



YEARS OF EXCELLENCE

MID MICHIGAN  
COMMUNITY COLLEGE

A diagonal collage of black and white photographs is positioned on the left side of the cover. The photos depict various scenes: students in a classroom, a group of people in a hallway, a basketball team, and a building entrance. One photo shows a group of people in a room with a sign that reads 'CENTER FOR STUDENT SERVICES'. Another photo at the bottom shows a group of people with a sign that reads 'MMCC'.

# 2015-2016

## CATALOG

The College year is composed of two semesters, one fall and one winter, there is also one spring session, and the units of academic study are recorded in credit hours. Class dates and times are published on MidWeb.

## EXAMPLE

### ENG 201 English Literature I 3(3-0)

A survey of works of major authors of English literature from Beowulf through the 18th century.

Prerequisite: ENG 112 or permission of the instructor.

### COURSE LISTING DEFINITIONS ARE AS FOLLOWS:

**Course Number and Title:** Designates the course discipline, number and title. Courses numbered 000-099 are designated to serve purposes at other than normal freshman or sophomore levels. Such courses normally will not transfer or satisfy graduation requirements. Courses numbered 100-199 are primarily introductory in scope and are normally, although not necessarily, taken during the freshman year. Courses numbered 200 and above are designed for the more advanced student and are usually elected during the sophomore year.

**Credit Hours:** The number of credits a course is assigned toward graduation.

**Lecture-Laboratory Hours:** The first number in parentheses refers to the hours the student will spend per week in the classroom, in a lecture setting. The second number refers to the instructional hours that a student will spend in a laboratory. The addition of these two figures will produce the total number of contact hours the student will spend per week in class.

**Course Description:** An explanation of the knowledge and skills gained by successful completion of the course.

**Prerequisite:** Requirements which must be met or courses which must be taken before enrolling in a specific course.

**Corequisite:** Courses which must be taken at the same time as the desired course unless previously completed.

## (ACC) ACCOUNTING

### ACC 201 Financial Accounting 4(4-0)

This course is an introduction to the accounting process including measurement, reporting, and interpretation of principles for assets, liabilities, owners' equity, revenues, and expenses. Covers service and merchandising types of businesses.

Prerequisite: BIS 120 for Business Information students only

### ACC 205 Payroll Accounting 3(4-0)

This course is designed as a study of the methods of computing wages and salaries, keeping payroll records, and making government reports. Students will practice completing government forms and filing of periodic reports. This course also introduces students to the processing of payroll through the use of the microcomputer. In addition to the classroom work, each student is required to do a minimum of one hour of individual laboratory work per week.

Prerequisite: ACC 201 recommended

### ACC 211 Managerial Accounting 4(4-0)

The emphasis in this course is on uses of accounting data internally by managers in directing the affairs of organizations. An introduction to financial statement analysis and manufacturing accounting included in addition to classroom work.

Prerequisites: Grade of C or better in ACC 201

### ACC 231 Principles of Cost Accounting 3(3-0)

This course covers the use of cost accounting as an aid to management decision making. Process, job order, and standard cost systems are covered in detail.

Prerequisite: ACC 211

### ACC 251 Tax Accounting I 3(3-0)

This course is designed for persons new or inexperienced in the preparation of federal and Michigan income tax returns. The emphasis is preparation of form 1040 and supporting schedules. Included is an introduction to computerized tax planning and preparation.

Prerequisite: ACC 201 recommended

### ACC 252 Tax Accounting II 3(3-0)

The emphasis in this course is placed on current tax law provisions. Topics include corporations, partnerships, and estates and trusts, as well as more complex individual tax returns.

Prerequisite: ACC 251

### ACC 261 Computerized Accounting 3(3-0)

An introduction to the use of computers in accounting, this course covers computerized business accounting systems including computerized payroll systems. In addition, there will be utilization of spreadsheets.

Prerequisites: CIS 130, ACC 211

### **ACC 275 Intermediate Accounting I 3(3-0)**

ACC 275 is the first of two intermediate accounting courses that describe accounting theory and principles for defining, measuring, and reporting financial information, with an emphasis on Assets. The course will provide an opportunity to understand the challenges and limitations of accounting standards in order to critically evaluate and understand financial accounting. It will require the use of spreadsheets for problem solving and analysis.

Prerequisite: ACC.211 with a minimum grade of C

### **ACC 276 Intermediate Accounting II 3 (3-0)**

ACC 276 is the second of two intermediate accounting courses that describe accounting theory and principles for defining, measuring, and reporting financial information, with an emphasis on Liabilities and Equity. Additionally, accounting for investments, leases, debt and earnings per share will be considered. Provides an opportunity to understand the challenges and limitations of accounting standards in order to critically evaluate and understand financial accounting. It will require the use of spreadsheets for problem solving and analysis.

Prerequisite: ACC.275 with a minimum grade of C

### **ACC 280 Co-Op 3(1-15)**

Co-op is a capstone course planned for the last semester of the Associate in Applied Science: Accounting Degree. The students will be employed in an approved co-op position selected by the college coordinator and will also attend a weekly one hour classroom lecture/discussion. A waiver may be allowed for the work component only with equivalent previous/present work experience as determined by the coordinator. An individual evaluation is made by the coordinator only upon student request. Documentation by the employer will be required.

Prerequisite: The student must have completed at least 45 credit hours in the Associate in Applied Science: Accounting Degree.

### **ACC 290 - 299 Selected Topics 3(3-0)**

These courses are designed to investigate various topics in Accounting not included in current courses. Topics will be announced.

## **(ALH) ALLIED HEALTH**

### **ALH 100 Medical Terminology 2(2-0)**

This course is an introduction to medical terminology. Emphasis is placed on the meaning, pronunciation, spelling, and application of common medical terms, abbreviations, prefixes, stems, suffixes, etc., as related to the human body tissues, organs, systems, etc.

### **ALH 112 Insurance Billing 3(3-0)**

This course deals with the insurance and billing processes needed to deal with the major health carriers. Students will learn how to process a variety of claim forms and will learn proper billing, record keeping, and collection procedures.

Prerequisite: ALH 100

### **ALH 125 Introduction to the Health Care Environment 3(3-0)**

This course is designed to introduce the allied health student to health care today, health care systems, functions and trends, ethical and legal responsibilities in health care, workplace safety, handling hazardous materials, reporting hazardous activities, emergency preparedness, ergonomics, infection control, controlling health care costs, historical background, interpersonal-relationships, future roles, and successful employment strategies. The student will be introduced to health care professional organizations. The course provides the student with the foundation upon which other courses build and expand.

Prerequisites: ALH 100

### **ALH 212 Clinical Procedures I 3(2-2)**

This class is an introduction to common procedures performed in the medical office setting for the Medical Assistant. A course designed with emphasis on safe, accurate administration of medications. Through use of the text, the students will acquire knowledge of drug actions, major side effects, and techniques of administration as well as gain basic skills necessary to assist the physician in the examination of, diagnosis and treatment of patients in the office setting.

Prerequisite: Admission to the Medical Assistant Program

Corequisite: ALH 213

### **ALH 213 Pharmacology for Medical Assistants 3(2-2)**

Competency-based objectives to guide Medical Assistant students in their study of each unit in the Pharmacology text. This class stresses the rights of drug administration, including drug administration procedures that include standard precautions, purpose, equipment/supplies, and procedure steps to administering medications. Emphasis is placed on the legal implications of drug therapy, safety, and accuracy in calculating and administering medications.

Prerequisite: Admission to the Medical Assistant Program

Corequisite: ALH 212

### **ALH 214 Clinical Procedures II 3(2-2)**

Introduction to clinical duties of the Medical Assistant student related to medical specialties. Review of anatomy and physiology of the human body. Disorders of the human body, diagnostic and therapeutic procedures are emphasized and critical thinking is utilized in caring for patients in the medical office.

Prerequisites: ALH 212, ALH 213 with a minimum grade of C.

Corequisite: ALH 230

### **ALH 220 Medical Law and Ethics 3(3-0)**

This course is designed to teach the legal and ethical aspects of employment in health care delivery. Case studies will be reviewed and students will become familiar with the principles of medical ethics as they apply to both physicians and medical assistants. A few of the topics to be covered are: patient obligation in a medical contract, patient confidentiality, standards of care, physicians liability for employees, release of information, and patient rights and responsibility in receiving medical care.

### **ALH 230 Laboratory Procedures for the Medical Office 4(3-2)**

This course is designed primarily for the allied health field, and medical assistant students in particular. The student should have a basic understanding of both biological principles and anatomy and physiology. The student will, through lecture and lab, gain an understanding of the theory of laboratory procedures as well as the skills to perform accurately in the Physician's Office Laboratory (POL) setting.

Prerequisite: ALH 212, ALH 213

Corequisite: ALH 214

### **ALH 250 Medical Assisting Office Externship 4(0.5-10.5)**

This externship course provides supervised and professional work experience in a medical office setting and will include both administrative and clinical procedures. Written projects and reports will enable the student to develop management skills, professional communications and critical thinking skills.

Prerequisite: ALH 212, ALH 213, ALH 214, ALH 230.

### **ALH 260 Review of Clinical Procedures 5.5(3-5)**

This course is designed for students who have taken ALH.212, ALH.213, ALH.214, and ALH.230 and did not complete their externship within 12 months of these courses. It is a review of the functions, roles and responsibilities of a medical assistant in a medical office setting. Students will practice competencies from textbook chapters on clinical skills like venipuncture, various injections, vital signs, EKGs, wound and patient care, sterile and infection control techniques and must demonstrate and perform them with 100% accuracy. Students will also review and be assessed on their knowledge of system disorders, diagnostic techniques, therapeutic procedures, allergy testing, medication dosing, illnesses and disorders. Students will be given a comprehensive exam over chapters covered in the text and must pass with a minimum score of 75% to successfully complete the course.

Prerequisites: ALH.212, ALH.213, ALH.214, and ALH.230 and permission of MA Program Director

### **ALH 295-299 Current Topics in Allied Health 3(3-0)**

These courses are designed to investigate various topics in health not included in current courses. Topics will be announced.

## **(AMS) AUTOMOTIVE SERVICE**

### **AMS 104 Basic Automotive Electricity 2(2-1)**

Studies fundamentals and applications in automotive electrical, electronics, voltage, current, resistance, series and parallel circuits, magnetism, application of Ohms Law, and wiring diagrams. Develops skills in establishing an electrical base for advanced electrical/electronic courses through the use of meters and test equipment.

### **AMS 110 Engine Fundamentals & Overhaul 4.5(2-5)**

Studies will include engine principles, design construction and operation. Skill development of proper service procedures of modern gas engines will be stressed. The student will remove and replace an engine from a car or light truck. They will also disassemble and reassemble a complete engine with emphasis on manufacturer's specifications and procedures.

### **AMS 116 Electrical Systems I: Electrical Accessories 3(2-2)**

Studies lighting systems, instruments, warning devices, horn, and other accessory circuits using wiring diagrams. Develops skills in diagnosis, adjustment and repair of accessory and convenience circuits.

Prerequisite: AMS 104 (may be taken concurrently) or Instructor approval

### **AMS 124 Automotive Heating & Air Conditioning 4(2-3)**

Studies passenger car and light truck cooling, heating and air conditioning system operation and diagnosis. Will also cover the 134A system service. Develops skills in diagnosis and repair of the cooling, heating and air conditioning system components.

### **AMS 125 Engine Performance I 5(2-6)**

Studies review of basic electricity and magnetism, fundamentals of electronics, basic ignition systems, basic fuel systems and introduction to emission systems. This course establishes a base for advanced work in AMS 126.

### **AMS 126 Engine Performance II 5(2-6)**

Studies units of instruction on G.M., Ford and Chrysler throttle body and multi-port fuel injection systems. Also covers distributorless ignition systems and OBD II operation and service. The students will be performing operational tests on late model cars using scan tools and other special test tools. They will be doing drivability testing and troubleshooting on late model cars.

Prerequisites: AMS 104, AMS 125, OR State certified in engine tune-up area

### **AMS 205 Steering & Suspension Systems 4(2-4)**

Studies suspension and steering systems. Skill development will be focused on subframe alignment, steering, suspension, and four wheel alignment.

### **AMS 206 Brakes 4(2-4)**

Studies brake systems. Skill development will be focused on drum, disc, hydraulic, power assist, and anti-lock brake systems.

### **AMS 214 Automatic Transmissions 4.5(2-5.5)**

Studies passenger car and light truck automatic transmissions terminology, operation, service and diagnosis. Develops skills in service and repair of passenger car and light truck conventional and computer-shifted front-wheel and rear-wheel drive transmissions.

### **AMS 222 Manual Transmissions 4(2-4)**

Studies passenger car and light truck clutches, manual transmissions, drive shafts, differentials, transaxles, front-drive axles, and transfer cases operation, service and diagnosis. Develops skills in diagnosis and service of clutches, manual transmissions, drive shafts, differentials, transaxles, front-drive axles, and transfer cases.

### **AMS 223 Electrical Systems II: 4(2-4)**

Studies battery service, cranking systems, and charging systems. Develops skills in diagnosis, adjustment and repair of battery, cranking and charging systems.

### **AMS 232 Co-Op 4(1-15)**

This course is a 15 hour, 15-week internship at an automotive dealership repair facility, or automotive repair facility that provides hands-on skills to enhance the professional qualifications and employment opportunities for students.

### **AMS 295 Special Topics 1-3(1 to 3-0)**

This course is designed to investigate various topics in Automotive Technology that are not included in current courses. Topics will be announced. This course is offered based on demand.

## **(ANT) ANTHROPOLOGY**

### **ANT 170 Introduction to Cultural Anthropology 3(3-0)**

The student is introduced to the process of culture evolution as well as other anthropological theories. The purpose is to give the student an understanding of the underlying unity of the human experience while, at the same time, providing insight into cultural variability.

## **(ART) ART**

### **ART 105 Drawing I-Introductory 3(3-0)**

A basic introduction to drawing media and techniques and an exploration of the concepts of space and form in varied subject matters.

### **ART 110 Basic Photography 3(3-0)**

This course is designed for persons wanting a working knowl-

edge of cameras, lenses, and fundamentals of photography. Topics covered include: f stops, shutter speeds, depth of field, film selection, composition, electronic flashes, and other basics. Students will be introduced to the black and white darkroom where they will develop film and produce prints.

### **ART 115 Design I 3(3-0)**

Elements and principles of design and experiences with materials in problem situations.

### **ART 130 Painting I 3(3-0)**

An introduction to painting with the exploration of media, techniques, and the concepts of space, form, and color.

### **ART 135 Graphic Design I 3(3-0)**

An introduction to the concepts and techniques of visual communication. The focus is on typography, page layout, grid structure, production requirements, design history and the design problem-solving process.

### **ART 137 Digital Photography 3(3-0)**

An introduction to digital photography and computer software used in photo manipulations. Students will learn various techniques in creating enhanced images, including color balance, sizing, sharpening. Students will learn how to download images from digital cameras and to scan photographic prints and film. Students will learn correct file formats for output and print management. Discussions will also include composition, lighting, and personal creativity.

Prerequisites: ART 110 or permission of instructor

### **ART 150 Printmaking 3(3-0)**

Introduction to the basic techniques of woodcut and printing as a fine art.

### **ART 152 Introduction to Website Design 3(3-0)**

This course introduces the fundamentals of web design utilizing graphic design software, including Dreamweaver, and WISIWIG editors. Students will explore web based concepts, contemporary methods of applying media and dynamic rich content to their websites by applying a working knowledge of XHTML/HTML and Cascading style Sheets. Final course outcome is an online web portfolio.

Prerequisite: CIS.100.

### **ART 205 Drawing II 3(3-0)**

A concentration of experimental media, techniques, spatial relationships, and conceptual processes of drawing.

Prerequisite: ART 105

### **ART 206 Comic Book and Graphic Novel Illustration 3(3-0)**

This course is designed to give students a comprehensive introduction into the concepts and techniques used in the creation of comics and sequential art. Students will explore character development, layout, timing and illustration styles used in this specialized field, with specific focus on both print and digital media outlets.

### **ART 210 Illustration 3(3-0)**

Development of conceptual and technical skills in drawing for reproduction using various media.

Prerequisites: ART 235, ART 205

### **ART 211 Page Layout I 3(3-0)**

This course introduces the student to the software and tools used in page layout. Emphasis is on learning the software and tools and applying basic design principles in the production of files for final output. Students will learn the fundamentals of page layout, typography, effective use of color, proofing, and preparing print ready documents.

### **ART 215 Design II 3(3-0)**

Continuation of Design I, elements and principles of two-dimensional design. Introduction to three-dimensional design through problem-solving exercises.

Prerequisite: ART 115

### **ART 220 Figure Drawing 3(3-0)**

Students will learn to draw the human figure based on an understanding of anatomy, proportion, perspective, and the effect of light.

Prerequisite: ART 205 or permission of Instructor.

### **ART 230 Painting II 3(3-0)**

Continuation of the aims of Painting I with emphasis on personal development.

Prerequisite: ART 130

### **ART 235 Graphic Design II 3(3-0)**

A continuation of ART 135 with an emphasis on the integration of type and image in visual communication. Focuses on an exploration of tools, techniques, and hands-on skills required in the creation of professional illustrations and graphics.

Prerequisites: ART 135

### **ART 236 Graphic Design III 3(3-0)**

Continuation of ART 235 with an emphasis on refining problem-solving skills required in a professional environment. Focuses on research and analysis of visual communication, as well as the creation of portfolio-building projects.

Prerequisite: ART 235 or permission of Instructor

### **ART 237 Photography II 3(3-0)**

This course is a continuation of ART 110 Basic Photography. Students will be given advanced projects in exposure, lighting, motion control, depth control, film and composition. Projects will be completed in black and white film, with the students processing and printing their own projects.

Prerequisites: ART 110

### **ART 238 Advanced Desktop Publishing 3(3-0)**

This course examines the process of taking a design layout successfully through the stages of a computer page layout software program, pre-press, proofing, printing, finishing and binding. Students will learn the use of scanners, halftones, color separations, proper resolutions, and effective fonts.

Prerequisite: CIS 210 or permission of the Instructor

### **ART 239 Page Layout II 3(3-0)**

This course is a continuation of ART 211 Page Layout I. Students will be assigned advanced page layout projects. This course will examine all aspects of production as they relate to print, including correct document construction, color space and color systems, separations, preflight, print production and paper considerations. Projects will focus on the use of effective design principles, proper file preparation, preflight of files, and production process.

Prerequisite: ART 211

### **ART 240 Studio Problems in Graphic Design 3(3-0)**

An opportunity for students to work independently on projects related to the graphic design industry. Included in the course will be individual assistance in preparing a portfolio for seeking employment or further education.

Prerequisites: ART 110, 130, 205, 215, 236, and 239

### **ART 241 Portfolio 1(1-0)**

In this course the student will be taken through the process of preparing an art portfolio, resume and artist statement based on their individual needs for the purpose of transfer to a 4-year college for further study or promotion of their artwork. Students will be guided through the process of selection of artwork, documentation, and compilation of the portfolio as well as the writing of a resume and artist statement.

Prerequisite: Permission of instructor

### **ART 245 Art in the Elementary School 3(3-0)**

An investigation of how art fits into the Elementary School Curriculum and what its impact is on all elementary children. To be presented through lecture, readings, slides or prints, and a team teaching experience by all participants. (\*Note: Please be advised that ART 245 will transfer to Central Michigan University as ART 345 only if: 1) the student has successfully completed EDU 107; and 2) 45 clock hours of pre-professional experience in K-12 classroom.

### **ART 247 Contemporary Photography 3(3-0)**

This course is designed for the student who has completed Art 110 and Art 137 and now wishes additional hands on practical experience using the concepts and principles learned in these classes. Students will learn more advanced techniques and will be able to apply these techniques to projects a professional photographer might encounter.

