0-18-6  
 Clinical experience in the contact lens clinic, the orthoptics clinic, and the office and dispensary. Student duties include teaching patients insertion and removal of contact lens, orthoptics training, office and dispensary duties and pre-examination screening. \$25.00 lab fee.

## RESPIRATORY THERAPY DEPARTMENT

**8602 Introduction to Respiratory Therapy Equipment** (W) 4-4-6  
 A study of the apparatus utilized in providing respiratory care, including gas regulators, flowmeters, humidity and aerosol generators both reusable and disposable. Also to include pre-filled humidifiers and nebulizers, intermittent positive pressure breathing machines, ultrasonic nebulizers and volumetric ventilators. \$25.00 lab fee.  
*Prerequisites: 1181, 1311, 1321, 8621*

**8604 Cardiopulmonary Physiology** (SP) 3-0-3  
 A study of the physiology and pathology of the cardiovascular and pulmonary system. Including hypoxia, airway obstruction, pulmonary distention, ventilation-perfusion imbalance, pulmonary restriction, and respiration of alveolar gases.  
*Prerequisites: 1321, 1322, 1315, 1311, 8621*

**8605 Pharmacology** (SU) 3-0-3  
 A study of the general principle of pharmacology, including drug types, dispensing, dosage, effects including contraindications and regulations. Drug groups relating to respiratory therapy will be emphasized to include bronchodilators, wetting agents, mucolytics, proteolytics, antibiotics, and aerosol solutions.  
*Prerequisites: 1321, 1322, 1311, 8604*

**8606 Clinical Specialities** (A) 4-0-4  
 A study of respiratory therapy applications in medical practice, including pathology, internal medicine, neurology, surgery, pediatrics and obstetrics, emphasizing the role of the respiratory therapist as a member of the specialized health care team.  
*Prerequisite: 8604*

**8608 Pulmonary Function and Blood Gas Analysis** (W) 3-0-4  
 A study of ventilatory and respiratory insufficiency problems that can be diagnosed and evaluated by pulmonary function studies to include alveolar-arterial oxygen gradients and carbon monoxide diffusion studies. The evaluation of normal and abnormal acid-base balance through the study of blood gas analysis.  
*Prerequisite: 8612*

**8609 Organization and Administration** (SP) 2-0-2  
 A study of procedures of record keeping, budgeting, cost finding, personnel management, and policies and organization of a respiratory therapy department. Job descriptions and interviews will be discussed.  
*Prerequisite: 8603*

**8611 Respiratory Procedures I** (SU) 3-0-3  
 A discussion of oxygen and other therapeutic gas administration to include indications and contraindications of the various gases. Discussion of aerosol, humidity and ultrasonic therapy, intermittent positive pressure breathing, and chest physiotherapy.  
*Prerequisite: 8605*

**8612 Respiratory Procedures II** (A) 4-0-4  
 A study of the principles and practices of airway management, cardiopulmonary resuscitation, and emergency procedures. A discussion of manual resuscitators, airways and other equipment needed in management of patient airways.  
*Prerequisite: 8611*

**8613 Respiratory Procedures III** (W) 3-0-3  
 A continuation of mechanical ventilation therapy covering pressure and volume ventilation and their application along with the psychological aspects of respiratory therapy on the patient.  
*Prerequisite: 8612*

**8621 Patient Care for Respiratory Therapy** (A) 3-4-5  
 An introduction to respiratory therapy including discussion of the role of respiratory therapy in current medical practice, and duties, responsibilities, and professional liabilities of the therapist. Also a study of the procedures and skills of patient care as they apply to the respiratory patient in a clinical setting. Including approach, rapport, and explanation of treatment to respiratory ill patients. \$20.00 lab fee.  
*Prerequisite: acceptance into the technology*

**8681 Clinical Application I** (SP) 0-12-6  
 Clinical Affiliation. Practical application of oxygen and other therapeutic gases on the respiratory ill patient by means of cannula, catheter, and mask humidifiers by pre-filled, disposable or permanent humidifiers. Clinical use of ultrasonic nebulizers, IPPB machines and chest physiotherapy. Maintenance and sterilization of equipment relating to the prevention of nosocomial infections. Must be taken concurrently with 8611. \$20.00 lab fee.  
*Prerequisites: 8602, 8621*

**8682 Clinical Application II (SU)** 0-12-6  
 Clinical Affiliation. Emphasis on airway management, cardiopulmonary resuscitation and emergency procedures as it relates to the apneic patient. Following through with management of these patients on mechanical ventilation with blood gas analysis. Maintenance of equipment used in these procedures. Must be taken concurrently with 8612.  
*Prerequisite:* 8681 \$20.00 lab fee.