Prerequisites: ART 110 and ART.137

### **ART 252 Website Design II 3(3-0)**

This course introduces advanced web design techniques utilizing open source e-commerce content management system (CMS), Apache web server distribution software, graphic design software, such as Dreamweaver, advanced CSS and an introduction to PHP. Students will apply media and dynamic rich content to their CMS designs by applying a working knowledge of XHTML, Cascading Style Sheets, PHP and Apache. Final course outcome is an online e-commerce web portfolio.

Prerequisite: CIS 135 or ART 152.

### **ART 254 Motion Graphics 3(3-0)**

This course will focus on video pre and post-production for the purpose of commercial use, including video editing, sound production, operating production equipment, lighting and industry standard digital effects. Students will apply media and dynamic rich content to their motion graphics and video projects. Final course outcome is a video portfolio.

### **ART 255 Emerging Web Technologies 3(3-0)**

This course is a continuation of ART.252 Website Design II. It introduces advanced, emerging technologies in web design/multimedia design and current emerging web technologies. This is a growing field and will give graphic design students opportunities to expand their background in current web technologies. The final course outcome is a functional, online portfolio.

Prerequisite: ART.252.

### **ART 256 Business in Art-Entrepreneur 3(3-0)**

This course will train students in the business of art, graphic design and in an introduction to small business ownership. It is designed for students seeking key opportunities to attain professional development, self-employment and administrative potential in the art and design industry or to prepare students to transfer their coursework towards further undergraduate study.

Prerequisite: ART.252 or permission of instructor.

### **ART 280 Independent Study in Art I 3(3-0)**

An opportunity for advanced students to work with an instructor on individualized projects in various selected media.

Prerequisite: Permission of the Instructor.

### **ART 281 Internship I 3(1-15)**

Designed to provide on-site work experience in a business environment. Under cooperative supervision by the College

and the work-site Supervisor, students will further develop skills and gain training in the design field.

Prerequisite: Permission of the Internship Coordinator

### **ART 282 Internship II 3(1-15)**

Continuation of ART 281. Designed to provide on-site work experience in a business environment. Under cooperative supervision by the College and the work-site Supervisor, students will further develop skills and gain training in the design field. Prerequisites:

ART 281 and permission of the Internship Coordinator

### **ART 285 Independent Study in Art II 3(3-0)**

Continuation of ART 280.

Prerequisites: ART 280 and permission of the Instructor

### **ART 290-299 Special Topics 3(3-0)**

This course is designed to investigate various topics in Art that are not included in current courses. Topics will be announced. This course is offered based on demand.

## **(BIO) BIOLOGY**

### **BIO 100 Introduction to Biology 4(3-2)**

BIO 100 is a non-major, introductory course in Biology for students who have not had any previous Biology instruction and have no intention of obtaining a Biology or Health-related degree. Students will apply fundamental principles of Biology to evaluate and better understand current life sciences issues

### **BIO 101 College Biology 4(3-2)**

Survey of major topics in biology, with emphasis on cell structure, physiology, reproduction, genetics, evolution, behavior, and morphology of plants and animals.

### **BIO 110 Concepts in Microbiology 1(1-0)**

This course is an introductory study of microorganisms such as bacteria, fungi, algae, viruses, & protozoa. The disease process involving these microorganisms will also be studied.

Prerequisite: BIO 101 with a minimum grade of C.

### **BIO 120 Introduction to Human Disease 3(3-0)**

This course is designed to introduce the student to the structure of common diseases, signs, symptoms, causes and effects, as well as treatment. Students will learn how the different diseases relate to the different body systems, and other conditions. \*ALH 100 Recommended

### **BIO 131 Basic Anatomy & Physiology 3(3-0)**

This is an introductory course to Anatomy and Physiology. It is assumed that students enrolling in this course have limited background in chemistry and biological science. The major topics presented in the course are biological principles, skeletal, muscular, integumentary, nervous, circulatory, respiratory, digestive, excretory, endocrine, and reproductive organ systems.

Prerequisite: BIO 101 with a minimum grade of C.

### **BIO 135 Human Anatomy and Physiology 5.5(4-3)**

This course provides students with an intensive, in-depth introduction to the structure and function of all human body organ systems. The emphasis is on homeostasis of body systems under normal structure and function, with the inclusion of some pathologies. The laboratory portion includes dissections, study of anatomical models and slides, and physiological experiments.

Prerequisites: BIO 101 with a minimum grade of C, or successful completion of BIO 135 entrance exam

### **BIO 141 Anatomy & Physiology I 4(3-2)**

A lecture and laboratory course dealing with the anatomy and physiology of the human body with emphasis on homeostasis. Topics include skeletal, muscular, integumentary, nervous system.

Prerequisite: BIO 101 with a minimum grade of C.

### **BIO 142 Anatomy & Physiology II 4(3-2)**

This course is a continuation of BIO 141. Topics include: respiratory, excretory, endocrine, reproductive, circulatory and digestive systems. Emphasis is on physiology and integration of the systems of the body.

Prerequisite: BIO 141

### **BIO 201 Botany 4(3-2)**

Structure and function of major groups of plants with emphasis on metabolism and reproduction.

Prerequisite: BIO 101 with a minimum grade of C.

### **BIO 202 Field Ecology 3(3-2)**

An introduction to a field study of basic ecology, with emphasis on the interactions between plants, animals, humans, and the environment.

### **BIO 203 Zoology 4(3-2)**

Structure and function of major groups of animals with emphasis on complete study of selected types.

Prerequisite: BIO 101 with a minimum grade of C.

### **BIO 204 Human Genetics 3(3-0)**

This is an introductory course dealing with principles of inheritance as they apply to humans. This course assumes no prior

background in biology or chemistry. The topics considered are basic genetic principles, molecular basis of inheritance, regulation of gene expression, mutation, and the application of these principles to human heredity. Special emphasis is given to genetic disorders and the new technologies developed to deal with them.

### **BIO 210 Microbiology 4(3-3)**

Microbiology involves a study of the bacteria, fungi, algae, viruses, protozoa, and other related micro-organisms and their relationship to our society. The laboratory acquaints the student with standard handling and culture techniques of most of these organisms, the preparation of culture media, classification techniques, representative micro-organisms (living and prepared slides) of the various groups, standard staining methods, and a number of biochemical tests.

Prerequisite: BIO 101 with a minimum grade of C, OR High School Advanced Placement Biology course, completed within the past 3 years, with a minimum grade of B.

### **BIO 215 Radiation Biology 1(1-0)**

This course is an introductory study of the biological effects of exposure to ionizing radiation. Topics include factors affecting radiosensitivity, hematologic effects, and radiation induced malignancy.

Prerequisite: BIO 101 with a minimum grade of C.

### **BIO 221 Nature Study 3(2-2)**

Practical knowledge of the out-of-doors is stressed. Collection and identification of plants and animals and field activities included.

Prerequisite: BIO 101 recommended

### **BIO 245 Advanced Anatomy & Physiology/ Intro to Pathophysiology 4(4-0)**

This course is an advanced study of the concept of Anatomy & Physiology with an emphasis on the disease process. It is intended for those students that have previously completed Anatomy & Physiology I & II more than 5 years ago and less than 10 years ago, and also for those students who would like to increase their knowledge of this subject matter. Pre-RAD or Pre-NUR students must complete this course with a grade of B- or better to qualify for admission into the program.

Prerequisite: BIO 141 & 142 completed less than 10 years ago.

### **BIO 268 Independent Study in Biology 1(1-0)**

This course is designed for students who desire to advance their understanding and challenge their ability in specialized areas of biology. Library, laboratory and/or field research is required, as is a written report at the completion of the course.

Prerequisites: Satisfactory completion of at least one laboratory biology course and permission of the Instructor

### **BIO 2909 Selected Topics 5(6-0)**

Courses designed to investigate various topics in Biology not included in current courses. Topics will be announced.

### **BIO 291-299 Selected Topics 3(3-0)**

Courses designed to investigate various topics in Biology not included in current courses. Topics will be announced.

## **(BIS) BUSINESS INFORMATION SYSTEMS**

### **BIS 120 Office Mathematics 3(3-0)**

This course covers basic mathematical operations & concepts as applied to a variety of business and personal situations. Examples of topics: review of arithmetic operations, fractions, decimals, mortgages, taxes, checking accounts, payroll, & consumer & business credit.

### **BIS 126 Introduction to Medical Transcription 3(3-0)**

This course serves as an introduction to processing medical reports. Students prepare consultation reports, history and physical examination reports, operative reports, discharge summary reports, and special procedure reports including magnetic resonance imaging (MRI) reports, computerized axial tomography (CAT) reports, and sonogram reports. An integrated instructional approach is used where students learn medical terms as they appear in medical reports and relate those terms to the pathologies being treated. This course is an introduction to machine transcription for students pursuing the Associate in Business Degree: Medical Transcriptionist.

Prerequisite: BIS 140 or competency

Corequisite: ALH 100 recommended

### **BIS 127 Applied Office Accounting 4(4-0)**

This course covers basic accounting skills needed in the medical and legal office. Emphasis is on both the how and why of accounting and on performing the accounting function. A practice set will be used to simulate accounting transactions in the medical or legal office-based on the student's program emphasis.

Prerequisite: BIS 120 Prerequisite for Medical Assistant only: MAT 104

### **BIS 136 Terminology and Proofreading 3(3-0)**

This course helps the student build a better vocabulary & improve spelling & proofreading skills. Three hundred groups of commonly confused words & special lists of frequently misspelled terms are studied. Topics include working with the dictionary, pronunciation, phonetics, word division, prefixes and suffixes, plurals & possessives, & specialized & reference vocabularies. Students improve proofreading skills by identifying errors in typing, spelling, grammar, punctuation, capitalization, format, numbers, word division, & content using appropriate proofreaders marks.

Prerequisites: BIS 164, ENG 111 may be taken concurrently

### **BIS 138 Basic Legal Terminology 3(3-0)**

This course is designed to give students knowledge and understanding of approximately 800 terms commonly used in

the legal field. The students will learn to spell and define the terms and to use them in a legal context. Students will learn correct pronunciation by studying pronunciation guides taken from the dictionary and by listening to CDs. Topics covered include courts and legal systems; litigation, pretrial, trial, proceedings, verdicts, judgements, and appeals; civil actions; criminal law; probate, wills and estates; real property; contracts; leases; domestic relations, marriage, separation, and divorce; commercial paper; bankruptcy; agency; equity; partnerships; and corporations.

Prerequisites: BIS 140 or equivalent or concurrent enrollment, BIS 164 recommended or concurrent enrollment

### **BIS 140 Beginning Word Processing/Keyboarding 3(3-0)**

This course is for the beginning typist. Topics include mastery of the touch system, development of personal-use skills, basic letter styles, term papers, tabulation, and centering using the most current word processing software. Speed ranges of 25-40 words a minute are needed to pass.

### **BIS 142 Intermediate Word Processing/Keyboarding 3(3-0)**

This course is designed to build a marketable keyboarding (typewriting) skill. Business letters, business forms, speed, and accuracy are stressed. Students will use the most current word processing software to create documents. Speed ranges of 40-55 words a minute are needed to pass.

Prerequisite: BIS 140 or equivalent

### **BIS 164 Business Communications I 3(3-0)**

Students will learn/review basic grammar rules, punctuation rules, and sentence structure. Students will use the computer and current word processing software for realistic business office applications of the rules. Students will be introduced to machine transcription and will learn to use office reference manuals.

Prerequisite: Recommend concurrent enrollment in BIS 140 or BIS 100 or knowledge of correct keyboarding techniques.

### **BIS 200 Advanced Word Processing Applications 3(3-0)**

This course gives students hands-on experience and exposure to a wide variety of advanced word processing applications using computers and the most current word processing software. The advanced word processing features included teach students the skills needed to pass expert certification exams. These exams validate a student's skills, and supply objective proof to an employer, or prospective employer, that the student knows how to use the software efficiently and productively. Microcomputers are used to produce a wide variety of documents, as well as ways in which the software program interacts with Windows and the Internet. Practice exercises and assignments are the primary source of instruction on the microcomputer. Microsoft Office Specialist (MOS) approved software is used to provide students with skills needed to complete the MOS Expert Certification Exam.

Prerequisites: BIS 140 or equivalent, BIS 130 recommended

### **BIS 221 Computers in Business I 3(3-0)**

This course provides insight into the applications of the computer in modern business. The student will study the components of a business computer system, typical applications involving mainframe and personal systems, structure, use of files and databases, and the concepts of networking, teleprocessing, and distributed systems; explore the techniques of business computer system development; and also develop skills in using productivity programs such as databases and spreadsheets to build models solving practical business problems.

Prerequisite or Corequisite: ACC 201

### **BIS 230 Transcription I 3(3-0)**

Using the computer, current word processing software, transcription machines and a variety of reference materials, students develop skill and accuracy in transcribing from CDs and producing mailable documents. Transcription begins with sentences and expands to business letters and other correspondence. Emphasis is placed on correct spelling, grammar, and punctuation skills and proofreading.

Prerequisites: ENG 111, BIS 130, BIS 136, BIS 142, BIS 164

### **BIS 234 Transcription II 3(3-0)**

This course is an intense application of skills learned in business communications, English, keyboarding/word processing, transcription, and other BIS courses. The students transcribe dictated material into high-quality (mailable) typewritten documents using computers, current word processing software, CDs, and a variety of reference materials. To provide a realistic experience, a word processing simulation is used.

Prerequisites: BIS 200, BIS 230, BIS 240

### **BIS 236 Medical Transcription I 3(3-0)**

This course is an intense application of skills learned in business communications, English, keyboarding, transcription, & medical terminology. The students transcribe dictated material into high-quality (mailable/usable) documents using computers, current word processing software, transcribing machines, & a variety of reference materials. To provide a realistic experience, a medical simulation is used along with dictated documents on CDs.

Prerequisites: ALH 100, BIS 142, BIS 230

### **BIS 238 Legal Transcription 3(3-0)**

This course is an intense application of skills learned in business communications, English, keyboarding/word processing, transcription, and legal terminology. The student will transcribe dictated material into high-quality (mailable) documents using computers, current word processing software, cassette transcribing machines, and a variety of reference materials. A legal simulation will be used along with dictated documents on CD recordings.

Prerequisites: BIS 138, BIS 200, BIS 230, BIS 240

### **BIS 240 Advanced Word Processing/Keyboarding 3(3-0)**

Advanced keyboarding (typewriting) techniques as related to mailable production work are emphasized. Problem-solving ability is developed. To provide a realistic experience, a word processing simulation is used. Speed ranges from 55 to 70 words a minute are needed to pass.

Prerequisites: ENG 111, BIS 136, BIS 142, BIS 200

### **BIS 246 Medical Transcription II 3(3-0)**

This course is a continuation of BIS 236 Medical Transcription. Students continue to build their medical terminology knowledge and to transcribe and format high-quality (mailable/usable) medical documents according to guidelines set by the American Association for Medical Transcription (AAMT). Students use computers, current word processing software, CDs, and a variety of reference materials. A medical simulation is used, giving students opportunities to hear and transcribe realistic dictation in many medical specialties as dictated by medical professionals from various ethnic groups.

Prerequisite: BIS 236

### **BIS 250 Records Management 3(3-0)**

Emphasis is given to clear-cut rules established by the Association of Records Managers and Administrators (ARMA) for the alphabetic indexing and cross-referencing methods (the foundation of records storage methods), as well as the numeric, geographic, chronological, and subject methods. Students are provided realistic records management situations through the use of a simulation. Topics include creation, storage, retrieval, retention, and disposal of records as well as careers in records management. In addition to traditional/paper storage, students use the computer and current software for information storage and retrieval.

Prerequisites: BIS 130 or CIS 100, BIS 140 or equivalent

### **BIS 254 Office Procedures 3(3-0)**

This is a capstone course planned for the last semester of the student's program and is an intense application of skills learned in previous courses. Topics include dress and grooming for business, human relations, telephone etiquette, dictation techniques, job search strategies, effective research and oral presentation techniques, interview preparation, self-analysis and self-improvement, professionalism, and problem solving. Students participate in mock employment interviews and program assessment exit interviews with BIS advisory committee members. Other forms of BIS program assessment may be required. The student continues with preparation of high-quality (mailable) documents from both dictated and rough draft materials.

### **BIS 255 Medical Office Procedures 3(3-0)**

This is a course that introduces and teaches medical assisting administrative tasks; teaches records management, medical communications, and scheduling skills; and describes procedures for preparing patients' charts and bills. Medical practice management and finances are also addressed. Multi-day simulations provide real-world experience with physician dictation. Topics include dress and grooming for business, human relations, telephone etiquette, dictation techniques, job search strategies, effective research and oral presentation techniques, interview preparation, self-analysis and self-improvement interviews.

Prerequisites: BIS 130 or CIS 100, BIS 140

### **BIS 256 Medical Transcription III 3(3-0)**

This course is a continuation of BIS 246 Medical Transcription II and is the capstone course on the Associate in Business Degree: Medical Transcriptionist program. Students continue to build their knowledge of medical terminology and to transcribe and format high-quality medical records according to guidelines set by the American Association for Medical Transcription (AAMT). Students use microcomputers, word processing software, CDs, and a variety of reference materials. A medical simulation is used, giving students opportunities to hear and transcribe realistic dictation in several specialties as dictated by medical professionals from various ethnic groups. Students are also given critical-thinking and problem-solving scenarios.

Prerequisite: BIS 246

### **BIS 260 Business Information Systems Co-Op 4(1-15)**

This is a capstone course planned for the last semester of the students program. Students will be employed in an approved Co-op position selected in conjunction with the BIS Co-op course instructor, the MMCC Co-op Coordinator, and the student. This course allows students to combine learning in the classroom with learning in the workplace. An agreement is signed by the student, the employer, and the coordinator to establish training outcomes and employer expectations. MMCC cannot guarantee that Co-op positions are paid positions.

Prerequisites: In order to be placed in a training site and enrolled in BIS 260, the student should have completed the first three semesters of the program and must have approval of the BIS Co-op instructor and the MMCC Co-op Coordinator.

### **BIS 264 Business Communications II 3(3-0)**

This course studies approaches to verbal and nonverbal communications in business-related situations. Students will prepare written correspondence including business letters and formal business reports. Students will learn techniques for effective oral presentations including the basic creation and use of PowerPoint slides. Internet use is emphasized throughout the course.

Prerequisites: BIS 164 or ENG 111

### **BIS 290-299 Special Topics 3(3-0)**

These courses are designed to investigate various topics in Business Information Systems that are not included in current courses. Topics will be announced. These courses are offered based on demand.

## **(BUS) BUSINESS**

### **BUS 105 Food/Beverage Management 3(3-0)**

This course is designed to move the students through the various management steps involved in food service. Food production issues are studied from a managerial point of view. Standards in food production and beverage service are a focal area of the course. This course is designed to build the skills necessary to operate a successful and profitable food service operation.

### **BUS 122 Management Theory & Practice 3(3-0)**

An analysis of the manager's job including functions, activities, problems, and responsibilities. The course is designed for first-line supervisors as well as those engaged in middle-management positions. A study is made of reasons why some managers fail and others succeed.

### **BUS 151 Introduction to Business Issues 3(3-0)**

A broad, introductory approach to the principles, practices, and procedures employed in modern business and industrial operations. Topics include: business organization, management, the role of stockholders, wholesale and retail marketing, finance and insurance, and location and site determination. An analysis is made of the current issues facing the business environment.

### **BUS 153 Business Law 3(3-0)**

Deals with the principles of the law of contracts and agencies and with the legal implications of the partnership and corporate forms of business organization.

### **BUS 161 Principles of Merchandising 3(3-0)**

A detailed study of all phases of the movement of goods from the producer to the consumer. Particular attention is paid to the role of retailers and businesses that provide services to the consumer.

### **BUS 162 Principles of Marketing 3(3-0)**

Introduction to the field of marketing, including history, market environment, marketing mix, specialized fields, and marketing arithmetic. A study of the marketing functions such as buying, selling, transportation, storage, financing, and pricing is included.

### **BUS 171 Principles of Sales 3(3-0)**

Basic principles of sales techniques and personality, selection of sales force, personalities of customers, and methods of increasing sales are covered.

### **BUS 202 Legal Environment of Business 3(3-0)**

Introduction of the concept and use of law as a social institution.

### **BUS 221 Purchasing and Inventory Control 3(3-0)**

Presents a fundamental and practical approach to the problem of buying and basic merchandise control. Subject matter includes planning budgets and stock control through sales analysis.

Prerequisite: Grade of C or better in ACC 201

### **BUS 222 Labor and Management Relations 3(3-0)**

This course covers the scope of industrial personnel management with emphasis upon procuring, developing, maintaining, and effectively using the work force. Attention is given to job analysis and evaluation and union-management relationships.

Prerequisite: BUS 122

### **BUS 225 International Business 3(3-0)**

This course analyzes environmental changes as the firm expands globally. Emphasis is placed on the understanding and utilization of diversity and ethics in the development, operation and international expansion of the firm. Multi-cultural work environments, employment and labor issues, domestic and international law, global marketing, trade and finance will be examined.

Prerequisites: None

### **BUS 231 Principles of Advertising 3(3-0)**

A survey of advertising as an instrument of modern business including various forms of advertising. Particular attention is paid to advertising for small and medium-sized businesses engaged in providing services and goods to the consumer.

### **BUS 241 Supervision and Personnel Administration 3(3-0)**

Covers the role of supervision and personnel administration in large and small organizations. Develops techniques for hiring, training, developing, motivation, and evaluating of personnel. Covers wage, salary, and fringe-benefit administration.

### **BUS 250 Entrepreneurial Management 3(3-0)**

A course for those persons interested in operating a small business. Course content includes financial, marketing, production management, and legal and governmental considerations which the proprietor of a successful business must manage. The course places emphasis on analysis of actual small business case studies.

### **BUS 255 Entrepreneurial Finance 3(3-0)**

A course designed for persons desiring to operate or presently operating a small business. Course content includes the study of acquiring business ownership, initial financial planning, and on-going financing requirements. The course emphasizes actual case studies.

Prerequisite: ACC.201 and MAT.105. It is recommended that students also have completed MAT 116, BUS 151, and either ECO 201 or 202.

### **BUS 289 Business Practicum 1(1-0)**

This is a capstone course that will assess the graduating students' ability to apply the acquired knowledge in order to solve a real-life business situation. Students will demonstrate the ability to research the market in order to identify profitable opportunities to introduce a specific product in the Mid Michigan area. Students will articulate their findings in the form of a business plan, which will consist of the company's mission, organizational chart, marketing plan, and pro-forma financial statements.

Prerequisites: CIS.100, ACC.201, BUS.122, BUS.151, BUS.153, BUS.162, BUS.231, and either ECO.201 or ECO.202.

### **BUS 291 Business Internship 3(1-15)**

Students will work in part-time jobs directly related to their degree programs. Training sessions are held with the employer, instructor, and student. The internship will be limited to students within one semester of graduation and will be used as a capstone course for Management & Marketing, Hospitality Management, and Small Business Management majors only.

Prerequisite: Permission of the Internship Coordinator

### **BUS 293-299 Current Topics in Business 3(3-0)**

Courses designed to investigate various topics in Business not included in current courses. Topics will be announced.

## **(CHM) CHEMISTRY**

### **CHM 105 Introductory Chemistry 4(3-2)**

An elementary study of general chemistry. No previous chemistry background is necessary. The course deals with basic chemical principles and their application to inorganic chemistry. Designed for majors in liberal arts, business, pre-nursing, and to prepare students for CHM 106 or CHM 111. Two hours per week of lab work are included.

Corequisite: MAT 104 or equivalent

### **CHM 106 Biochemistry for Allied Health 4(3-2)**

Building on a background of basic inorganic chemistry, this course is intended to serve the needs of students in the ADN program and other allied health areas. The course includes an introduction into organic compounds, carbohydrates, fats, proteins, vitamins, hormones, enzymes, nucleic acids, and the energy relationships in metabolic processes. Two hours per week of lab work are included.

Prerequisite: Proven competency in basic chemistry by earning a C or better in CHM 105 (or an equivalent college chemistry course), earning a B or better in a High School chemistry course (within the last 3 years), or with permission from the instructor.

### **CHM 111 General College Chemistry I 4(3-2)**

Fundamental concepts, theories, laws and definitions as they apply to modern Chemistry. CHM 111 and CHM 112 are recommended to constitute the standard one-year course. Two hours per week of lab work are included.

Prerequisites: One year high school chemistry or CHM 105 or equivalent; two years of high school algebra or MAT 105 (may be concurrent) or equivalent.

### **CHM 112 General College Chemistry II 4(3-2)**

Continuation of CHM 111. A study of chemical equilibrium, electro chemistry, non-metals, metals, organic compounds and processes. Laboratory work includes qualitative analysis. Prerequisite: CHM 111

### **CHM 241 Organic Chemistry I 5(4-3)**

This course includes the study of the nomenclature, physical and spectral properties, structure, stereochemistry, and reactions (with their mechanisms) of saturated and unsaturated aliphatic and aromatic hydrocarbons, halide, alcohols, ethers, and carboxylic acids.

Prerequisite: CHM 112

### **CHM 242 Organic Chemistry II 5(4-3)**

This course includes the study of the nomenclature, physical and spectral properties, structure, stereochemistry, and reactions (with their mechanisms) of carboxylic acid derivatives, aldehydes, ketones, phenols, amines, alcohols, nucleic acids (proteins), lipids, carbohydrates, nucleic acids, and heterocyclic compounds.

Prerequisite: CHM 241

### **CHM 290-299 Selected Topics 1 to 5(1 to 4-0 to 3)**

Courses designed to investigate various topics in Chemistry not included in current courses. Topics will be announced.

## **(CIS) COMPUTER INFORMATION SYSTEMS**

### **CIS 100 Introduction to Information Systems 3(3-0)**

This course is designed for students across the curriculum. CIS 100 will emphasize how the computer is used as a conceptual basis for problem solving and the role each hardware and software components play in the computer process. Students will do online research using the internet and electronic libraries. In addition, this course takes students to a higher level of learning in some of the most widely used application programs. Outside lab work is required.

Prerequisite: Touch keyboarding skills recommended

### **CIS 110 Computer Programming I (Visual Basic) 3(3-0)**

A beginning level programming course using Object Oriented Programming. The student will learn programming techniques using a Windows based programming language in a graphical environment.

Prerequisite: MAT 104 or equivalent

### **CIS 111 Computer Programming II (Visual Basic) 3(3-0)**

A continuation of CIS 110 in developing Object Oriented Languages concepts. The major project of the course is to develop a professional Windows application.

Prerequisite: CIS 110

### **CIS 121 Introduction to Java Programming 3(3-0)**

This course is designed to introduce students to developing applications using the Java programming language, object-oriented programming concepts, along with the Java syntax needed to implement them. This course will also introduce students to Java's role on the Internet.

Prerequisite: MAT 104 or equivalent

### **CIS 130 Applications With Microcomputers 3(3-0)**

A study of various computer applications as applied to business problems. Applications covered include spreadsheets, windows presentation programs, and databases.

Prerequisite: CIS 100 with a minimum grade of C

### **CIS 131 Advanced Java Programming 3(3-0)**

This course is designed to advance student's skills in developing applications using the Java programming language. Focusing on issues involved in designing and developing Java applications within an organization. This course will also allow students to develop Java applications for the Internet.

Prerequisite: CPS 150

### **CIS 132 Microsoft Excel 3(3-0)**

This course covers advanced Excel concepts including Excel lists, working with multiple worksheets and workbooks, working with Excel's editing and web tools, developing an Excel application, data tables and scenario management, using Solver for complex problem solving, importing data into Excel, and using VBA (Visual Basic for Applications) to enhance Excel.

### **CIS 135 Introduction to Website Design 3(3-0)**

This course introduces the fundamentals of web design utilizing graphic design software, including Dreamweaver, and WISIWIG editors. Students will explore web based concepts, contemporary methods of applying media and dynamic rich content to their websites by applying a working knowledge of XHTML/HTML and Cascading style Sheets. Final course outcome is an online web portfolio.

Prerequisite: CIS.100.

### **CIS 151 C# Programming I 3(3-0)**

This course covers algorithm design and development. An introduction to the design and development of computer programs using the C# programming language is included. In-class work will consist of 1 ½ hours of lecture followed by 1 ½ hours of practical application. Required software is available on computers at the college; if students wish to complete assignments at home; they will need to procure the correct software.

Prerequisite: MAT 104 or equivalent

### **CIS 152 C# Programming II 3 (3-0)**

A continuation of the C# Programming 1 course, this course provides a review of topics from C# Programming 1 but focuses on the inheritance, exception handling, using GUI objects and the Visual Studio IDE, controls, event handling, and file and stream processing. In-class work will consist of 1 ½ hours of lecture followed by 1 ½ hours of practical application. Required software is available on computers at the college; if students wish to complete assignments at home; they will need to procure the correct software.

Prerequisite: MAT 104 and CIS 151

### **CIS 175 C++ Computer Programming I 3(3-0)**

This course covers algorithm design and development. An introduction to the design and development of computer programs using the C++ programming language is included.

Prerequisite: MAT 104 or equivalent

### **CIS 176 C++ Computer Programming II 3(3-0)**

A continuation of CPS 175, with an emphasis on elementary data structures, string manipulation, recursion, stacks, queues, linked lists, binary trees, sorting, & searching.

Prerequisite: CPS 175

### **CIS 190 Cisco Internetworking I 3(3-0)**

This course is the first in a series of four in the Cisco Networking Academy Program designed to teach students to design, build and maintain computer networks. Fundamentals of computer networks are the primary focus in this course.

Prerequisite: CIS 100, MAT 104

### **CIS 195 Cisco Internetworking II 3(3-0)**

This course is the second in a series of four in the Cisco Networking Academy Program designed to teach students to design, build and maintain computer networks. Fundamentals of the Cisco IOS (Internetwork Operating System) software and routers are the primary focus in this course.

Prerequisite CIS 190

### **CIS 203 Web Security and Maintenance 3(3-0)**

This course is designed to introduce students from a variety of curriculums and educational backgrounds to web security and maintenance. CIS 203 is the second level in obtaining the Webmaster certification, and is designed to help individuals and businesses develop the skills they need to meet today's rapidly growing demand for Web and Internet communication practitioners. Little or no previous technology expertise is required, though familiarity with the operation of a personal computer is necessary and html programming is recommended.

Prerequisite: CIS 100.

### **CIS 205 e-Commerce: Concepts & Technology 3(3-0)**

This course introduces students to the basic principles of e-Commerce. The e-Commerce server software will be explored as well as crime and security problems. Students will learn which tools to use to protect networks, servers and clients. Digital payment and electronic billing models will be created. A working plan for internet marketing will be developed. Ethical, social, and political issues raised by e-commerce will be discussed.

Prerequisite: CIS 100

### **CIS 221 Computers in Business I 3(3-0)**

This course provides insight into the applications of the computer in modern business. The student will study the components of a business computer system, typical applications involving mainframe and personal systems, structure, use of files and databases, and the concepts of networking, teleprocessing, and distributed systems; explore the techniques of business computer system development; and also develop skills in using productivity programs such as databases and spreadsheets to build models solving practical business problems.

Prerequisite or Corequisite: ACC 201

### **CIS 225 Database Systems 3(3-0)**

This course covers relational database concepts and tools focused in an Oracle environment. Specifically, relational database concepts (rows, tables, and keys), table creation/modification (DDL and SQL), PL/SQL, forms, reports, and database administration tasks are presented. In-class work will consist of 1 ½ hours of lecture followed by 1 ½ hours of practical application. Required software is available on computers at the college; if students wish to complete assignments at home; they will need to procure the correct software.

Prerequisite: CIS 100, CIS 130

### **CIS 230 Special Topics 3(3-0)**

Courses designed to investigate relevant computer information systems. Topics covered are not included in the courses that are currently listed and will be announced prior to the semester in which they are offered.

Prerequisite: CIS 100

### **CIS 235 Website Design II 3(3-0)**

This course introduces advanced web design techniques utilizing open source e-commerce content management system (CMS), Apache web server distribution software, graphic design software, such as Dreamweaver, advanced CSS and an introduction to PHP. Students will apply media and dynamic rich content to their CMS designs by applying a working knowledge of XHTML, Cascading Style Sheets, PHP and Apache. Final course outcome is an online e-commerce web portfolio.

Prerequisite: CIS 135 or ART 152.

### **CIS 236 Emerging Web Technologies 3(3-0)**

This course is a continuation of ART.252 Website Design II. It introduces advanced, emerging technologies in web design/multimedia design and current emerging web technologies. This is a growing field and will give graphic design students opportunities to expand their background in current web technologies. The final course outcome is a functional, online portfolio.

Prerequisite: CIS.235 or ART.252.

### **CIS 246 Computer Setup & Repair-Software 3(3-0)**

This course provides students with the skills necessary to diagnose and correct problems that microcomputer users encounter. The course covers installing and upgrading operating systems and applications, memory optimization, and printer configuration.

Prerequisite: CIS 100 Recommended.

### **CIS 247 Computer Setup & Repair-Hardware 3(3-0)**

This course provides the student with practical, hands-on experience in installing, maintaining, and trouble-shooting microcomputer hardware. Topics include CPU, storage devices, add-on boards, video displays, printers, communication devices, and configuration.

Prerequisite: CIS 100 Recommended

### **CIS 255 Computer Operating Systems 3(3-10)**

A detailed study of the Windows operating system. Windows terms, commands, installation and optimizing techniques will be covered. In addition to the classroom work, each student is required to do a minimum of 1 1/2 hours of individual laboratory work per week.

Prerequisite: CIS 100

### **CIS 256 Microsoft Windows 2000 Professional 3(3-0)**

This course provides students with the knowledge and skills necessary to install, configure, customize, and troubleshoot Microsoft Windows 2000 a single-domain Microsoft Windows 2000-based network. In addition, students learn how to integrate Windows 2000 and Novell NetWare networks.

Prerequisite: CIS 270

### **CIS 260 Systems Analysis 3(3-0)**

Introduces the student to the fundamental concepts of systems analysis and design. The role of the systems analyst and the training and skills required to function in this position are presented. Special emphasis is placed upon both written and oral communication skills. The life cycle concept and its application to business systems are discussed. Structured design techniques are emphasized.

Prerequisite: CIS 100

### **CIS 270 Networking Essentials 3(3-0)**

This course serves as a general introduction for students to acquire a foundation in current network technologies for local area networks (LANs), wide area networks (WANs), and the Internet. The course provides an introduction to the hardware, software, terminology, components, design, and connections of a network, as well as the topologies and protocols for LANs. It covers LAN-user concepts and the basic functions of system administration and operation.

Prerequisite: CIS 110 or CIS 130

### **CIS 271 Microsoft Windows Server 3(3-0)**

This course provides students with the knowledge and skills necessary to install, configure, customize, and troubleshoot Microsoft Windows 2000 Server with Microsoft Windows 2000-based network.

Prerequisite: CIS 270

### **CIS 272 Active Directory Services 3(3-0)**

This course will introduce you to Microsoft Windows 2000 Active Directory and prepares the student to plan, configure, and administer Active Directory infrastructure. Students learn how to configure the Domain Name System (DNS) to manage name resolution, schema, and replication.

Prerequisite: CIS 256 or CIS 271

### **CIS 273 Implementation Microsoft Windows Network 3(3-0)**

This course is for support professionals who are new to Microsoft Windows 2008 and will be responsible for installing, configuring, managing, and supporting a network infrastructure that uses the Microsoft Windows 2008 Server production.

Prerequisite: CIS 271 and CIS 256

### **CIS 274 Microsoft Internet Information Server 3(3-0)**

This course teaches students how to support the various features of Microsoft Internet Information Server 4.0 (IIS). Students will learn how to install, configure, and implement all components that comprise IIS. Students will also have hands-on experience setting up a Web site.

Prerequisite: CIS 271

### **CIS 280 CO-OP 3(1-15)**

Co-op is a capstone course planned for the last semester of the Associate in Business: Computer Information Systems Degree. The students will be employed in an approved co-op position selected by the college coordinator and will also attend a weekly one hour classroom lecture/discussion. A waiver may be allowed for the work component only with equivalent previous/present work experience as determined by the coordinator. An individual evaluation is made by the coordinator only upon student request. Documentation by the employer will be required.

Prerequisite: The student must have completed at least 45 credit hours on the Associate in Applied Science: Computer Information Systems Degree.

### **CIS 290 Cisco Internetworking III 3(3-0)**

This course is the third in a series of four in the Cisco Networking Academy Program designed to teach students to design, build and maintain computer networks. The focus of this course is on configuring switches and routers; configuring IGRP, Access Lists and IPX on routers.

Prerequisite: CIS 190, CIS 195

### **CIS 295 Cisco Internetworking IV 3(3-0)**

This course is the fourth in a series of four in the Cisco Networking Academy Program designed to teach students to design, build and maintain computer networks. The focus of this course is on Wide Area Networks, PPP, ISDN, Frame Relay and all CCNA Exam-related learning objectives. It is the final preparation for taking the Cisco Certified Networking Associate examination.

Prerequisite: CIS 190, CIS 195, CIS 290

## **(CJS) CRIMINAL JUSTICE SYSTEM**

### **CJS 200 Introduction to Law Enforcement & Criminal Justice 3(3-0)**

An introductory course designed to acquaint the student with the components of the criminal justice system. Corrections, courts, police systems are examined. The criminal justice process is explored in detail. The history, relationships, administration, and philosophy of the criminal justice system is also examined.

### **CJS 201 Criminal Law for Police Officers 3(3-0)**

This course is designed to familiarize persons or refresh law enforcement personnel with the purposes and functions of

criminal law in the operation of a law enforcement agency. Topics of discussion include philosophy and source of criminal law, criminal procedure, search and seizure, arrest, specific crimes, judicial procedure, and other topics such as defendant rights.

Prerequisites: CJS.200

### **CJS 202 Juvenile Law and Procedures 3(3-0)**

This course will examine a broad spectrum of trends and causation of juvenile delinquency, specific treatment techniques, ways of controlling and preventing delinquency, and the role of the law enforcement officer in dealing with all aspects of the legal basis of the police officer's work with juveniles.

Prerequisite: CJS.200

### **CJS 203 Fundamentals of Supervision & Management in Criminal Justice 3(3-0)**

An introductory course designed to acquaint the student with the basics of management and supervision. Criminal Justice roles and responsibilities are examined. Management styles are discussed. Issues of management, operations, employment, training, community relations, and leadership styles all receive attention within this course.

### **CJS 204 Criminal Investigation 3(3-0)**

This course covers the fundamentals of criminal investigation including techniques of surveillance; search at the scene of the crime; collection, recording and preservation of evidence; interviewing witnesses; interrogation of suspects; methods used in the police science laboratory; and cooperation with other agencies in investigation procedures.

Prerequisite: CJS.201

### **CJS 205 Evidence and the Police Officer 3(3-0)**

A study of the rules of evidence, from its historical development through the present, pertaining to criminal cases. This course provides an examination into the testimonial, documentary and real evidence as discovered, and evaluated by police in anticipation of a criminal trial.