**8683 Clinical Application III (A)** 0-12-6  
 Clinical affiliation. A continuation of Clinical Practice III including the operation and maintenance of pulmonary function equipment and the drawing and interpretation of arterial blood gases.  
*Prerequisite:* 8682 \$20.00 lab fee.

**8684 Clinical Application IV (W)** 0-12-6  
 Clinical Affiliation. A continuation of Clinical Practice III specialized in advance studies of mechanical ventilation, pulmonary functions, blood gases, and adult or pediatric respiratory therapy.  
*Prerequisite:* 8683 \$20.00 lab fee.

**8685 Clinical Experience (SP)** 0-38-6  
 The clinical experience will allow the student to experience the practical application of the skills presented during the previous six quarters. The student will be assigned to an accredited hospital to work 38 hours per week. During this clinical affiliation the student will have the responsibilities of a department member.  
*Prerequisite:* 8684

**2986 Special Problems in Retailing II\* (A,SP)** 2  
 A continuation of 2985.  
*Prerequisite:* 2985

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

## AIR FORCE ROTC

**0201 World Military Systems I** 1-0-1  
 A study of the doctrine, mission and organization of the United States Air Force. United States strategic offensive and defensive forces.

**0202 World Military Systems II** 1-0-1  
 Aerospace defense; missile defense; civil defense. United States general purpose and aerospace support forces.  
*Prerequisite:* 0201

**0203 World Military Systems III** 1-0-1  
 The mission, resources, and operation of tactical air forces.  
*Prerequisite:* 0202

**0204 World Military Systems IV** 1-0-1  
 Defense policies; theories of general war; nature and context of limited war.  
*Prerequisite:* 0203

**0205 World Military Systems V** 1-0-1  
 Policies and strategies of the Soviet Union and China.  
*Prerequisite:* 0204

**0206 World Military Systems VI** 1-0-1  
 Defense organization and decision making; organization and function of the Department of Defense; role of the military in the United States' national policies.  
*Prerequisite:* 0205

## RETAIL MID-MANAGEMENT TECHNOLOGY

**2901 Introduction to Retailing\*** 3-0-3  
 Principles and methods of retail management, including organization, policy making, location, operation, selling services, records inventory, expenses control, insurance, and the coordination of a store.

**2902 Sales Promotion\*** 4-0-4  
 A study of the various sales promotion activities, including advertising, retail display and the coordination of an effective sales promotion program.  
*Prerequisites:* 3801, 3815, 2901

**2904 Retail Store Operations and Control\*** 3-0-3  
 The operation and control of retail establishments: Receiving stock, marking, warehousing, repair and alteration, packing, delivery, and customer services. Maintenance. Accounts payable and receivable, credit and collection. Inventory control, auditing, cash and payroll and statistical analysis. The course uses case studies of all types of retail problems including merchandising, personnel, sales promotion, operations and control.  
*Prerequisites:* 3841, 2913

**2913 Retail Buying I\*** 5-0-5  
 A study of the nature, functions, and terminology of merchandising, merchandise information and decisions required in buying.  
*Prerequisites:* 2981-2985

**2914 Retail Buying II\*** 4-0-4  
 Buyer's methods of handling special merchandise and working with the other divisions within a retail organization.  
*Prerequisite:* 2913

**2981 Retail Internship I\*** 4  
 Supervised on-the-job application of knowledge and skills acquired in the classroom.  
*See Internship Prerequisites.*

**2982 Retail Internship II\*** 4  
 A continuation of 2981.  
*Prerequisite:* 2981

**2983 Retail Internship III\*** 4  
 A continuation of 2982.  
*Prerequisite:* 2982

**2985 Special Problems in Retailing I\*** 2  
 The first of three courses in which the student applies his practical knowledge of retailing to specific areas on his job and submits reports to his coordinator-supervisor.  
*See Internship Prerequisites.*

## SAFETY DEPARTMENT

**7601 Introduction to Occupational Safety and Health** 5-0-5  
 An introduction to the principles of occupational safety and health. A survey course covering basic principles and techniques.

**7605 Human Factors in Safety** 5-0-5  
 Designed to acquaint the serious student with the physiological and psychological factors that contribute to accident causation, an exploration of theoretical and research findings.  
*Prerequisite:* 7601

**7606 Safety Program Management** 5-4-5  
 Designed to acquaint the student with the common elements of a modern safety program.  
*Prerequisites:* 7601, 7612, 7613

**7611 Safety and Health Standards, Codes and Regulations** 5-0-5  
 A review of the important occupational safety and health standards and codes with particular emphasis on application of these codes to typical work situations.  
*Prerequisite:* 7601 or concurrent

**7612 Physical Hazards Control I** 5-4-5  
 An examination of physical hazards in the work environment and methods of control.

**7613 Physical Hazards Control II** 5-4-5  
 A continuation of Physical Hazards Control I. An examination of the control of physical hazards in the work environment.  
*Prerequisite:* 7612

**7614 Elements of Industrial Hygiene** 5-4-5  
 A basic introduction to the field of Industrial Hygiene. A survey of the effects of toxic agents on the body and general methods of control.  
*Prerequisite:* 7601

**7615 Techniques of Industrial Hygiene** 5-4-5  
 Exploration of basic categories of field instruments for detection of toxic substances with explanation of underlying theoretical principles.  
*Prerequisite:* 7614

**7616 Product Safety** 5-0-5  
 A course aimed chiefly at product and processes and the hazards inherent in them. Product liability will be discussed. Particular attention is given to new chemicals, plastics and their processes.

# SECRETARIAL SCIENCE DEPARTMENT

**3303 Machines for Processing Communications\*** (A) 3-3-4  
With the changing technology in the modern business office, the secretary is confronted with a diverse variety of machines for processing business communications. This course is designed to develop secretarial proficiency in the use of these office machines. Machines included are: machine transcription equipment (including dictation units), IBM Magnetic Card Electric Typewriters, IBM Executive Typewriters, various makes of electric typewriters, duplication equipment, and copying equipment. \$4.00 lab fee.  
*Prerequisite:* 3333

**3304 Business Machine Projects\*** (W) 2-2-3  
This course is designed to develop secretarial proficiency in the use of office machines in solving business problems. Machines included are: electronic calculators (visual and printing), 10-key and full-key-board adding-listing machines, and rotary calculators. Emphasis will be on problem-solving activities which stress correct machine operation, a review of basic business mathematics, and an emphasis on problems such as bank reconciliations, payroll, tax returns, and others which a secretary might be called upon to perform. \$4.00 lab fee.

**3305 Secretarial Internship I\*** (W) 0-20-5  
A work experience providing application of all phases of the theory taught in the secretarial science program: taking dictation and transcribing, routine composition, duplicating processes, record and file maintenance, telephone service, reception, reservation responsibilities, itinerary maintenance, handling of expense accounts and bank accounts, follow-up systems, research of special projects, taking minutes, screening and routing mail, and procuring supplies. Four hours daily on the job. Students must enroll concurrently in 3335 Internship Seminar I.  
*Prerequisite:* 3324 or 3351

**3306 Secretarial Internship II\*** (SP) 0-20-5  
Similar to 3305. Student participation in a work situation four hours daily. Students must enroll concurrently in 3336 Internship Seminar II.  
*Prerequisite:* 3305

**3307 The Office\*** (W) 2-8-5  
This course is designed to approximate office conditions, standards, and secretarial functions. The student will perform business responsibilities in a simulated office setting. Students learn to work as an office team, set priorities, plan time, apply skills, and understand the office as an operating system. \$4.00 lab fee.  
*Prerequisite:* 3303



**3308 The Secretarial Service\*** (SP) 2-3-3  
This is a second on-campus work-experience program under simulated office conditions. Course provides further development and refinement of machine transcription and word processing skills. \$3.00 lab fee.  
*Prerequisite:* 3303

**3314 Records Management\*** (SP) 2-3-3  
This course is designed for secretaries needing a knowledge of efficient handling of business records, filing methods and systems, and principles for the selection of records equipment and supplies. \$3.00 lab fee.