Prerequisite: CJS.201

### **CJS 206 Police Patrol Operations 3(3-0)**

This course provides a study of police patrol and its function. The course includes both the theoretical and functional aspects of patrol function. Emphasis is placed on police patrol responsibilities, its purpose, methods and the different types of police patrol. The student will examine the concept of police patrol to include community policing, types of service calls, interview and reports, the courtroom and testimony, and insights to the technological advancements affecting the patrol officer.

Prerequisite: CJS.200

### **CJS 215 Police Academy 21(21-0)**

Mid Michigan Community College has signed articulation agreements with Delta College and Kirtland Community College

whereby the student completes Police Academy coursework on the Delta or Kirtland campus. Students who successfully complete the Police Academy Training at Delta College or Kirtland Community College, will receive Mid Michigan Community College credit. In order to receive credit, a student must submit an official transcript, showing satisfactory completion of the Basic Police Academy, as specified by MCOLES (Michigan Commission on Law Enforcement Standards).

### **CJS 220 Introduction to Corrections 3(3-0)**

A study of the history, impact, and philosophy of community-based corrections services including sentencing alternatives and process, probation, parole, and imprisonment. Prisoner rights and offender profiles are also examined.

### **CJS 221 Legal Issues in Corrections 3(3-0)**

An introduction to the laws and procedures regarding federal and state constitutional rights, criminal case processing, court organization, and prisoner rights.

### **CJS 222 Correctional Facilities and Institutions 3(3-0)**

A study of American prisons and jails including their purpose, treatment program availability, organizational structure, and custodial and security requirements. The effect on the incarcerated inmate as well as future correctional considerations are also examined.

### **CJS 223 Client Growth/Development in Corrections 3(3-0)**

An examination of the psychological, social, and environmental causes of criminal behavior in juveniles and adults, the impact of psychological, sexual, medical, and substance abuse problems of offenders and intervention strategies used in institutional and community settings.

### **CJS 224 Client Relations in Corrections 3(3-0)**

An examination of the social and psychological formation of attitudes, their cultural influences, and their impact on minority perceptions. Discriminatory implications and professional responses in corrections are also considered.

### **CJS 231 Local Detention Academy One 3(3-0)**

This course is designed to prepare Correctional Officers Training Students for employment at a local corrections (County Sheriff) facility. This course is one of three academic courses required to satisfy the Michigan Department of Corrections Local Detention Academy of 160 hours of total training. This course includes the following training academy modules and hours: Correctional Law (16 hours), Report Writing (8 hours), Interpersonal Communications (16 hours), Workplace Harassment (2 hours), Stress Management (4 hours), Cultural Diversity (4 hours).

### **CJS 232 Local Detention Academy Two 3(3-0)**

This course is designed to prepare Correctional Officers Train-

ing Students for employment at a local corrections (County Sheriff) facility. This course is one of three academic courses required to satisfy the Michigan Department of Corrections Local Detention Academy of 160 hours of total training. This course includes the following training academy modules and hours: Booking and Intake (8 hours), Custody & Security (24 hours), Prisoner Behavior (8 hours), Suicide Awareness (8 hours), and Ethics in Corrections (2 hours).

### **CJS 233 Local Detention Academy Three 4(3-0)**

This course is designed to prepare Correctional Officers Training Students for employment at a local corrections (County Sheriff) facility. This course is one of three academic courses required to satisfy the Michigan Department of Corrections Local Detention Academy of 160 hours of total training. This course includes the following training academy modules and hours: Defensive Tactics (40 hours), Fire Safety (12 hours), First Aid/CPR/AED (8 hours).

### **CJS 250 Correction Officer Training Internship 5(1-0)**

The Corrections Officer Training Internship has been designed to provide the student a pragmatic work experience in a correctional institution/facility. The student intern will be required to complete a minimum of 60 hours at an operational corrections agency. The intern curriculum will include working in a variety of institutional departments and can be adjusted in accordance to the student's needs and/or interests. Students must be recommended by one or more corrections instructors and successfully interview with a Corrections Department representative.

### **CJS 290-299 Special Topics 1(1-0)**

Courses designed to investigate current topics in corrections not included in courses currently listed. Topics will be announced.

## **(DRF) DRAFTING**

### **DRF 101 Technical Drawing 3(3-0)**

Basic through advanced technical sketching will be explored in order to master the skills of visualization, special perception, and basic blueprint reading. Freehand technical sketching, geometric constructions, orthographic (multi-view) projection, isometric drawings, auxiliary views, sectional views, and dimensioning will be covered as well as basic development of thread representation and manufacturing tolerances. Laboratory assignments include producing piece part technical drawings utilizing industry standards. Students will also be briefly introduced to a CAD program to experiment with computer-aided drafting at the end of the course.

Prerequisites: none

### **DRF 105 Introduction to Geometric Dimensioning & Tolerancing 2(2-0)**

This course is designed to introduce the fundamentals of geometric dimensioning and tolerancing. Intermediate through advanced blueprint reading will be explored. Emphasis is placed on basic concepts of dimensioning and tolerancing a drawing with respect to the actual function or relationship of other part features.

Prerequisite: DRF.101; IND.101 Recommended

### **DRF 120 Introduction to Auto CAD 3(3-0)**

This course is designed to acquaint students with computer aided-drafting using AutoCAD software. System interface, creating, modifying/editing and displaying geometry, dimension styles, block insertion, scale drawings, paper space/model space usage, creating templates, and file management will be introduced to students as they create basic mechanical detail drawings and basic architectural drawings. An introduction to 3-D solid modeling will be explored at the end of the course.

### **DRF 201 Mechanical Detail Drafting with CAD 3(3-0)**

This course will prepare the student to make working drawings of mechanical component parts and small assemblies using CAD while gaining more experience using the AutoCAD program. Emphasis will be placed on dimensioning, views, projection, and manufacturing tolerances. Additional skills will be developed in creating pictorials, depicting threads and fasteners, and creating blueprints for manufacturing. Intermediate through advanced 2-D AutoCAD commands and techniques will be developed throughout the course. Students are expected to do a complete minimum of 2 hours of individual outside of class laboratory hours work per week.

Prerequisites: DRF.101 and DRF 120

### **DRF 210 Introduction to SolidWorks 3(3-0)**

Students will have a thorough introduction to 3-D parametric solid modeling design using SolidWorks. Students will explore introductory through advanced SolidWorks commands and techniques including part model creation, assembly model creation, part drawing documents, and other modeling features and commands related to 3-D solid modeling. Students will model mechanical component parts to apply commands and principles.

### **DRF 211 Advanced SolidWorks Applications 3(3-0)**

Students will have a thorough introduction to advanced SolidWorks applications that include: sheet metal design, surface modeling, mold design, weldments, small structural design, and other topics. Students will model mechanical component parts and individual product designs to apply commands and principles.

Prerequisites: DRF.210

### **DRF 220 Introduction to Soft Plan 3(3-0)**

Students will have a thorough introduction to 2D and 3D architectural design using Soft Plan. This class is available for students to design residential and light commercial buildings. Students will acquire the ability to design floor plans, floor systems and ceiling plans, roof plans, elevation drawings, cross section drawings, site plans, and framing diagrams.

### **DRF 250 Co-Op 3(1-0)**

This course will cover job readiness objectives that are required to become successful in a professional work environment: co-op is a capstone course planned for the last semester of the Associate in Applied Science Degree: Computer Aided Drafting & Design. The students will be employed in an approved co-op position selected by the college coordinator and will also attend a weekly one hour classroom lecture/discussion. A waiver may be allowed for the work component only with equivalent previous/present work experience as determined by the coordinator. An individual evaluation is made by the coordinator only upon request. Documentation by the employer will be required.

Prerequisite: DRF.101, DRF.105, DRF.120, DRF.201, DRF.210, DRF.211, IND.101, IND.113, IND. 116 all with a minimum grade of B OR successful completion of a competency exam (83% or better).

### **DRF 280 CAD Program & Software Certification 3(3-0)**

This course will cover the necessary skills and techniques that are included on nationally recognized CAD software certification exams. This course is designed as a CAD program capstone course to help students prepare for program assessment exam(s) as well as CAD software certification exam(s). This course will allow student to revisit the fundamental objectives in computer aided drafting & design technology such as geometric constructions, object properties & organizational, orthographic & multi-view drawings, dimensioning and notes, auxiliary views, section views, and assembly drawings & block review. Student will also be reintroduced to solid modeling topics that include part modeling, advanced part modeling, assembly modeling, and advanced modeling theory and analysis.

Prerequisite: DRF.101, DRF.120, DRF. 201, DRF.210 and DRF.211 all with a minimum grade of B OR successful completion of a competency exam (83% or better).

### **DRF 295-299 Special Topics 1(3-0)**

These courses are designed to investigate various topics in Drafting and Design Technology that are not included in current courses. Topics will be announced. These courses are offered based on demand.

## **(ECE) EARLY CHILDHOOD EDUCATION**

### **ECE 101 Introduction to Early Childhood Education 4 (4-0)**

This course is designed to assist the student to understand the role and personal characteristics of the child care provider or teacher, to become familiar with early childhood settings, developmental milestones and development theories. The course consists of lecture and some hands-on activities to guide children's learning. This course introduces the student to the Child Development Association (CDA) national credential.

### **ECE 112 Infancy 4 (5-0)**

This course explores prenatal development, modern child-birth practices, and their effect on the family, normal human development of infants from birth through 2.5 years, and the practical issues confronting professionals who work with children of this age group and their families. Students will choose licensed lab sites where infants and toddlers are in attendance. Thirty lab hours are required. This class satisfies Department of Human Services (DHS) requirements for infant/toddler lead teachers.

Corequisite: ECE 101 or permission of the instructor

### **ECE 113 Early Childhood 4 (5-0)**

This course explores the principles of growth and development of children ages 3-8 years, as well as strategies for teaching this age group, observation techniques, working with the child in the context of their family and addressing family diversity. 30 lab hours are required in a licensed Department of Human Services (DHS) program or school setting.

Prerequisite: ECE.101 and ECE.112 or permission of Coordinator

### **ECE 114 Interacting With Children, Parent/Adult 4 (5-0)**

This course will explore the theoretical perspective for interaction, and the influence of significant adults, especially parents, in the lives of children birth through age eight. The student will observe child-adult interactions in natural settings. 30 hours of lab time are required in observing young children in the community. Diversity and parenting styles will be studied.

Prerequisites: ECE.101 and ECE.112

### **ECE 150 Preparation for Child Development Associate Credential (CDA) 2 (2-0)**

This course is designed to prepare the student for assessment by the Council for Early Childhood Professional Recognition to earn the Child Development Associate Credential. The student will be guided through the preparation of a resource file, distribution of parent questionnaires, writing of statements of competence, and review of typical test questions and interview practice sessions.

Prerequisites: Be employed in a licensed or registered child care setting, or be a regular volunteer in such a program able to accumulate 480 hours working with young children. (This requirement for the CDA must be accomplished in the three years prior to sending an application for assessment.) Have accumulated 120 clock hours of early childhood training, either through high school vocational classes, college courses, or in-service training with an early childhood agency. Be able to document these training hours by transcript, certificates or other acceptable means.

### **ECE 201 Creative Development of the Child 3 (4-0)**

This course is designed to provide students with a variety of opportunities to learn developmentally appropriate methods and theories of guidance, both direct and indirect, in working with young children. In addition, the course will examine all aspects of the early childhood setting, including physical arrangement, curriculum development, positive atmosphere, and age and interest groupings. Evaluation techniques to assess child and program progress will be examined. 30 lab hours in a Department of Human Services (DHS) licensed setting are required. ENG 111 is highly recommended prior to enrolling in this course.

Prerequisites: ECE 113 and ECE 114

### **ECE 202 Creative Development of the Child 3 (4-0)**

This course will focus on the creative development of children. Students will learn how children become creative thinkers, and how to encourage creativity in young children. Activities will be developed for use in the lab setting that encourage creativity in movement, art, drama and music. 30 lab hours are required in a Department of Human Services (DHS) licensed lab site or school setting. ENG 111 is highly recommended prior to enrolling in this course.

Prerequisites: ECE 113 and ECE 114

### **ECE 206 Parent, School, & Community 3 (4-0)**

This course will explore the important relationship between the early childhood program and the families involved, as well as taking a look at the school and community resources available to programs and families. Some lab hours will be spent visiting service agencies and attending early childhood events, including a home visit, a parent-teacher meeting, and a parent-teacher conference. ENG 111 is highly recommended prior to enrolling in this course.

Prerequisites: ECE 113 and ECE 114

### **ECE 207 Early Childhood Education Practicum 4 (7-0)**

This course takes the student into selected early childhood settings where they will prepare activities and give care to children using theories and techniques learned and observed in prerequisite courses. It includes time with peers and instructor to evaluate and discuss the field experience.

Prerequisites: ECE 201, ECE 202, ECE 206 and ENG 111

## **ECE 208 Early Childhood Administration 4 (4-0)**

This course is designed to give students knowledge of the "administration" of early childhood programs. Topics include: record keeping, the hiring and training of staff, child advocacy, using community resources, budgeting, food service, collaboration, public relations, marketing and fund raising. This course satisfies licensing requirements for Program Directors under the Department of Human Services (DHS).

Prerequisites: ECE 201, 202, 206, and ENG 111 or permission of ECE Coordinator

## **(ECO) ECONOMICS**

### **ECO 110 Economics and Society 3(3-0)**

An examination of the development of economic thought and institutions with emphasis on the application of this knowledge to the understanding of today's world.

### **ECO 201 Principles of Economics (Macroeconomics) 3(3-0)**

Examines major subdivisions of the American economy. Some of the specific areas studied are national income theory, money and banking, the business cycle, economic growth, and international trade.

### **ECO 202 Principles of Economics (Microeconomics) 3(3-0)**

This course is designed to introduce the basic terms and concepts of economics. The economic behavior of specific economic units such as households and business firms is examined. Some principle topics are postulates of economics, supply and demand concepts, and price determination by various types of businesses.

### **ECO 290-299 Selected Topics 3(3-0)**

These courses are designed to investigate various topics in Economics that are not included in current courses. Topics will be announced.

## **(EDU) EDUCATION**

### **EDU 107 Introduction to Teaching 3(3-0)**

Introduction to teaching as a career. Survey of student behavior and effective teacher responsibilities preparatory to guided observation and participation in K-12 settings.

### **EDU 290 Technology in Education 3(3-0)**

Students will learn to operate various technology-based equipment; select and assess instructional media materials, courseware, and software; and integrate technology and media into K-12 instruction. This course is taught as a hybrid; 1 1/2 hours in the computer lab and 1 1/2 hours are conducted online each week.

Prerequisite: Students should have basic computer and key-boarding skills. Students must have taken EDU 107.

## **(ENG) ENGLISH**

### **ENG 097 College Reading I 2(2-0)**

Eng. 097, College Reading I (2 credits), is designed to develop the strategies, skills, and attitudes necessary for reading college-level texts. Based on reading placement score, completion of the English self-placement quiz, and discussion with an academic advisor, students may enroll in Eng. 097 in conjunction with English 110, Introduction to Academic Writing, or another course with college-level reading. Students will learn and practice a variety of reading strategies they can use to better understand what they read. In addition to strategic reading, emphasis will be on integrating critical thinking with reading, reading comprehension, reading flexibility, and expanding vocabulary. With an instructor facilitating, students will develop existing reading skills in an interactive, collaborative setting.

Prerequisites: None

Corequisites: Eng. 110 or a class with college level reading.

### **ENG 098 College Reading II 1(1-0)**

Eng. 098, College Reading II (1 credit), is designed to develop the strategies, skills, and attitudes necessary for reading college-level texts. Based on reading placement score, completion of the English self-placement quiz, and discussion with an academic advisor, students may enroll in Eng. 098 in conjunction with English 110, Introduction to Academic Writing, English 111, Freshman Composition, or another course with college-level reading. Students will learn and practice a variety of reading strategies they can use to better understand why they read. In addition to strategic reading, emphasis will be on integrating critical thinking with reading, reading comprehension, reading flexibility, and expanding vocabulary. With an instructor facilitating, students will develop existing reading skills in an interactive, collaborative setting.

Prerequisites: None

Corequisites: Eng. 110, 111, or a class with college level reading.

### **ENG 098A College Reading II 1(1-0)**

ENG.098A, College Reading II (1 credit), is designed to develop the strategies, skills, and attitudes necessary for reading college-level texts. Based on reading placement score, completion of the English self-placement quiz, and discussion with an academic advisor, students may enroll in ENG.098A in conjunction with English 110, Introduction to Academic Writing, English 111, Freshman Composition, or another course with college-level reading. Students will learn and practice a variety of reading strategies they can use to better understand why they read. In addition to strategic reading, emphasis will be on integrating critical thinking with reading, reading comprehension, reading flexibility, and expanding vocabulary. With an instructor facilitating, students will develop existing reading skills in an interactive, collaborative setting.

Prerequisites: None

Corequisites: ENG.110, ENG.111, or a class with college level reading.

### **ENG 098B College Reading II 1(1-0)**

ENG.098B, College Reading II (1 credit), is designed to develop the strategies, skills, and attitudes necessary for reading college-level texts. Based on reading placement score, completion of the English self-placement quiz, and discussion with an academic advisor, students may enroll in ENG.098B in conjunction with English 110, Introduction to Academic Writing, English 111, Freshman Composition, or another course with college-level reading. Students will learn and practice a variety of reading strategies they can use to better understand why they read. In addition to strategic reading, emphasis will be on integrating critical thinking with reading, reading comprehension, reading flexibility, and expanding vocabulary. With an instructor facilitating, students will develop existing reading skills in an interactive, collaborative setting.

Prerequisites: None

Corequisites: ENG.110, ENG.111, or a class with college level reading.

### **ENG 098C College Reading II 1(1-0)**

ENG.098C, College Reading II (1 credit), is designed to develop the strategies, skills, and attitudes necessary for reading college-level texts. Based on reading placement score, completion of the English self-placement quiz, and discussion with an academic advisor, students may enroll in ENG.098C in conjunction with English 110, Introduction to Academic Writing, English 111, Freshman Composition, or another course with college-level reading. Students will learn and practice a variety of reading strategies they can use to better understand why they read. In addition to strategic reading, emphasis will be on integrating critical thinking with reading, reading comprehension, reading flexibility, and expanding vocabulary. With an instructor facilitating, students will develop existing reading skills in an interactive, collaborative setting.

Prerequisites: None

Corequisites: ENG.110, ENG.111, or a class with college level reading.

### **ENG 104 Reading and Writing for College 4(4-0)**

ENG.104, Reading and Writing for College, is a four credit course that combines instruction in reading and writing and is designed for students who have had little to no preparation for reading and writing at the college level. The kinds of strategies and skills students will practice in ENG.104 should prepare them for the kinds of reading and writing they will do at the college level. Note: Students who assess at a low reading level must begin the composition sequence with ENG.104.

Prerequisite: None

### **ENG 110 Academic Writing 3(3-0)**

This course is meant to serve as a companion course to ENG 111, and will utilize the same goals and outcomes. However, ENG 110 is designed to provide incoming students a more gradual and more thorough introduction to the textual practices required in college (such as evidence, critical analysis, considering rival points of view, or synthesizing a new position). This course will focus on how to read, annotate, and respond to academic texts, and will also introduce students to writing strategies designed to make them successful academic writers.

Prerequisite: ENG.104 with a minimum grade of C, or placement into ENG.110.

### **ENG 111 Freshman English Composition 3(3-0)**

This course prepares a student for academic writing in the college setting, and concentrates on analyzing and discussing written sources. Emphasis is on writing that shows insight into published discussions of an issue and understanding of the contexts of academic debate (rather than on informational reports or personal expression essays). In addition, research and revision are treated as integral parts of the process of writing an academically acceptable essay. By the end of the course, a student must show 'competency' in an academic portfolio of selected essays.