**3315 Special Problems in Shorthand and Transcription\*** (SP) 2-3-3  
This course provides an opportunity to overcome individual weakness in shorthand theory and speed, in transcription from shorthand notes and dictating machines, and in language skills. It concentrates on building speed through shortcuts and increased vocabulary. Opportunity to build shorthand competency in area of prospective employment. \$3.00 lab fee.  
*Prerequisite:* 3344

**3316 Special Problems in Typing\*** (W) 2-3-3  
This course prepares the student for the typing responsibilities of an executive secretary through long, interrelated, undefined problems. Individual drills to remedy specific weaknesses in typing are provided. \$3.00 lab fee.  
*Prerequisite:* 3333

**3317 Legal Typing, Forms and Procedures\*** (W) 2-3-3  
Combined emphasis upon developing an understanding of the functions served by various legal documents and papers in the areas of real estate, corporations, probate, wills and taxation and developing an ability to produce both fill-in and completely typed papers in these areas. Work in building legal terminology, including spelling and correct usage. \$3.00 lab fee.  
*Prerequisite:* 3333

**3318 Legal Terminology and Transcription\*** (SP) 2-3-3  
To integrate and continue to build students' knowledge and understanding of legal terminology through the practical experience of taking and transcribing dictation, transcribing machine dictation, and developing shorthand rate. Practice in the preparation of legal briefs is also provided. \$3.00 lab fee.  
*Prerequisite:* 3344

**3322 Personal Development\*** (A) 2-2-3  
Guidance into an individual program of self-improvement emphasizing the physical, intellectual, emotional, and social dimensions of personality.

**3324 Secretarial Responsibilities\*** (A) 3-3-4  
A study of the daily responsibilities of a secretary. Discussion of office skills other than machine operation: receptionist duty, telephone techniques, handling telegrams and travel information, keeping office records, purchasing supplies, organizing a desk, using reference materials, setting work priorities, and getting along with people. Emphasis on developing understanding through case studies. \$3.00 lab fee.  
*Prerequisites:* 3333, 3343

**3326 Office Management and Supervision\*** (SP) 2-2-3  
A presentation of the elements involved in the sound and efficient management and supervision of the office. A study of the management of equipping, servicing, and staffing the office. Emphasis on controlling office costs and on leadership and human relations. Case studies of problems of office supervision and management.  
*Prerequisite:* 3813

**3327 Legal Office Procedures\*** (SP) 2-2-3  
This course provides instruction in procedures unique to law offices, including law office design, office management, legal filing, timekeeping and billing, and payroll. The special considerations, problems, and ethics involved in dealing with clients are also discussed. A general background of information about the American court system is provided.  
*Prerequisite:* 3324

**3331 Typing (Beginning)\*** (A,W) 2-3-3  
Introduction to the touch typewriting system with emphasis on correct techniques, mastery of the keyboard, simple business correspondence, tabulation, and forms. \$4.00 lab fee.

**3332 Typing (Intermediate)\*** (W,SP) 3-3-4  
Emphasis on the development of speed and accuracy and the mastery of correct typing techniques used in producing business correspondence, tabulations, manuscripts, reports, and business forms; and in preparing materials for duplication. \$3.00 lab fee.  
*Prerequisite:* 1 year High School typing of C or better or 3331

**3333 Typing (Advanced)\*** (SP,SU) 3-3-4  
Emphasis on developing the student's ability to function as an expert typist producing mailable copy. Application of typing ability to producing technical reports, minutes, drafts and business correspondence. \$3.00 lab fee.  
*Prerequisite:* 3332

**3335 Internship Seminar I\* (W)** 2-0-2  
This is the on-campus seminar for students enrolled in 3305 Secretarial Internship I. The course content is related to what is happening on the job to meet the needs of the participants.

**3336 Internship Seminar II\* (SP)** 2-0-2  
A continuation of 3335. This is the on-campus seminar for students enrolled in 3306 Secretarial Internship II. The course content is related to what is happening on the job to meet the needs of the participants.

**3341 Shorthand (Beginning)\* (A,W)** 3-2-4  
A foundation course in shorthand theory with emphasis on phonetics, word families, brief forms and phrases, and penmanship. Practice for speed and accuracy. \$3.00 lab fee.

**3342 Shorthand (Intermediate)\* (W,SP)** 3-3-4  
A course designed to perfect basic shorthand theory, with emphasis on phonetics, word families, brief forms and phrases, and penmanship. Practice for speed and accuracy. \$3.00 lab fee.  
*Prerequisite: 1 year High School Shorthand grade of B or better or 3341*

**3343 Shorthand (Advanced)\* (SP,SU)** 3-3-4  
A continuation of shorthand (Intermediate) intended to build accuracy and speed. Shorthand theory in several technical areas. Development of typewritten transcription skill. \$3.00 lab fee.  
*Prerequisite: 3342*