Prerequisite: ENG.110 with a minimum grade of C; or placement into ENG.111.

### **ENG 112 Introduction to Literature 3(3-0)**

This course introduces students to a variety of literature and enhances students' competency in critical reading and writing. The course will include introductions to genres of literature and critical theories of reading and responding to literature. Students should have completed ENG 111 and have basic writing skills.

Prerequisite: ENG 111 with a minimum grade of C.

### **ENG 201 English Literature I 3(3-0)**

A survey of works of major authors of English literature from Beowulf through the 18th century.

Prerequisite: ENG 111.

### **ENG 202 English Literature II 3(3-0)**

A continuation of ENG 201 from the late 18th century poets through the writers of the present.

Prerequisite: ENG 111.

### **ENG 205 American Literature to 1870 3(3-0)**

A study of our nation's authors and literature from colonial times through the Civil War period.

Prerequisite: ENG 111.

### **ENG 206 American Literature From 1870 3(3-0)**

A continuation of ENG 205 from the Reconstruction through mid-20th century works.

Prerequisite: ENG 111

### **ENG 211 Masterpieces of Western Literature I 3(3-0)**

An in-depth study of selected major classical literary works of Western civilization.

### **ENG 212 Masterpieces of Western Literature II 3(3-0)**

A comprehensive study of leading authors from the time of the Renaissance through the 19th century.

### **ENG 213 Contemporary Literature 3(3-0)**

Readings in the novel, short story, essay, autobiography, biography, poetry, and drama of the 20th and 21st centuries. From semester to semester, this course will focus on one of the following genres: Science Fiction, Postcolonial, Postmodern, Queer, African American, Women's, Native American, or Graphic Fiction Literature.

Prerequisite: ENG 111 and either SPE 101 or 257

### **ENG 222 Expository Writing & Research 3(3-0)**

This course is designed to further develop skills in all phases of the nonfiction writing process with special emphasis on academic writing situations, argumentation, and library research. Writing is approached both as a way of learning and as a form of social behavior that varies according to conventions of aim, audience, and form. Instruction and assignments are partially individualized according to students' educational goals.

Prerequisite: ENG 111 with a minimum grade of C

### **ENG 225 Creative Writing 3(3-0)**

Introduction to the essentials of narration, characterization, and other components of creative writing. Students are required to submit original poetry and/or one-act plays or short stories.

### **ENG 281 Children's Literature 3(3-0)**

A review of the rich and diverse field of literature for children from preschool to adolescence. Recommended for students in the elementary teacher education curriculum.

Prerequisite: ENG 111

### **ENG 289 Film, Filmmaking, and Culture 3(3-0)**

In this course, film will be approached as an important sociological and cultural artifact and as both primary and secondary sources of historical information and insight. This course will also introduce the student to the techniques of this unique art form. The goal is to learn how to watch film from an analytical perspective. Students will need to pay additional fees for Netflix and iTunes rentals/subscriptions, at an approximate cost of \$75.

Prerequisite: ENG.111

### **ENG 290-299 Selected Topics 3(3-0)**

These courses are designed to investigate various topics in English that are not included in current courses. Topics will be announced.

## **(ENT) ENTREPRENEURSHIP**

### **ENT 221 Marketing Strategies for Entrepreneurs 3(3-0)**

This course provides methods of identification of a product and/or service potential, advertising plans, marketing strategies, store location, purchasing procedures and inventory control.

## **(ENV) ENVIRONMENTAL SCIENCE**

### **ENV 210 Environmental Science 4(3-2)**

A survey of the broad field of environmental science. Major topics included are: the scientific method, an introduction to chemistry, ecological principles, types of pollutants, energy principles, population issues, the environmental impact of human choices, and the role of economics, risk perception, and political choices in environmental decision making. Laboratory activities will expose students to a variety of field, survey and laboratory techniques useful in assessing environmental quality.

Prerequisite: Recommend BIO 101, GEL 101 or other science courses.

### **ENV 220 Environmental Regulations 3(3-0)**

A comprehensive course in environmental law and regulations, agencies such as OSHA, DOT and EPA, and how they affect environmental usage and the individual. The course includes an overview of the history, philosophy and processes germane to environmental regulations and how to work effectively as a team member to address environmental issues and regulatory compliance concerns.

### **ENV 230 Environmental Training 5(7-0)**

Basic measurement techniques used by environmental scientists and technologists to evaluate air and water quality, field methods, continuous monitoring techniques, and in-laboratory analysis techniques. Course includes how to properly collect and prepare samples for analysis, use a variety of instruments effectively, and how to appreciate the importance of proper sample custody and record keeping. Course also includes 40 hour personal protection and safety training.

Prerequisites: ENV 220, CHM 112

### **ENV 290 Environmental Internship 1(1-0)**

This course is the capstone field experience for students in the environmental science or environmental technology curricula. This required course provides each student with opportunities to synthesize and integrate knowledge gained from their academic program through a process of real world experience, problem solving and on-the-job training. This course will allow for a broad range of learning/working experiences for students and relationships with many organizations, including other college and university units, governmental agencies, profit and nonprofit enterprises and professional organizations.

Prerequisite: ENV 230

### **ENV 291-299 Selected Topics 3(3-0)**

These courses are designed to investigate various topics in Environmental Science that are not included in current courses. Topics will be announced.

## **(ESL) ENGLISH AS A SECOND LANGUAGE**

### **ESL 102 English as a Second Language 4(4-0)**

This is a four-credit course that will prepare international students for English 110 with support for students of all proficiency levels. In this course students will learn how to meet the reading, writing, and cultural expectations of the American college classroom.

Prerequisite: This course is designed for non-native speakers of English who score below 50 on the ACCUPLACER or have taken but not passed other English courses. The course instructor may deny any student enrollment on this basis.

### **ESL 290 Special Topics 3(3-0)**

These courses are designed to investigate various topics in English as a Second Language that are not included in current courses. Topics will be announced.

## **(FRN) FRENCH**

### **FRN 101 Elementary French I 4(4-0)**

This is an elementary course designed for students who have had little or no previous experience in French. It is designed to help students acquire foundational language skills necessary for basic communication in French. The majority of class time will focus on verbal communication, however, reading and writing will be frequently integrated, and selected cultural information will be studied.

### **FRN 102 Elementary French II 4(4-0)**

French 102 is a continuation of French 101 and will begin with a brief review of the material covered in FRN 101. Students in French 102 will continue the study of grammar and vocabulary and will use these to communicate utilizing speaking, writing, listening, and reading skills. This course is designed to provide the basis for further study of French at the intermediate level.

Prerequisite: FRN 101 or equivalent.

## **(GEL) GEOLOGY**

### **GEL 101 Physical Geology 4(3-2)**

An introductory study of the processes that shape our world. Topics include minerals, rocks, volcanism, earthquakes, continental drift, erosion and deposition, the ice age, and economic significance of geology to humankind.

### **GEL 112 Historical Geology 3(2-2)**

A chronological study of the origin and development of the earth's features, along with development and succession of plant and animal groups as revealed in rock formations and mineral deposits.

## **(GER) GERMAN**

### **GER 101 Elementary German I 4(4-0)**

This is an elementary course designed for students who have had little or no previous experience in German. It is designed to help students acquire foundational language skills necessary for basic communication in German. The majority of class time will focus on verbal communication, however, reading and writing will be frequently integrated, & selected cultural information will be studied.

### **GER 102 Elementary German II 4(4-0)**

GER 102 is a continuation of GER 101 and will begin with a brief review of the material covered in GER 101. Students in GER 102 will continue the study of grammar and vocabulary and will use these to communicate utilizing speaking, writing, listening, and reading skills. This course is designed to provide the basis for further study of German at the intermediate level.

Prerequisite: GER 101 or equivalent.

## **(HED) HEALTH EDUCATION**

### **HED 101 Introduction to the Health Professions 3(3-0)**

This course provides students an opportunity to understand and navigate the college/university environment, value of learning, and student responsibilities within the healthcare professions. A survey of health professions, healthcare culture, interprofessional education, ethical and legal issues, employment opportunities, and market demands.

### **HED 106 Healthy Lifestyles 3(2-2)**

This course focuses on individual health and wellness concepts using quantitative reasoning and is designed to assist the individual in striving for lifelong learning about healthier lifestyles.

### **HED 115 Stress Management 2(2-0)**

This course is designed to give the student an overall knowledge and understanding of the mechanisms of stress as a concept, to provide stress management tools to increase coping, and to provide health/wellness promotion.

### **HED 130 Introduction to Aromatherapy 1(1-0)**

This course is designed to be an introduction to the field of Aromatherapy. Students will learn to understand the proper usage of essential oils. Upon completion of this course, students will be qualified to apply and diffuse the top twenty oils used in aromatherapy.

### **HED 132 Introduction to Reflexology 1(1-0)**

This course is designed to be an introduction to the field of Reflexology. Students will learn the proper techniques for performing reflexology as a stress-reducing therapy. Students will be qualified to teach an introductory 1 hour class on the therapy of reflexology, and be able to perform a half-hour therapy for the purposes of improving circulation, enhancing immunity, and reducing stress.

### **HED 134 Introduction to Herbology 1(1-0)**

This course is designed to be an introduction to the field of Herbology. Students will learn to understand the proper usage of herbal remedies. Upon completion of this course, students will be able to recognize the most commonly used herbs, as well as how and when they should be taken. Additionally, they will be able to educate others about the proper use of herbs.

### **HED 136 Introduction to Massage 1(1-0)**

This course is designed to be an introduction to the field of Massage Therapy. Students will learn how to perform basic massage techniques as well as learn about the professionalism of massage as a therapy. Students will be qualified to perform a one-hour relaxation massage for family and friends.

### **HED 151 Personal Health and Hygiene 3(3-0)**

Intended to develop habits, skills, and attitudes favorable to healthful living and to understand better the normal functioning of the human body. This course encourages understanding of mental, physical, and social well-being of the individual and the community.

### **HED 285 Community Health 3(3-0)**

This course has been designed to offer the student a comprehensive introduction to community health. Through awareness of the many health issues associated with any given community, the student will be able to critically assess the extent of and examine possible solutions.

### **HED 290 Special Topics 1(1-0)**

These courses are designed to investigate various topics in Health Education that are not included in current courses. Topics will be announced.

## **(HIS) HISTORY**

### **HIS 101 Issues in Western Civilization I 3(3-0)**

A survey of the development of Western peoples from ancient times through 1650 A.D. Emphasis is placed upon topics relating to the intellectual, social, religious, political, and economic development of Western peoples.

### **HIS 102 Issues in Western Civilization II 3(3-0)**

This is the second semester continuation of HIS 101. The course emphasizes the development of Western peoples from 1650 to the present. Principle topics examined are the political, in-

tellectual, social, religious, and economic developments, and their impact upon world civilizations.

### **HIS 211 History of the United States I 3(3-0)**

This course examines the developments from exploration of the Americas through Reconstruction. Primary topics of study are exploration of colonization and its characteristics, the American Revolution, the Constitution, democratic developments, rise of States Rights, the Civil War, and Reconstruction.

### **HIS 212 History of the United States II 3(3-0)**

Continuation of HIS 211. This course covers events from the post-reconstruction period to the present. Principle areas of study are economic growth, political activities, diplomacy, and social and intellectual developments.

### **HIS 223 History of Michigan 3(3-0)**

This course examines developments in Michigan from the time of earliest human habitation to the present. Major areas examined are French and British rule and rivalry, Michigan's move to statehood, exploitation of natural resources, and political and social development of the 19th and 20th centuries.

### **HIS 251 American Studies I: Foundations of 20th Century America 3(3-0)**

Along with HIS 252, this two-semester sequence centers on American cultural myths and values, examining their origins, development, and current manifestations (e.g., ideas of equality, the frontier, competition, pursuit of happiness, liberty, destiny, etc.). The approach is historical, using materials from literature, popular culture, and historical studies. This course centers on discussion stemming from assigned readings for which the instructor sets the cultural and historical context. Students desiring humanities credit should register for HUM 251.

### **HIS 252 American Studies I: Old Myths/New Realities in the 20th Century 3(3-0)**

Continuation of HIS 251. Students desiring humanities credit should register for HUM 252.

### **HIS 290-299 Selected Topics 3(3-0)**

Courses designed to investigate various topics in History not included in current courses. Topics will be announced.

## **(HRA) HEATING/REFRIGERATION/AIR CONDITIONING**

### **HRA 102 Refrigeration Fundamentals 3(2-2)**

As an introductory course to the field of refrigeration service, instruction is given in the handling of refrigerants, application, identification, reclaiming and refrigerant alternatives. Particular attention is paid to the principles, construction, and operation of refrigerating systems. Theory underlying refrigeration principles is covered. Laboratory experience includes cutting, soldering, swaging, and flaring of copper tubing, the

evacuation and recharge of refrigeration systems, electrical troubleshooting for basic systems, the diagnosis and repair of the refrigeration system, and testing equipment typically used in the field of refrigeration service.

#### **HRA 104 Residential Refrigeration 3(2-2)**

This course studies residential refrigeration systems, to include domestic refrigeration and air conditioning. Included in the instruction are ice makers, defrost controls, diagnostic display panels and typical appliance system problems. Particular attention is paid to the principles, construction, and operation of these systems. Laboratory experience includes residential system electrical troubleshooting and repair, and the diagnosis and repair of the refrigeration system.

Prerequisite: HRA 102

#### **HRA 105 Hydronics 3(2-2)**

An introduction of the concepts involving fluid system heating devices. Topics will cover: hot water and steam heating units, terminal units, control devices, piping, and diagnosis of hydronic systems.

Prerequisite: HRA 106

#### **HRA 106 Heating Fundamentals 3(2-2)**

An introductory course into the fundamentals of heating systems and installation practices. Laboratory experience includes furnace installation, steel and copper piping, furnace and control wiring, and flue gas venting.

#### **HRA 108 Heating Systems 3(2-2)**

Residential and commercial forced air and hydronic heating systems are covered in this course. The instruction includes the fundamental operation of gas and oil burners, for both standard and high efficiency systems. In addition, system configuration and operation principles are studied for fossil fuel systems and solid fuel burners. Laboratory experiences include the trouble shooting and repair of spark ignition control systems, relay control safeties, hot surface ignition, flue dampers, and efficiency testing of heating systems.

Prerequisites: HRA 106, HRA 116

#### **HRA 115 Plumbing 4(2-2)**

This course covers the design, use, and application of potable and non-potable water systems as they apply to both water supply and waste problems. Students are involved with the practical applications of plumbing systems in a simulated environment like that found in the field.

#### **HRA 116 Fundamentals of Electricity 3(2-2)**

This course covers the principles of electrical wiring for heating, refrigeration, air conditioning and manufacturing automation. Studies of frequency, phase, resonance and reactance, along with basic resistance, capacitance, inductance, voltage, and power which govern the fundamentals of all circuits will be explored. Laboratory work will be used to develop skill in analysis, troubleshooting of basic electronic circuitry, and use of test instruments.

#### **HRA 175 Solar Heating Systems 3(2-2)**

This course involves the study of various systems utilized to convert solar energy to domestic and commercial heating applications. Design characteristics, efficiency, and cost of various systems are reviewed. Students engage in the design and construction of an operational solar heating system as a part of the course requirements.

#### **HRA 198 EPA Refrigerant Handler Certification 1(1-0)**

This is a 4 day course specifically designed to teach students the required knowledge necessary to pass the Environmental Protection Agency's Refrigeration Handler Certification Exam. The specific content areas are; Core The basic law regarding CFC, HCFC, HFC and other chlorinated refrigerants, containments, disposal, and other certification requirements. Type 1: This level of certification deals with factory charged refrigeration systems containing less than 5 pounds of refrigerant. Type 2: This level of certification deals with all other high pressure refrigerant systems with 5 pound of refrigerant of more or are custom manufactured. Type 3: This level of certification deals with low pressure chiller applications. Universal Certification is granted to those who pass all certification levels; the student must pass the Core section to be awarded any certification. The Refrigerant Handler Certification textbook and exam are included. The instructor for this course is an EPA Certified Refrigerant Handler Certification Exam instructor.

#### **HRA 199 Special Topics 1(1-0)**

A two day intensive course specifically designed to teach students the required knowledge necessary to pass the Environmental Protection Agency's Refrigerant Handler Certification Exam. The specific content areas are; Core - the basic law regarding CFC and other chlorinated refrigerants, refrigerant containment, disposal and other certification requirements.

#### **HRA 204 Light Commercial Refrigeration 3(2-2)**

This course deals with more complex refrigeration systems associated with supermarkets and restaurants. Instruction and laboratory work are geared toward the installation and service of all types of light commercial refrigeration equipment such as walk-ins, reach-ins, water chillers, air cooled condensers, and water cooled condensers with cooling towers. Some of the other topics covered include heat controls for both single and three-phase systems.

Prerequisite: HRA 102

#### **HRA 205 Motors and Controls 2(1-2)**

This course in electricity concerns itself with the operation of electric motor-driven systems and devices. Classroom and laboratory experiences will include testing, troubleshooting, and repair of electric motor control systems. Electric motor-driven devices applicable to many different fields are covered, such as heating and air conditioning, machine tool and other electric-driven mechanical devices.

Prerequisite: HRA 116

### **HRA 215 HRA Controls 3(2-2)**

A course designed to provide theory of operation, installation, and design of programmable, electric, and pneumatic controls for heating, refrigeration, and air conditioning systems. Laboratory work includes the installation, wiring, and troubleshooting of these control systems.

Prerequisite: HRA 116

### **HRA 220 Commercial Refrigeration Design 2(2-0)**

Calculations in the sizing and design of refrigeration systems are covered in this course, as well as equipment layout and bid preparation. Topics include: U values, R values, insulation types and their installation, vapor barriers, construction details, and numerous charts, graphs, formulas, and other design material.

Corequisite: HRA 204

### **HRA 223 Residential HVAC Load Determination 3(3-0)**

A course designed to calculate the winter heat loss; summer heat gain, and the cost of operation for a residential heating and/or air conditioning system. Manual J methods and computer software programs are used.

Prerequisites: HRA 108.

### **HRA 225 Residential HVAC Distribution 3(3-0)**

Calculations in the sizing, location, and design of forced air ducts and hydronic residential heating and air conditioning systems. Manual D methods and computer software programs are used.

Corequisite: HRA 223

### **HRA 240 Advanced Commercial Refrigeration 3(2-2)**

This course deals with complex exotic refrigeration systems such as: environmental test chambers, supermarket refrigeration equipment, commercial ice-making equipment and ground source heat pump systems. Also included are various applied control systems and components.

Prerequisites: HRA 104, HRA 116, HRA 204

### **HRA 251 Geothermal Basics 3(3-0)**

This is the first course in the Geothermal Program. It covers an in depth look at the Basics of geothermal technologies including; system components, controls, troubleshooting, control schematics, system application and domestic hot water production.

Prerequisite: HRA 240 or MMCC Heating and Refrigeration Training Credentials or an Associate's Degree in Heating/Refrigeration from an accredited college/university, or lead faculty approval.

### **HRA 254 Air Source Heat Pumps 3(2-2)**

This course concerns itself with the basic understanding of original air source heat pump technology in compliance with Air Conditioning Contractors of America (ACCA). Students will be introduced to system location requirements, components, flow requirements, and the installation and troubleshooting of air source heat pump systems using both theory and hands-on practical instruction.

Prerequisite: HRA 251

### **HRA 261 Geothermal System Design 3(3-0)**

This course deals with structure BTU calculation, equipment capacity and air flow requirements to maintain the comfort conditions of the home. Methods used will follow the ACCA J and D Manuals and the Right Suite computer load calculation software. At the completion of this course the student will take the Air Distribution exam of the Industry Competency Exam (ICE).