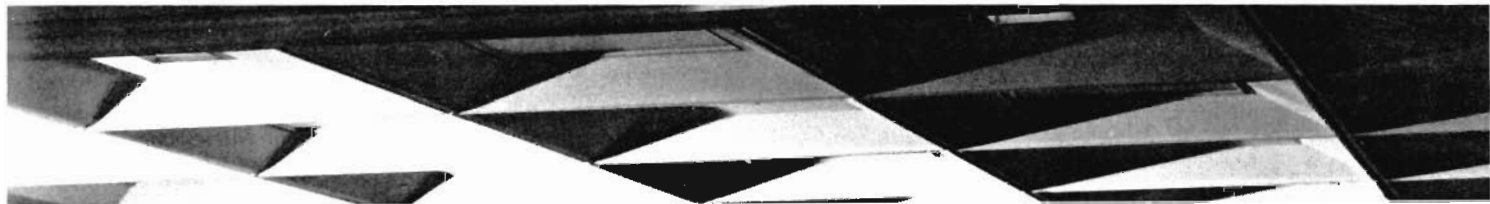
**3344 Shorthand and Transcription\* (A)** 3-3-4  
A continuation of Shorthand (Advanced) intended to build shorthand speed and accuracy with major emphasis on typewritten transcription of unfamiliar material in mailable form. Experience with office-style dictation. \$3.00 lab fee.  
*Prerequisite: 3343*

**3351 Medical Office Procedures\* (A)** 3-2-4  
This course provides an understanding of the medical secretarial environment and responsibilities. The student is involved in a wide variety of realistic situations where she performs tasks and copes with problems in a simulated medical office setting. \$3.00 lab fee.  
*Prerequisite: 3333*

**3352 Medical Terminology and Typing\* (W)** 2-3-3  
Presentation of terminology that a beginning medical transcriptionist is most likely to encounter in physical examinations, medical correspondence, and x-ray or pathology reports. This leads into terminology related to medical specialties. Medical documents are provided for transcription practice. Practice in typing medical forms found in doctors' offices and hospital record forms. Stress on accuracy and efficient work habits. \$3.00 lab fee.  
*Prerequisite: 3333*

**3353 Medical Vocabulary and Shorthand\* (SP)** 2-3-3  
Develops employable shorthand facility and transcription competency in working with medical correspondence and professional records. Further increases medical vocabulary and an understanding of medical secretarial responsibilities. \$3.00 lab fee.  
*Prerequisite: 3344*

**3354 Medical Machine Transcription\* (SP)** 2-2-3  
Machine transcription of medical correspondence, reports, and documents, and further refinement of medical terminology. Emphasis upon efficient production and accurate copy. \$3.00 lab fee.  
*Prerequisites: 3303, 3352*



# SOCIAL SERVICES DEPARTMENT

- 7501 Public Health Services\* (A)** 3-0-3  
The organization of Public Health Departments and the services provided to the community. The relationship of the social worker to the Department.
- 7502 Occupational Services\* (A)** 3-0-3  
The development of vocational information and career development information. The development of kits with necessary application forms, etc. Instruction on how to complete these forms and transmit them to the appropriate people.
- 7503 Family Planning Services\* (W)** 3-0-3  
Instruction in the broad lines of family planning with special emphasis on development of resource personnel and resource information and the giving of immediate help to families who seem to present immediate problems.
- 7504 Case Work Practices\* (A)** 3-0-3  
A study of the varying and most appropriate methods by which the social worker investigates problem situations. Case studies and practicum in the areas of personal problems and family maladjustments. Studies of local casework agencies.
- 7505 Categorical Disabilities\* (W)** 3-0-3  
A study of the many areas of disabilities as they may affect individuals of all ages. Research into the causation of psychological, social, and physical trauma; extent of manifestations within the general population; and examination of available services for those so afflicted.
- 7506 Mental Hygiene Services\* (SP)** 3-0-3  
Recognition and early identification of mental hygiene problems with special emphasis on general counseling aides and ways of transmitting the information to appropriate mental health resources for early intervention.
- 7507 Social Ecology\* (A)** 3-0-3  
A general course of instruction on recognition of high risk situations, general housing problems and the general patterns of the relationship between specific living conditions and the family in question.
- 7511 Community Services Organization\* (A)** 3-0-3  
A basic orientation course for the whole program, designed to inform the technician how to instruct families as to their rights of participation in community affairs. A study of agencies to contact, the various services provided, and the general lines of community activities available. Types of agencies include health, education, recreation, legal, and general welfare.
- 7512 Concepts of Counseling\* (W)** 3-0-3  
An introduction to the field of counseling. A broad approach which involves how best to advise others to deal with their problems. Areas include health, education, economic and social approaches.
- 7513 Family Counseling\* (SP)** 3-0-3  
An in-depth approach on how to advise families to deal with specific problems. Students use resource materials to counsel actual families. A special emphasis on how one gains specific information to meet emergent needs; how to put this into action.  
*Prerequisite: 7512*
- 7515 Case Recording\* (W)** 3-0-3  
Training and experience in assessing pertinent information and becoming proficient in preserving necessary facts. Exercises with and study of agency forms currently in use. Practice in the use of recording equipment.  
*Prerequisite: 7504*
- 7516 Home Nursing Services\* (SP)** 3-0-3  
Recognition, prevention and remediation of nursing and hygiene problems in the home. Patterns of recognition of potential areas of difficulty and sanitation risks as well as lines of long range prevention to maintain control of disease and undesirable living conditions.
- 7517 Aid-in-Crisis** 3-0-3  
Course designed to acquaint the student with practical and innovative strategies of crisis intervention required for the social service occupations. Areas covered are personal trauma, legal jeopardy, property conservation.
- 7518 Basic Food Facts** 3-0-3  
This course is designed to present basic food facts with a consideration of nutritional needs for different age groups. Emphasis is placed on the