Prerequisite: HRA 251

### **HRA 262 Geothermal Loop Systems 3(3-0)**

This course is preparatory for HRA 263 International Ground Source Heat Pump Association (IGSHPA) Installer Certification workshop. This course will take a detailed look into the various types of underground loops used in geothermal heat transfer specifically; open loop, horizontal loops, slinky loops, pond loops, vertical well loops, and direct exchange loops. As well, the various types of fluids such as water, glycol, brine solutions, refrigerants and emerging technologies used for the exchange of heat in an underground loop will be examined. Application methods used in this course will follow existing data from American Society of Heating Refrigeration Air Conditioning Engineers (ASHRAE).

Prerequisite: HRA 251

### **HRA 263 Closed Loop Ground Source Pump Install 3(3-0)**

This course deals with all pertinent topics related to International Ground Source Heat Pump Association (IGSHPA) Closed-Loop Geothermal Installation Certification and IGSHPA's High Density Poly-Ethylene (HDPE) Fusion Welding Exam administered by North American Technician Excellence (NATE) Students who successfully pass the examinations will be certified by those accrediting agencies (IGSHPA, NATE).

Prerequisite: HRA 251, or Associate Degree in Applied Science Heating Refrigeration Air Conditioning, or lead faculty approved significant, verifiable field experience in Heating Refrigeration Air Conditioning, or current recent field involvement in geothermal field processes including well drilling, architectural design or HVACR design for geothermal systems.

#### **HRA 265 Geothermal Research and Development 4(2-4)**

This course will put geothermal students on the cutting edge of HVAC technology as it relates to geothermal heating and cooling. Students will investigate areas of the complete geothermal system and evaluate possible system changes or potential areas of development. Using experimentation, prospective changes will be designed, constructed, installed and the system will be operated, monitored and evaluated. Potential system design changes will be enhanced and tested in actual field conditions in order to make industry-wide technical improvements.

Prerequisite: HRA 251, minimum grade of C

#### **HRA 282 Insulating Systems 2(2-0)**

A study of the various types of insulations currently being used in residential and commercial buildings. Also studied are the methods of installation of the various insulations as well as a comparative study of the costs of insulation, advantages and disadvantages of various insulations, and financing plans available for home and business. A course for anyone interested in energy conservation. This course cannot be used as a substitute for any course on the Heating, Refrigeration & Air Conditioning program.

#### **HRA 283 Independent Study in Heat, Refrigeration & Air Conditioning 3(3-0)**

This course is for those students who desire to gain supervised experience in actual on-site situations to enhance their knowledge and experience in the heating, refrigeration, and air conditioning industry.

#### **HRA 285 Co-Op 3(1-0)**

HRA Co-op is a course intended to be completed after the student has attained at least 30 credit hours of instruction including prerequisites. The students will be employed in an approved co-op position selected by the college coordinator and will also attend a weekly one hour classroom lecture/discussion. A waiver may be allowed for the work component only with equivalent previous/present work experience as determined by the co-op coordinator. An individual evaluation is made by the coordinator only upon student request. Documentation of the experience will be required.

Prerequisites: Minimum of 12 credits in HRA

#### **HRA 295-299 Special Topics 3(3-0)**

These courses are designed to investigate various topics in Heating, Refrigeration & Air Conditioning that are not included in current courses. Topics will be announced. These courses are offered based on demand.

HUM 101 and HUM 102 are designed to give the student a basic understanding of the terminology and concepts of the visual arts, theatre, dance and music. Ideas and philosophies of specific periods are presented as a frame of reference for discussion. Speakers, films, and field trips are arranged to give the student a more distinct involvement with the arts. HUM 101 is taught chronologically and focuses on the Greek and Roman period through the Renaissance.

#### **HUM 102 World of Creativity II 3(3-0)**

Continuation of HUM 101, HUM 102 begins with the baroque period and ends with the current time.

#### **HUM 183 Asian and African Cultures 3(3-0)**

An exploration of specific non-Western cultures, past and present. Cultural focus may vary from term to term. The course is an investigation of their religions and artistic traditions, their ideas, their cultural achievements, and their associations with other cultures.

#### **HUM 200 Modernity and Culture 3(3-0)**

This course is designed to introduce students from a variety of programs to the humanities. This introduction will focus on the way the humanities and their concern with art, ethics, history and culture, impact on the way we construct ourselves and our sense of meaning. This course will stress interaction through writing, collaborative assignments, presentations, and discussions to emphasize the humanities commitment to self-discovery and expression.

Prerequisites: Level I General Education courses (ENG 111 and either SPE 101 or SPE 257)

#### **HUM 205 The History of Rock and Roll: From Its Origins to 1980 3(3-0)**

Develops an interest and respect for the origins and growth of Rock and Roll music in the United States and Europe through the focus on recordings and videos that documented its progress.

#### **HUM 210 The History of Jazz 3(3-0)**

Course is designed to assist students in developing an interest in and respect for Jazz as an original American art form. Students will trace Jazz history from its theoretical origins to the present time. The focus on the class is on the evolution of the music and the artists who brought about Jazz.

#### **HUM 213 Contemporary Literature 3(3-0)**

Readings in the novel, short story, essay, autobiography, biography, poetry and drama of the late-20th Century.

Prerequisites: ENG 111, ENG 112 or equivalent

## **(HUM) HUMANITIES**

#### **HUM 101 World of Creativity I 3(3-0)**

An introduction and exposure to the creative arts. Together,

### **HUM 225 Study Abroad 2(2-0)**

An interdisciplinary study abroad course, offering students a unique insight into what is offered via traditional classroom experience. This class will study different aspects of a specific society. Students will interact directly with the idiosyncrasies of a specific culture and understand aspects such as: language, history, food, currency, religion, architecture, and ideas. The course will consist of combinations of lectures, tours, field research, cultural events, interviews, meetings with local experts, and a journal.

Prerequisites: Instructors Approval Needed

### **HUM 251 American Studies I: The Cultural Foundations of the 20th Century 3(3-0)**

Along with HUM 252, this two-semester sequence centers on American cultural myths and values, examining their origins, development, and current manifestations (e.g. ideas of equality, the frontier, competition, pursuit of happiness, liberty, destiny, etc.) The approach is historical, using materials from literature, popular culture, and historical studies. The course centers on discussion stemming from assigned readings for which the instructor sets the cultural and historical context. Students desiring social science credit should register for HIS 251.

### **HUM 252 American Studies II: Old Myths/New Realities in the 20th Century 3(3-0)**

Continuation of HUM 251. Students desiring social science credit should register for HIS 252.

### **HUM 253 American Culture 3(3-0)**

This course is designed to introduce from a variety of programs to a humanities approach into American Culture. This exploration will focus on the way the humanities and their concern with art, ethics, history, philosophy, and culture analyze the cultural production and reproduction of values in the United States. This course will stress interaction through writing, collaborative assignments, presentations, and discussions to emphasize the humanities' commitment to self-discovery, expression, and reflection.

Prerequisites: ENG 111 and either SPE 101 or SPE 257

### **HUM 294 Field Experience in Fine Arts 3(3-0)**

A travel course of an interdisciplinary nature where the world of theatre, music, dance and the visual arts are explored in a metropolitan area.

Prerequisites: HUM 102 and/or any other TAI course recommended

### **HUM 295-299 Current Topics 3(3-0)**

Courses designed to investigate various topics in Humanities not included in current courses. Topics will be announced.

## **(IND) INDUSTRIAL TECHNOLOGY**

### **IND 101 Basic Machine Shop Practices 4(4-0)**

This is a one semester program designed to prepare students for a variety of jobs in the Machine tool industry. The students will be trained in processes including sawing, mill operations, and lathe operations. Extensive safety training in each of these processes will be covered as well. Students will also learn a wide variety of measuring techniques most often found in the Machine Tool Industry.

### **IND 102 Machine Tool Practices II 4(4-0)**

This is a one semester program designed to prepare students for a variety of jobs in the Machine tool industry. The students will be trained in processes including sawing, mill operations, and lathe operations. Extensive safety training in each of these processes will be covered as well. Students will also learn a wide variety of measuring techniques most often found in the Machine Tool Industry. This program is an extension of IND 101. This program takes basic machining and measuring techniques and takes them to another level. The expectations along with the project work will greatly increase in this course.

Prerequisites: IND 101, grade of C or better in MAT 104 or equivalent

### **IND 113 CNC Machining 4(4-0)**

The student will be introduced to CNC programming codes developed from using basic blueprint reading skills to convert basic blueprint measurements into basic CNC programming language. This course will familiarize the student in learning G and M codes, translating basic print drawings into CNC programming codes, become familiar with general CNC principles and its functions and introducing them to CNC machines and basic CNC programming skills. Student will also be introduced to MasterCam CNC graphic software. This course is a pre-requisite to IND 116 Intermediate CNC Programming.

### **IND 116 CNC Programming 4(4-0)**

This is a one semester program that is focused on the operations of CNC equipment along with the integration of Mastercam technology. Students will be working with a HAAS Machining Center along with a Hurco knee mill.

Prerequisites: IND 101, IND 113, grade of C or better in MAT 105 or MAT 170 or equivalent

### **IND 121 Manufacturing Processes 2(2-0)**

A survey of the processes used to manufacture parts in quantity, this course is focused upon foundry, forming, stamping, metal finishing and joining technologies. Tours of manufacturing facilities augment classroom instruction and develop understanding of the scope of manufacturing enterprise in the local economy.

### **IND 140 Metallurgy and Industrial Materials 3(3-0)**

An applied course covering the physical and mechanical properties, classification systems and heat treatment procedures for common ferrous and non-ferrous metals. Lab experiences include quench and temper, carburizing, tensile and hardness testing.

## **(JOR) JOURNALISM**

### **JOR 100 Print Media Practicum 1(1-0)**

This course is designed to give the student practical experience with the print media through contributions to various publications of the College. Topics include writing style, layout, editing, photography, graphics, and ethics.

### **JOR 120 School Newspaper Publications 3(3-0)**

A basic study of journalism as it relates to the publication of a school newspaper.

## **(JPN) JAPANESE**

### **JPN 101 Elementary Japanese I 3(3-0)**

This is an introductory course in Japanese language, designed for students with little or no previous knowledge of Japanese. This course introduces the basic structure and vocabulary of modern Japanese, stressing the use of Japanese orthography (the writing system) from the very outset, so the subsequent adjustment to reading ordinary Japanese literature is minimal. Emphasis will be on vocabulary and oral training for conversation with reasonable ease, with an introduction to readings and writing. Familiarity with the sociocultural context in which the modern Japanese language is used will also be stressed.

### **JPN 102 Elementary Japanese II 4(4-0)**

Students in Japanese 102 will continue to learn the basic language skills covered in 101 with increased emphasis on vocabulary, informal language and quick, natural-sounding speech.

Prerequisites: JPN 101 or previous study of Japanese with instructor approval

## **(MAT) MATHEMATICS**

### **MAT 060 Math Study Skills 1.5(1.5-0)**

This course will emphasize study skills important for success in mathematics courses. Topics to be covered include note taking, homework issues, how to study math, test taking, how to use the textbook, and anxiety. It is strongly recommended that students take another MAT course concurrently with MAT 060. Credit/no credit only.

Prerequisites: None

### **MAT 101 Basic Mathematics 3(3-0)**

An introductory mathematics course with a focus on applications of arithmetic, including percents (increase/decrease, compound interest, investments, inflation/deflation), proportions (unit prices, revenue/cost/profit, medicine doses, comparisons, unit conversions), and geometry (perimeter/circumference, area, surface area, volume).

Prerequisite: None

### **MAT 102 Algebraic Concepts 3(3-0)**

Algebraic Concepts is a three credit class designed for the student with little or no previous algebraic background. It will acquaint the student with basic algebraic concepts as well as prepare them to take MAT 104. Also it gives the student the foundation to be successful in the mathematics required in other Mid Michigan Community College programs.

Prerequisites: None

### **MAT 104 Basic Algebra 3(3-0)**

Topics include real numbers, first degree equations and inequalities, special products and factoring, rational expressions, graphs, and linear systems.

Prerequisite: A minimum grade of C in MAT 101 OR MAT 102 OR equivalent. Please Note: MAT 104 is also offered as a two-semester sequence and a three-semester sequence, see next.

### **MAT 104A, MAT 104B, and MAT 104C Basic Algebra (3 semester sequence) Each course 1.5(3-0)**

These Math Lab courses consist of one credit modules designed to allow the student to learn at a pace that will help them be successful in Basic Algebra. MAT 104A includes basic rules, signed numbers, basic equations, and inequalities and applications; MAT 104B includes constructing and interpreting graphs, and working with exponents and polynomials; MAT 104C includes factoring, solving equations, and working with rational expressions. Completions of all three modules are equivalent to MAT 104.

Prerequisite: Minimum grade of C in MAT 101 OR MAT 102 OR equivalent to take MAT 104A. Minimum grade of C in MAT 104A to take MAT 104B. Minimum grade of C in MAT 104B to take MAT 104C.

### **MAT 104X, MAT 104Y Basic Algebra (2 semester sequence) Each course 1.5(3-0)**

MAT 104X and MAT 104Y are a two semester sequence covering the same material as the traditional classroom version of MAT 104. MAT 104X includes algebraic expressions, signed numbers, linear equations, linear inequalities, applications, and linear graphing. MAT 104Y includes integer exponents, polynomials, factoring, solving polynomial equations, rational expressions, and solving rational equations. Note: Students choosing to take MAT 104 as a sequence must complete either the ABC sequence or the XY sequence to complete MAT 104. Courses from the two sequences cannot be mixed.

Prerequisites: Minimum grade of C in MAT 101 OR MAT 102 OR equivalent to take MAT 104X. Minimum grade of C in MAT 104X to take MAT 104Y.

### **MAT 105 Intermediate Algebra 3(3-0)**

A continuation of Basic Algebra including an in-depth study of some of the topics covered in MAT 104. Topics include polynomials, rational expressions and equations, radicals, integer and rational exponents, equations of the line, quadratic equations, functions, linear systems, and Cramer's Rule.

Prerequisite: Grade of C or better in MAT 104 or equivalent.  
Please Note: MAT 105 is also offered as a two-semester sequence, see next.

### **MAT 105X, MAT 105Y Intermediate Algebra (2 semester sequence) Each course 1.5(3-0)**

MAT 105X and MAT 105Y are a two semester sequence covering the same material as the traditional classroom version of MAT 105. MAT 105X includes a brief review of basic algebra before covering functions, function operations, functions of variation, and systems of linear equations in two and three variables. MAT 105Y includes inequalities, absolute value equations and inequalities, radicals and rational exponents, rational equations, and quadratic equations, functions, and graphs. Note: Students choosing to take MAT 105 as a sequence must complete either the ABC sequence or the XY sequence to complete MAT 105. Courses from the two sequences cannot be mixed.

Prerequisite: Minimum grade of C in MAT 104 or equivalent to take MAT 105X. Minimum grade of C in MAT 105X to take MAT 105Y.

### **MAT 107 College Algebra 3(3-0)**

Students in College Algebra will study real and complex numbers, linear functions, quadratic functions, zeros of functions, interpreting graphs, linear and quadratic inequalities, polynomial and rational functions, exponential and logarithmic functions, the algebra of functions, and conic sections.

Prerequisite: Successful completion of MAT 105 or equivalent.

### **MAT 114 Mathematical Reasoning 3 (3-0)**

Provides a course for students majoring in fields that do not have a specific mathematics requirement. Emphasizes practical applications of mathematics, problem solving, and the communication of mathematics. Topics include Financial Mathematics, Growth Models, Probability and Statistics, and Voting and Apportionment. Topics determined by the instructor will also be in the course. These topics may include graph theory, game theory, set theory, logic, linear algebra, economics, or other approved topics.

Prerequisite: MAT 104 with a minimum grade of C or placement into MAT 105.

### **MAT 116 Business Mathematics I 3(3-0)**

A course designed to show students how algebra can be applied to solve a variety of problems encountered in business management. Topics covered include: mathematical models, mathematics of finance; functions; linear functions; systems of linear equations and inequalities; linear programming; simplex logarithms; quadratic functions; and exponential functions.

Prerequisite: Minimum grade of C in MAT 105 or equivalent.

### **MAT 118 Mathematics for Elementary Teachers I 3(3-0)**

This course provides part of the mathematical background necessary for elementary teachers. Topics include sets, numerations systems, elementary number theory, natural numbers, integers, and rational numbers.

Prerequisite: Minimum grade of C in MAT 105 or equivalent.

### **MAT 124 Precalculus 5(5-0)**

Preparation for students who desire to study calculus. Topics include properties of real numbers, inequalities, data analysis, modeling, functions and relations, logarithms and exponential functions, circular and trigonometric functions.

Prerequisite: Minimum grade of C in MAT 105 or MAT 107 or equivalent

### **MAT 126 Calculus I 5(5-0)**

The first of a series of four courses for mathematics, engineering, and science students. Topics include limits, continuity, differentiation of algebraic and trigonometric functions, applications of derivatives, fundamental integration, exponential and logarithmic functions.

Prerequisite: Minimum grade of C in MAT 124 or equivalent

### **MAT 170 Technical Mathematics II 3(3-0)**

This applied mathematics course is for students who already have satisfactory arithmetic skills, or who have completed an introductory course, such as MAT 101. The object of the course is to apply geometry and trigonometry to realistic machine tool problems. Many problems will require the student to work with engineering drawings or blueprints. Topics covered will include signed numbers, the Cartesian coordinate system, solving equations, circles and arcs, geometric constructions, and trigonometry. Students are expected to have a scientific calculator. Calculator operations will be covered in class.

Prerequisite: MAT 101 or equivalent

### **MAT 212 Introduction to Probability and Statistics 3(3-0)**

Selected topics from probability, variable, data collection and summarization, distribution, hypothesis testing, regression, and correlation. An interest course for use in teaching, science, business, biology, sociology, psychology, economics and more.

Prerequisite: Minimum grade of C in MAT 104 or equivalent

### **MAT 216 Business Mathematics II 3(3-0)**

This course is a sequence to MAT 116 and covers topics such as exponential and logarithmic functions, derivatives, integration, and applications to business situations.

Prerequisites: Minimum grade of C in MAT 116.

### **MAT 217 Business Calculus 4(4-0)**

A continuation of MAT 116. This course is now four credits, an expansion of the previous three-credit MAT 216 course. Fundamental calculus operations applied to business and financial situations. Topics will include limits, derivatives and their applications, curve sketching and optimization, exponential and logarithmic functions, integration and applications, an introduction to functions of several variables, and the mathematics of finance. Students are required to have a graphing calculator. The Texas Instruments TI-83+ calculator is strongly recommended.

Prerequisites: Minimum grade of C in MAT 116 or MAT 107.

### **MAT 218 Mathematics for Elementary Teachers II 3(3-0)**

Continuation of MAT 118 to include decimals, percent, ratio-proportion, geometry, probability, statistics, introduction to algebra and microcomputer use.

Prerequisite: Minimum grade of C in MAT 118

### **MAT 225 Calculus II 4(4-0)**

Topics include indeterminate forms, methods and applications of integration, improper integrals, parametric equations, polar coordinates, and infinite series.

Prerequisite: Minimum grade of C in MAT 126 or equivalent

### **MAT 226 Calculus III 4(4-0)**

Topics covered include: functions of n-variables, partial differentiation, multiple integration, solid analytic geometry, 3-space vectors, and Greens Theorem.

Prerequisite: Minimum grade of C in MAT 225 or equivalent

### **MAT 230 Introduction to Linear Algebra 3(3-0)**

This course acquaints students with the theory and elementary application of vectors and matrices. Topics include linear systems, matrices, vectors, vector spaces, and linear transformations.