importance of nutrition to total health. Planning and purchasing techniques to provide nutritionally adequate diets on low to moderate incomes are included.

- 7519 Family Spending** 3-0-3  
A course designed to acquaint students with the problems of budgeting and spending the family income. Areas covered are planning, buying, borrowing, sharing and protecting.
- 7521 Interview Techniques\* (A)** 3-0-3  
How to interview, how to use a previously prepared check list in gaining specific information, how to ask questions, how to observe, how to gain rapport and confidence in the families being contacted.
- 7533—7536 Field Experience Seminars III, IV, V, VI\* (A,W,SP)** 1-0-1  
Group discussions of experiences arising during Field Experiences. Integration of theory and practice. Individual reports. These seminars run concurrently with Social Service Field Experience III, IV, V, VI.  
*Prerequisite: Permission of instructor.*
- 7583—7586 Social Services Field Experiences III, IV, V, VI\* (A,W,SP)** 0-9-3  
These courses involve the student in applying his classroom studies in the field. Students are accepted by local social service organization administrators and supervisors, on a part-time volunteer basis. These professionals guide and evaluate the student performance.  
*Prerequisite: Permission of instructor.*

# WHOLESALE MID-MANAGEMENT DEPARTMENT

- 3001 Wholesaling Specialities\*** 1-2-2  
Technical information about the line of goods marketed by the student's employer. Individual study utilizing programmed teaching materials, films, and reference books. \$2.00 lab fee.  
*Prerequisites: 3002, 3081*
- 3002 Wholesaling Principles\*** 3-0-3  
An analysis of the historical development of wholesaling. Trade vocabulary. Technological changes and their impact upon traditional methods of wholesaling. The economic, social and legal environment within which wholesaling operates.
- 3003 Wholesale Case Studies\*** 3-0-3  
The application of scientific methods of case studies for the solution of managerial problems. Decision making at the managerial level. Establishing, evaluation, and recommending plans of action.  
*Prerequisite: 3813*
- 3004 Wholesale Operation and Control\*** 5-0-5  
A study of the scientific management of a wholesale enterprise. Locating, financing, and organizing a wholesale establishment. Inventory control, warehousing, and sales management.  
*Prerequisites: 3002, 3083, 3087*
- 3011 Wholesale Salesmanship\*** 3-0-3  
This course is designed for the Wholesale Mid-Management student's study of various wholesale sales positions and techniques used in outside sales, inside sales and counter sales.
- 3081 Wholesaling Internship I\*** 4  
Supervised on-the-job application of knowledge and skills acquired in the classroom.
- 3082 Wholesale Internship II\*** 4  
A continuation of 3081.  
*Prerequisite: 3081*
- 3083 Wholesale Internship III\*** 4  
A continuation of 3082.  
*Prerequisite: 3082.*
- 3085 Special Problems in Wholesaling I\*** 2  
The first of three courses in which the student applies his practical knowledge of wholesaling to specific areas of his job and submits reports.
- 3086 Special Problems in Wholesaling II\*** 2  
A continuation of 3085.  
*Prerequisite: 3085*
- 3087 Special Problems in Wholesaling III\*** 2  
A continuation of 3086.  
*Prerequisite: 3086*



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