Prerequisite: Minimum grade of C in MAT 126 or equivalent

### **MAT 290-299 Selected Topics 3(3-0)**

Courses designed to investigate various topics in Mathematics not included in current courses. Topics will be announced.

## **(MID) PERSONAL DEVELOPMENT**

### **MID 101 Strategies for Success in College 2(2-0)**

This course is designed for first time and returning college students. To develop the attitudes and behaviors of successful college students, the course covers topics such as learning styles, critical thinking, reading and comprehension strategies,

as well as note taking, test taking, and time management strategies. Students will discuss and practice various techniques. By becoming familiar with the various styles of learning, studying, reading, and test taking, students will identify the ways that work best for them.

Prerequisites: None

### **MID 102 Career Exploration and Development 1(1-0)**

Career Exploration and Development is an 8 week, one credit course for new and returning students. This course will focus on assisting students in identifying their career goals through self-assessment of interests, aptitudes, and world of work preferences. Students will also learn resume and cover letter development, interview techniques, and job search strategies.

Prerequisites: None

Corequisite: This course must be taken in conjunction with at least one other course, not PED.

### **MID 103 Human Relations 3(3-0)**

This is an applied social science course. Focus will be on theory and research from the social sciences (primarily psychology) that apply to an individual's personal and professional development. This course is not intended solely for psychology or other social science majors, but for any student who is interested in improving psychological well-being.

### **MID 104 First Year Experience 2(2-0)**

This course encourages academic and social interaction with peers, faculty and staff, and other members of the MMCC community. The students will learn to have an active role in their education. Participation in the course facilitates improvement of creative and critical reasoning, study habits and preparation skills, information literacy, and presentation skills. This course provides the groundwork for independent and self-motivated learning and introduces or reintroduces students to skills and abilities which will allow them to thrive in a changing college environment.

Prerequisites: None

## **(MUS) MUSIC**

### **MUS 131 Music for Elementary Teachers 3(3-0)**

This course will prepare elementary teachers for uses and applications of music in the elementary classroom.

### **MUS 275 Music Appreciation 3(3-0)**

This course will promote general musical understanding through active listening.

## **(NAL) NATIVE AMERICAN LANGUAGE**

### **NAL 101 Ojibwe Language I 3(3-0)**

The primary purpose is to introduce the student to the Ojibwe language and to begin to have an understanding of the beauty of the language. This course is designed to acquaint the student with basic words and phrases and stress oral learning. A system of writing will be introduced.

## **(NUR) NURSING**

### **NUR 121 Fundamentals of Nursing 5(5-0)**

This is the basic course in the nursing curriculum which provides the beginning nursing students with the foundation upon which other courses build and expand. The course expands on the role of the nurse in the exploration of concepts in communication techniques, nursing process, nutrition, wellness, adaptation, scientific principles and skills of basic nursing practice as applied to common physical and psychosocial manifestations of health and illness. In addition, the legal and ethical aspects of nursing are discussed.

Prerequisite: Admission to NUR Program

Corequisites: NUR 124, NUR 150, NUR 151

### **NUR 124 Nursing Clinical I 4(12-0)**

This is the basic clinical course in the nursing curriculum which provides the beginning nursing students with the foundation upon which other courses build and expand. This clinical course consists of a guided learning clinical experience in a selected long - term health care facility. Emphasis is placed on application of principles and techniques of basic nursing theory common to the institutionalized client. Also includes practice and demonstration of competency of basic nursing skills in the Clinical Simulation Center (CSC) at the college.

Prerequisite: Admission to Nursing Program

Corequisite: NUR 121, NUR 150, NUR 151

### **NUR 125 Nursing Care of Adults I 4(4-0)**

This course focuses on care of the adult medical-surgical client with common, well-defined, non-complex stressors. The course uses selected adaptive problems of chronic disease, rehabilitation and aging. Includes use of the three nursing roles (Direct Care Giver, Communicator, and Manager) and nursing process in planning care for the client and support person(s).

Prerequisites: NUR 121, NUR 124, NUR 150, NUR 151

Corequisite: NUR 128, NUR 152

### **NUR 128 Nursing Care of Adults Clinical II 4(0-12)**

A clinical course which consists of guided learning experiences in selected acute care health facilities. Emphasis is placed on use of nursing skills, client plan of care and communication techniques with medical surgical clients and support person(s) throughout the life span. Focus is on expansion of knowledge and skills acquired in NUR 124 to include growth and development, nutrition, drug therapy and variations from normal. Also includes practice and demonstration of competency of nursing skills in the Clinical Simulation Center (CSC) at the college.

Prerequisites: NUR 121, NUR 124, NUR 150, and NUR.151

Corequisites: NUR 125 and NUR 152

### **NUR 132 Clinical Practicum VI 1(0-3)**

This clinical course focuses on the information and skills previously learned in NUR 121, 124 and NUR 150. It consists of a guided learning clinical experience in a selected long - term health care facility. Emphasis is placed on application of principles and techniques of basic nursing theory common to the institutionalized client. This clinical practicum is specifically targeted for the nursing student returning to the Nursing program. Students must successfully complete this clinical practicum to return to the Nursing program. This course also includes the practice and demonstration of competency of selected nursing skills in the Clinical Simulation Center (CSC) at the college.

Corequisite: NUR 150

### **NUR 133 Transition for Advanced Standing Nurses 3(2.5-1)**

This course is designed to assist in the role transition from practicing LPN to ADN student. This course is specifically targeted for the non-MMCC LPN and MMCC LPN who graduated more than 2 years prior to readmission. It expands on the concepts of communication techniques, nursing process, assessment, nutrition, safety, evidence-based practice, and skills competency. Students must successfully complete this course to enter the Nursing program.

### **NUR 150 Pharmacology in Nursing 2.5(2.5-0)**

This course consists of theory and techniques used for legal and safe administration of a variety of types of medication preparations. It includes dosage calculation, understanding of medical abbreviations and nursing interventions used in medication administration. This course identifies prototype medications in each of the major classifications. Emphasis is placed on drug reaction, common usage, major side effect, assessment, administrations, and responsibilities for the safe and accurate administration of medications.

Prerequisite: Admission to Nursing Program

Corequisites: NUR 121, NUR 124, NUR 151

### **NUR 151 Assessment in Nursing 0.5 (0-1)**

This course is designed as a hands - on lab to introduce the nursing student to the knowledge and skills required to perform a systematic physical assessment of a healthy adult and to record the findings appropriately. The course emphasizes a holistic approach to assessment while encompassing the growth and development of neonates through geriatrics.

Prerequisite: Admission to the Nursing Program

Corequisites: NUR 121, NUR 124, NUR 150

### **NUR 152 Nutrition Across the Lifespan 1(1-0)**

This course is designed to introduce the nursing student to the fundamentals of nutrition across the lifespan. This course will define the role of nutrients in the human body, as well as family nutrition. Emphasis will be placed on essential nutrients and their primary functions; the processes of digestion, absorption and metabolism; and disease conditions associated with imbalanced nutrition. The student will develop an understanding for therapeutic application of dietary principles and the nurse's role and responsibility in this facet of client care.

Prerequisite: NUR 121, NUR 124, NUR 150, NUR 151

Corequisites: NUR 125 and NUR 128

### **NUR 221 Family Centered Nursing 4(4-0)**

This course is a continuation of maternal/child nursing in which planning care for patients in relation to concepts of family and child development from conception through adolescence in normal and common disease states is studied. Focuses on the use of principles of bio-psycho-social, spiritual, & developmental and needs theories in planning care for well & ill maternity & pediatric patients.

Prerequisite: Admission to Level II of the Program

Corequisite: NUR 222

### **NUR 222 Family Centered Nursing Clinical III 2(0-6)**

This clinical course focuses on the use of the nursing process in planning and implementing care for clients in relation to concepts of family and child development from conception through adolescence. Selected acute care health facilities are utilized for this course.

Prerequisite: Fall Cohort: NUR 125, NUR 128, NUR 152; Winter Cohort: NUR 225, NUR 226, NUR 227

Corequisite: NUR 221

### **NUR 223 Mental Health Nursing 2(2-0)**

This course focuses on selected mental illnesses & mental health interventions including recognition of defense mechanisms, the dynamics of human behavior & therapeutic communications. Students gain further knowledge in relating to clients and an increased understanding of their own behavior.

Prerequisite: Fall Cohort: NUR 125, 128, 150 Winter Cohort: NUR 225, 226, and 227

Corequisite: NUR 224

### **NUR 224 Mental Health Nursing Clinical III 2(0-6)**

This clinical course focuses on the use of the nursing process in planning and implementing care for individuals with mental illness, substance abuse or other mental disabilities. Included is use of communication skills and knowledge of mental health interventions in supporting positive coping behavior. Selected acute care health facilities are utilized for this course.

Prerequisite: Fall Cohort: NUR 125, NUR 128, NUR 152 Winter Cohort: NUR 225, NUR 226, NUR 227

Corequisite: NUR 223

### **NUR 225 Nursing Care of Adults II 4(4-0)**

This course builds on NUR 125: Nursing Care of Adults I; concentrates on advanced acute medical-surgical and critical care problems of adult clients in the structured acute care health setting. Focus is on development of nursing care plans including nutritional therapy, drug therapy, nursing diagnosis & interventions, psychosocial needs, teaching, and referrals.

Prerequisite: Fall Cohort: NUR 221, NUR 222, NUR 223, NUR 224 Winter Cohort: NUR 125, NUR 128, NUR 152

Corequisite: NUR 226

### **NUR 226 Nursing Care of Adults Clinical IV 4(0-12)**

This clinical course builds on NUR 128: Nursing Care of Adults Clinical II; focuses on the advanced medical-surgical and critical care clients with acute disease conditions. Focus is on the development and implementation of the nursing process. Clinical practice is in a selected structured acute care health facility with observational experience in the emergency department, critical care unit, angiography, cardiac catheterization lab, infusion center, and hemodialysis. This course also includes the practice and demonstration of competency of advanced nursing skills in the Clinical Simulation Center (CSC) at the college.

Prerequisite: Fall Cohort: NUR 221, NUR 222, NUR 223, NUR 224 Winter Cohort: NUR 125, NUR 128, NUR 152

Corequisite: NUR 225

### **NUR 227 Leadership in Nursing 2(2-0)**

This course provides the basics of leadership and management techniques to enable students to provide care to groups of clients. Focus is on the use of the nursing process in planning care for groups. Legal and ethical problems in nursing are explored. Includes concept of role transition from student to graduate nurse and stress management techniques. Students must be enrolled in a nursing clinical course concurrently with this course. This course is taught in a hybrid format.

Prerequisite: NUR 121, NUR 124, NUR 125, NUR 128, NUR 150, NUR 151, NUR 152; Fall cohort must also successfully complete NUR 221, NUR 222, NUR 223 and NUR 224

Corequisites: NUR 225, NUR 226

### **NUR 228 Preceptorship Clinical V 3(0-9)**

This is the capstone course for the Nursing program and is the clinical portion of the NUR 227 leadership course. The primary goal of this structured capstone clinical experience is to facilitate the role transition of student nurse to graduate nurse. The student nurse, under the direct guidance of a selected staff (preceptor), with faculty as a resource, applies theory to practice in real-life work situations. The student is required to complete 135 clinical hours for this course in an acute care health facility.

Prerequisites: NUR 221, NUR 222, NUR 223, NUR 224, NUR 225, NUR 226, NUR 227

## **(ORT) ORIENTATION**

### **ORT 100 College Navigation Course 0(0-0)**

This course is designed to provide skills to students to navigate the college systems. In addition, students will explore their career options and develop an Education Plan, learn to manage their financial aid, and develop success strategies.

## **(PED) PHYSICAL EDUCATION**

### **PED 103 Body Mechanics/Aerobics 1(1-0)**

Exercise through choreographed dancing. The course includes an understanding of aerobic exercise, the proper approach to physical fitness, and its effect on tension and better health.

### **PED 109 Beginning Dance Exercise 1.5(1.5-0)**

This course utilizes aspects of the following: modern dance, jazz dance, Duncan Dance, martial arts, yoga, and the Alexander Technique. Students will become familiar with their own inner rhythm and dance of fitness. The classes will stimulate, condition and prepare the body through the use of movement forms. This course will utilize the Nia Technique to combine the components listed above, primarily through dance/exercise routines, with very brief periods of verbal instruction.

### **PED 110 Beginning Body Dynamics 1(1-0)**

This course combines elements of cardiovascular and strength training, martial arts movement, pilates, yoga, and dance into an integrated exercise routine. Through verbal instruction, students will perform movements designed to increase basic physical fitness. Knowledge of life-long fitness practices will also be gained.

### **PED 118 Beginning Tennis 1(1-0)**

This course is designed to introduce the student to the game of tennis. Major emphasis is on basic strokes, scoring, etiquette, and selection of equipment.

### **PED 119 Beginning Golf 1(1-0)**

This course is designed to introduce students to the basic principles of golf. In addition to learning and practicing the

golf swing, rules and etiquette of the game are discussed. Students may use their own equipment or rent from the golf facility where the class is held.

### **PED 121 Introductory Scuba Diving 2(2-0)**

Introductory SCUBA is designed to introduce students to SCUBA diving, SCUBA equipment, water safety and the joys of diving. This course is designed for students to learn the necessary skills and knowledge to prepare for open water SCUBA certification as a SCUBA schools international (SSI) open water diver. Students will complete the academic and pool portions of the basic three part SCUBA certification in this class. The third part of certification entails the open water certification dive that would be completed independently at a later date. It is important to note that completion of the first two parts of this class will not allow a student to dive with mot companies until they have completed part three, which is not included in this course. Please contact the instructor if you have questions. Prerequisites: None, but students should be good swimmers, understand that this is a gear intensive sport and that there is a degree of physical fitness necessary to become a SCUBA diver. Medical clearance may be required prior to any water work. Students must be capable of continuously swimming 200 yards and treading water/floating for a period of 10 minutes by the end of the course.

### **PED 124 Beginning Skiing 1(1-0)**

This course is designed to introduce students to basic downhill skiing on an established ski resort hill. Students may use their own equipment or rent from the ski resort.

### **PED 126 Beginning Bowling 1(1-0)**

This course is designed to introduce students to the basic game of bowling. Open to all students; a fee is charged for rental of bowling facilities. Students may use their own equipment or rent from the bowling alley where the class is held.

### **PED 132 Beginning Karate 1(1-0)**

This course has been designed to help the participating student understand the art of karate, not only as a method of self-defense but as a 2,000 year old art developed to better-coordinate the body and mind. Emphasis is placed on physical fitness, history of the art, self-discipline, and self-defense. Involved are body-movement principles, a progressive exercise program, and other desirable health and mental aspects of the art of karate.

### **PED 145 Beginning Snowboarding 1(1-0)**

This is a course in basic snowboarding. The course includes instruction in the proper use of equipment, safety considerations, and the basic skills required to snowboard.

### **PED 203 Intermediate Body Mechanics/Aerobics 1(1-0)**

A continuation of PED 103 with emphasis on developing increased cardiovascular fitness.

Prerequisite: PED 103 or permission of the Instructor

### **PED 207 Intermediate Kardio-Kickboxing 1(1-0)**

This course is a continuation of PED 107.

Prerequisite: PED 107 or PED 108

### **PED 208 Intermediate Kardio-Kickboxing 1.5(1.5-0)**

This course is a continuation of PED 108.

Prerequisites: PED 107 or PED 108

### **PED 210 Intermediate Body Dynamics 1(1-0)**

This is the second in a series of courses combine elements of cardiovascular and strength training, martial arts movement, pilates, yoga, and dance into an integrated exercise routine. Through verbal instruction, students will perform movements designed to increase basic physical fitness. Knowledge of life-long fitness practices will also be gained.

Prerequisite: PED 110

### **PED 218 Intermediate Tennis 1(1-0)**

This course is a continuation of PED 118 with major emphasis shifting to singles and doubles play.

### **PED 219 Intermediate Golf 1(1-0)**

A continuation of PED 119 with emphasis on the use of specific clubs and types of shots, e.g. woods, short irons, chipping, etc.

### **PED 224 Intermediate Skiing 1(1-0)**

Students begin upper/lower body separation leading to steered turns and matching of skis before the fall line is emphasized.

### **PED 226 Intermediate Bowling 1(1-0)**

A continuation of PED 126 with emphasis on spot bowling, consistency, and accuracy.

### **PED 232 Intermediate Karate 1(1-0)**

The purpose of this course is to provide students already knowledgeable in the rudiments of the art with the opportunity to gain more substantial expertise in specific aspects of the art. These include self-defense, sport fighting, philosophy, and history.

### **PED 243 Advanced Body Mechanics/Aerobics 1(1-0)**

A continuation of PED 203 with emphasis on increasing knowledge of the use of dance techniques for cardiovascular fitness.

Prerequisite: PED 203 or permission of the Instructor

### **PED 244 Advanced Skiing 1(1-0)**

Students are introduced to parallel skiing. Exercises to develop upper level dynamic skiing i.e. short radius, fall line skiing is emphasized.

### **PED 246 Advanced Bowling 1(1-0)**

A continuation of PED 226 with emphasis on adjusting the game to alley conditions, changing lines and spots, etc.

### **PED 248 Advanced Tennis 1(1-0)**

This course is designed primarily to improve a player's court strategy. The volley net is emphasized.

### **PED 249 Advanced Golf 1(1-0)**

A continuation of PED 219 with emphasis on accuracy, shot placement, selecting the right club, etc.

### **PED 251 Advanced Body Dynamics 1(1-0)**

This is the third in a series of courses that combine elements of cardiovascular and strength training, martial arts movement, pilates, yoga, and dance into an integrated exercise routine. Through verbal instruction, students will perform movements designed to increase basic physical fitness. Knowledge of life-long fitness practices will also be gained.

Prerequisites: PED 110, PED 210

### **PED 252 Advanced Karate 1(1-0)**

This course is designed for the student who has completed PED 232 or who can perform the basic techniques of Moo Duk Kwan Tang Soo Do. Upon completion of the course the student should be prepared to earn an eighth gup purple belt under requirements set forth by the Karate Institute. Emphasis is on forms, hand and foot techniques, one-step sparring, and class sparring.

### **PED 255 Physical Training 3(3-0)**

This course is designed to help students pass the M.C.O.L.E.S. physical training requirements. The objective is to teach the student to become physically and mentally fit to become a police officer.

## **(PHL) PHILOSOPHY**

### **PHL 201 Introductory Philosophy 3(3-0)**

A problem approach organized to introduce the student to some of the thinkers, systems, and problems of philosophy facing humanity from ancient times to the present.

### **PHL 205 Practical Reasoning and Argumentation 3(3-0)**

This course develops reasoning skills & equips students to recognize & analyze arguments as they occur in a variety of contexts (ie: editorials, critical discussions, quarrels, advertisements, speeches, academic inquiries, negotiations, legal deliberations, ethical debates, etc.). Study will focus on the features of good arguments, different types of arguments, ways arguments can go wrong, and techniques for criticizing & constructing effective arguments. Emphasis is not on theories but on developing tools for successful thinking in dialogue with others.

### **PHL 210 Social Philosophy: Ideals & Realities 3(3-0)**

This course is an inquiry aimed at discovering which questions are the right ones to ask when evaluating a social system or when designing it. It covers several major social philosophies,

as reflected in utopian and dystopian writings, and focuses on issues such as human nature, freedom, rights, and obligations, and the relationship between individual and community.

### **PHL 220 Ethical Issues 3(3-0)**

A study of ethical principles, reasoning and practice as it occurs in such areas as business, law, medicine, ecology, and government. A brief review of the historical development of ethical theory together with case studies will be the primary focus of the course. The main objective is to provide students with the intellectual tools for recognizing and analyzing such ethical issues as confront members of our society.

### **PHL 250 Chinese Philosophies 3(3-0)**

This course surveys three branches of traditional Chinese philosophy—Confucianism, Daoism, and Buddhism— and includes comparisons with Western thought. Readings include translations of founding thinkers plus later commentaries. Emphasis will be on the relevance of these philosophies for thinking about how we should live.

Prerequisites: One philosophy course recommended, but not required.

### **PHL 290-99 Selected Topics 3(3-0)**

These courses are designed to investigate various topics in Philosophy that are not included in current courses. Topics will be announced.

## **(PHT) PHARMACY TECHNOLOGY**

### **PHT 104 Orientation to Pharmacy/Community Pharmacy Practices 4(3-2)**

This course presents an orientation to the work of pharmacy technicians and the context in which technicians work is performed in a community pharmacy setting. The concept of direct patient care and the technicians' general role in delivery with particular emphasis on the complementary roles of pharmacists and technicians is presented and how they relate in a community pharmacy setting.

Corequisites: ALH 100, PHT 105, PHT 106

### **PHT 105 Pharmacy Law 2(2-0)**

This course presents information on the influence that medication laws, standards, and regulations have on pharmacy practice. Federal and State regulations that govern medicine use and standards of practice are presented. Laws, regulations and standards which govern the preparation of non-compounded, cytotoxic and other hazardous medication products are emphasized.

Corequisites: ALH 100, PHT 104, PHT 106

### **PHT 106 Pharmaceutical Calculations 3(3-0)**

This course will present applications of pharmaceutical dosage calculations using various systems of measurements includ-

ing conversions and applications of equations. This course also introduces basic business math skills, such as calculating inventory, purchasing, and profit margins.

Corequisites: ALH 100, PHT 104, PHT 105

### **PHT 113 Orientation to Institutional Pharmacy Practices 4(3-2)**

This course presents information on how to assist the pharmacist in an institutional pharmacy. Students will learn about the basic structure and functioning of an institutional pharmacy. Students will gain hands-on experience in sterile and non-sterile compound product preparation. Emphasis will be on aseptic technique and parenteral product preparation where students develop skills in the manipulation of parenteral drug products.

Prerequisites: PHT 104, PHT 105, PHT 106

Corequisite: PHT 114, SPE 101 or SPE 257

### **PHT 114 Pharmacology for Pharmacy Technicians 4(3.5-1)**

This course presents information on the use and side effects of prescription medications, nonprescription medications, and alternative therapies commonly used to treat diseases affecting the body systems. Students learn the brand and generic names, standard pronunciations, dosage forms, and routes of administration for medications.

Prerequisites: PHT 104, PHT 105, PHT 106

Corequisite: PHT 113, SPE 101 or SPE 257

### **PHT 115 Pharmacy Technician Clinical 7(0-15)**

Skills and knowledge acquired during the first two semesters of the Pharmacy Technician program are applied in community and institutional pharmacy settings. All internship experience is under the supervision of a registered pharmacist. 160 hours will be completed in a community pharmacy setting and 160 hours will be completed in an institutional pharmacy setting for a total of 320 hours of internship experience.

Prerequisites: PHT 113, PHT 114, SPE 101 or SPE 257

## **(PHY) PHYSICS**

### **PHY 101 Introductory Physics (non-Lab) 3(3-0)**

A general non-mathematical physics presentation stressing a conceptual as opposed to laboratory approach. Some topics of discussion are mechanics, sound, heat, electricity, light, nuclear concepts, and everyday encounter of principles governing these topics. (Not recommended for students majoring in science.)

### **PHY 103 Applied Physics 4(3-2)**

This course is designed for students enrolled in technical education programs. The purpose of the course is to provide an understanding of physical principles and their application

to industry. The course content includes a study of precision measurements; properties of solids, liquids, and gases; force and motion; work energy and power; vectors; analysis of basic machines; temperatures and heat.

Corequisite: MAT 104 or MAT 170

#### **PHY 105 Introductory College Physics I 5(4-2)**

This course focuses on the study of motion, forces, energy, sound, wave motion and heat. Students should have had or be currently taking a class in trigonometry.

Corequisite: MAT 124 or equivalent

#### **PHY 106 Introductory College Physics II 5(4-2)**

Continuation of PHY 105. Topics studied include optics, electricity and magnetism, atomic and nuclear theory and relativity.

Prerequisite: PHY 105

#### **PHY 211 University Physics I 5(4-2)**

This course covers mechanics, sound, and heat. It is a mathematical treatment of problems of force, motion, and energy designed for pre-engineering students and physics or mathematics majors. Not open to students with credit in PHY 105 or PHY 106.

Prerequisite: MAT.124 with a C or better

Corequisite: MAT 126 recommended

#### **PHY 212 University Physics II 5(4-2)**

Electricity, magnetism, light, relativity, and nuclear structure are discussed. Designed for pre-engineering students and physics majors. Not open to students with credit in PHY 105 or PHY 106.

Prerequisite: PHY 211

### **(PLT) PLASTICS TECHNOLOGY**

#### **PLT 101 Survey of the Plastics Industry 2(2-0)**

This course is intended to provide the student a base foundation of the plastics industry; including the history of people, materials and processes that helped shape the modern plastics industry. Various careers in the plastics industry and related industries, such as drafting, design, machining, electronics, maintenance, computer information systems, network and etc. will also be explored.

#### **PLT 110 Plastics and Polymer Materials 3(3-0)**

In this course students will be introduced to polymers, plastics, additives, fillers and reinforcements commonly used in modern plastics manufacturing. Students will study the physical and mechanical characteristics of thermoset and thermoplastic materials, define the different materials classifications and types and review criteria used for material selection and cost estimating as related to design, fit and function of finished goods.

#### **PLT 111 Plastics and Polymer Materials Testing 3(2-2)**

In this course students will be introduced to the ASTM (American Standards and Testing Methods) and ISO (International Standards Organization) testing procedures commonly used in the plastics manufacturing industry. Students will conduct physical and mechanical tests in accordance with the different test standards, including all pre and post analysis and report generating.

Corequisite: PLT 110

#### **PLT 120 Plastics Manufacturing Processes I 4(2-4)**

In this course student will study Injection Molding, Blow Molding and the Extrusion processes. This course will cover material and design differences for each application, processing difference and will include a concise review of pre and post molding activities for each process.

Prerequisite: PLT 101

#### **PLT 130 Thermoforming I 2(1-2)**

This course is an introduction to the plastics thermoforming process. Topics include health and safety of the thermoforming process, common materials, types and methods of thermoforming processes (i.e.: thick and thin gauge forming), machinery and the economics of the thermoforming industry as a whole.

#### **PLT 135 Thermoforming II 2(1-2)**

This course is an advanced continuation of PLT 130: Thermoforming I. Advanced processing, trimming and forming techniques will be explored throughout the courses, including but not limited to, tooling, part/product development, processes troubleshooting, and equipment troubleshooting and machinery maintenance.

Prerequisite: PLT 130 or permission of instructor

#### **PLT 180 Plastics Internship I 3(3-0)**

This course is intended to provide students an on-site work experience in a plastics manufacturing company. Under cooperative supervision by the College and the work site Supervisor, students will further develop skills and gain training in the plastics engineering technology career field.

Prerequisite: 15 PLT Credits and permission of instructor

#### **PLT 215 Secondary Operations in Plastics Manufac 3(2-2)**

This course provides the student with basic knowledge of secondary processes associated with plastic product manufacturing. Common processes used in assembly, decorating, trimming, joining and packaging of plastic parts will be covered. Emphasis will be placed on the complete manufacturing process.

Prerequisite: PLT 101, PLT 110, PLT 120 & PLT 130 (If students from other disciplines such as DRT and IND, Permission of Instructor is required)

### **PLT 225 Production Planning and Control 3(3-0)**

This course will introduce students to the basic fundamentals of production planning, scheduling and controlling, such as the development and application of software solutions, inventory management, and lean production concepts. Topics include: forecasting, sales and operations, scheduling, materials requirements, capacity management, production control, "partnering" activities, and system integration. The materials presented in the course are applicable in many different disciplines and manufacturing facilities beyond Plastics that involve the planning, scheduling and controlling of production.

Prerequisite: PLT 101 or Permission of Instructor

### **PLT 235 Manufacturing Quality Systems 3(3-0)**

This course is designed to prepare students with modern concepts of quality control and assurance techniques as a body of managerial, technical, behavioral and economic knowledge. This course will introduce Lean, TQM, Kiazen, ISO and other waste reduction and quality operating systems to improve efficiency and effectiveness in manufacturing operations.

Prerequisite: PLT 101 or Permission of Instructor

### **PLT 250 Plastics Product Development 4(3-2)**

This course is designed to provide students with the basic elements of plastic part design, mold design, tool design and how it differs from the concepts and principles of metal forming, fabrication, and etc. This course will use a variety of software, hardware and graphical design methods as well as traditional print reading, part identification and problem-based case studies. Special emphasis will be given to understanding the role of the following critical elements in plastics product and tool design, plastics material selections, mold fill analysis, finite element analysis, components and functions.

Prerequisite: PLT 101, PLT 110, PLT 120 & PLT 130 (If students from other disciplines such as DRT and IND, Permission of Instructor is required)

## **(POL) POLITICAL SCIENCE**

### **POL 201 Introduction to American Government 3(3-0)**

The emphasis of this course is the structure and function of our national government, understanding the processes of decision-making, and assessing the political importance and role of the individual citizen. The student is also introduced to some political theory as applicable to the American experience.

### **POL 250 International Relations 3(3-0)**

A study of the nature of the international community and the forces which produce cooperation and conflict. Particular attention is given to analyzing power in terms of its acquisition and uses.

### **POL 290-99 Selected Topics 3(3-0)**

These courses are designed to investigate various topics in

Political Science that are not included in current courses. Topics will be announced.

## **(PSC) PHYSICAL SCIENCE**

### **PSC 101 Introductory Astronomy 4(3-2)**

An introduction to astronomy for students who desire a basic understanding of the solar system and the universe. Topics include: historical astronomy, exploration of space, stellar evolution, solar system, galaxies, and the universe. Laboratory work includes individual student use of a telescope.

### **PSC 102 Introductory Physical Science 4(3-2)**

A general course for non-science majors. Selected topics for students interested in energy, meteorology, geology, physics, and chemistry and their interrelationships as they affect the physical environment of persons.

Prerequisite: MAT 104 or equivalent

## **(PSY) PSYCHOLOGY**

### **PSY 101 Introduction to General Psychology 3(3-0)**

This class introduces students to the scientific discipline of psychology. This course will include a comprehensive coverage of basic concepts and principles, terminology, important trends in psychological research, and the application of this research. Emphasis will be placed on contemporary perspectives of psychology, including biological, learning, cognitive, sociocultural, psychodynamic, and humanistic perspectives in understanding normal and abnormal behavior and mental processes.

### **PSY 103 Human Relations 3(3-0)**

This is an applied social science course. Focus will be on theory and research from the social sciences (primarily psychology) that apply to an individual's personal and professional development. This course is not intended solely for psychology or other social science majors, but for any student who is interested in improving psychological well-being.

### **PSY 205 Abnormal Psychology 3(3-0)**

This course introduces students to abnormal psychology issues, including the criteria, nature, development, classification and causes of mental disorders. Perspectives from each of the major contemporary perspectives in psychology will be included. In addition, major theories, significant research, and methods of treatment associated with each of these approaches are presented.

Prerequisite: PSY 101

### **PSY 212 Developmental Psychology 3(3-0)**

This course introduces students to the description and explanation of changes in an individual's behavior that are a result of

maturation and experiences that fall within the life span concept; e.g. behavior-genetics, critical periods, learning cognition, and abnormal development. In addition, this course provides the student with an introduction into methodological research.

Prerequisite: PSY 101.

### **PSY 220 Introduction to Psychological Testing 3(3-0)**

This course is designed to introduce the student to the basic principles of psychological testing. The course will cover the history of psychological testing, assessment in a variety of areas including intelligence testing, personality assessment, neurological assessment, and vocational assessment, and issues relating to test development and review.

Prerequisite: PSY 101.

### **PSY 240 Theories of Personality 3(3-0)**

This course presents issues in the measurement & research of personality. Historical and contemporary theories and theorists from each of the major domains of psychology will be critically examined regarding each of the domains' emphasis on development and assessment of personality. Application of course material will be emphasized.

Prerequisite: PSY 101

### **PSY 250 Clinical Interviewing and Counseling 3(3-0)**

This course is an introduction to theories of counseling as well as the techniques and processes of client and counselor communication. Students explore attitudes, values, and motivation for counseling. Emphasis is placed on the role of the counselor in various agency capacities as well as the development of empathetic and listening skills.

Prerequisite: PSY 101 or permission of the Instructor

### **PSY 281 Behavior Modification 3(3-0)**

This course is an introduction into a survey of developments in behavior alteration. Specifically, emphasis is on behavior modification techniques in the areas of motivation, elimination of undesirable behaviors, an increase of desirable behaviors, and the promotion of academic and social participation in education and other environments.

Prerequisite: PSY 101

### **PSY 283 Forensic Psychology 3(3-0)**

This course introduces students to the nature, development, and application of Forensic Psychology. Students will examine the field of Forensic Psychology and the many applications it has within the legal system and our society.

Prerequisite: PSY.101 Recommended: PSY.205

### **PSY 285 Research Methods 3(3-0)**

This course provides an introduction to research methods in the social sciences. Research designs, data collection methods, basic statistical procedures, and ethical issues in research will

be included. An APA-style research proposal will be completed.

Prerequisite: PSY 101, MAT 212

### **PSY 290-99 Selected Topics 3(3-0)**

These courses are designed to investigate various topics in Psychology that are not included in current courses. Topics will be announced.

## **(PTA) PHYSICAL THERAPIST ASSISTANT**

### **PTA 101 Orientation to Physical Therapy 1(1-0)**

This introductory course provides an overview of the profession of physical therapy and focuses upon the role of the physical therapist assistant. Ethical and legal standards, cultural competence, professional behaviors, and standards of practice are emphasized. Communication skills are presented to better serve diverse patients/clients in the healthcare environment.

### **PTA 105 Modalities I 1(1-0)**

This course includes instruction in the principles, indications, contraindications, precautions and techniques of biophysical agents, manual therapy and patient positioning. Basic documentation is introduced.

Prerequisite: Admission into the Program

Corequisite: PTA 106, PTA 110, PTA 111, PTA 115, PTA 116

### **PTA 106 Modalities I Lab 2(2-6)**

This lab is coordinated with the lectures presented in Modalities I. Students gain hands-on experience with biophysical agents, manual therapy, vital signs and patient positioning. Basic documentation skills are practiced.

Prerequisites: Admission into the Program

Corequisites: PTA 105, 110, 111, 115 & 116

### **PTA 110 Therapeutic Exercise 1(1-0)**

Basic exercise theory and implementation are presented. Fitness concepts of flexibility, strength, endurance, coordination and relaxation are emphasized. Additionally, patient mobility with transfers and progressing to wheelchairs and assistive devices are introduced. The importance of patient and personal safety through proper posture, body mechanics and monitoring are emphasized.

Prerequisites: Admission into the Program

Corequisites: 105, 106, 111, 115 & 116

### **PTA 111 Therapeutic Exercise Lab 2(2-6)**

This lab is coordinated with the lectures presented in Therapeutic Exercise. Students practice basic therapeutic exercise and fitness techniques. Students implement flexibility, strength, endurance, relaxation, and coordination programs. Students will also practice patient mobility with transfer techniques, wheelchairs, and assistive devices. Posture assessment and

proper body mechanics are emphasized.

Prerequisites: Admission into the program  
Corequisites: PTA 105, 106, 110, 115 & 116

#### **PTA 115 Clinical Kinesiology 1.5(1.5-0)**

This course provides an in-depth review of functional human anatomy with an emphasis on the neuromusculoskeletal system. Students will develop an understanding of normal and abnormal movement patterns and gait. A thorough understanding of kinesiology is essential to the Physical Therapist Assistant in understanding pathologies and injuries and providing appropriate and effective treatment for their patients.

Prerequisites: Admission into the Program

Corequisites: PTA 105, 106, 110, 111 & 116

#### **PTA 116 Clinical Kinesiology Lab 1(1-3)**

This lab is coordinated with the lectures presented in Clinical Kinesiology and provides practical observation, palpation and identification skills of basic anatomical landmarks, especially bones, joints and muscles. Normal movement patterns, functional activity analysis, and gait characteristics are included.

Prerequisites: Admission into the Program

Corequisites: PTA 105, 106, 110, 111 & 115

#### **PTA 125 Measurement Techniques 1(1-0)**

Students are presented with the assessment techniques most commonly used in physical therapy. Treatment plans are based upon the objective findings of this data collection. Techniques of goniometry, muscle testing, sensory assessments, gait/posture analysis and balance assessment are presented.

Prerequisites: PTA 105, 106, 110, 111, 115, & 116

Corequisites: PTA 126, 130, 131, & 140

#### **PTA 126 Measurement Techniques Lab 2(2-6)**

This lab is coordinated with lectures presented in Measurement Techniques and allows for hands-on practice. Students participate in guided practice with the assessment techniques of goniometry, muscle testing, sensory assessments, gait/posture analysis and balance assessments.

Prerequisites: PTA 105, 106, 110, 111, 115 & 116

Corequisites: PTA 125, 130, 131, & 140

#### **PTA 130 Advanced Therapeutic Exercise 2(2-0)**

This course presents the principles and guidelines for treating musculoskeletal conditions. Normal and abnormal tissue healing of musculoskeletal structures is emphasized as well as appropriate physical therapy interventions at different stages of healing. Other therapeutic exercises are presented for vascular disorders and improper posture.

Prerequisites: PTA 105, 106, 110, 111, 115 & 116

Corequisites: PTA 125, 126, 131, & 140

#### **PTA 131 Advanced Therapeutic Exercise Lab 2(2-6)**

This lab is coordinated with the lectures presented in Advanced Therapeutic Exercise. Students participate in guided practice in providing physical therapy interventions for musculoskeletal conditions, as well as additional exercises for improper posture. Previous course information about basic therapeutic exercise and fitness are integrated into lab sessions.

Prerequisites: PTA 101, 105, 106, 110, 111, 115, & 116

Corequisites: PTA 125, 126, 130, & 140

#### **PTA 140 Clinic I 4(0.5-10)**

The fulltime clinical education experience offers students opportunities to observe, assist with and implement treatment techniques which have been introduced in prior lecture and practiced in lab courses. The students are under direct supervision of a clinical instructor (physical therapist or physical therapist assistant) who facilitates learning. Students will be assigned to hospitals, outpatient clinics, nursing and rehabilitation centers, or home care settings for four weeks.

Prerequisites: PTA 105, 106, 110, 111, 115, 116

Corequisites: PTA 125, 126, 130, & 131

#### **PTA 205 Modalities II 2(2-0)**

The basic concepts, terminology and physiology of electrotherapeutic agents are introduced. The course guides the student in understanding treatment parameters and the safe management of equipment for pain control, edema/swelling reduction, muscle spasm relief and strengthening.

Prerequisites: PTA 125, 126, 130, 131 & 140

Corequisites: PTA 206, 207, & 208

#### **PTA 206 Modalities II Lab 1.5(0-4.5)**

This lab is coordinated with the lectures presented in Modalities II. Students participate in guided practice of safe and effective delivery of electrotherapeutic agents. The students use a variety of modalities for decreasing pain, increasing strength, reducing edema/swelling, and muscle spasm relief. Documentation skills are reinforced.

Prerequisites: PTA 125, 126, 130, 131 & 140

Corequisites: PTA 205, 207 & 208

#### **PTA 207 Rehabilitation Techniques 2(2-0)**

Rehabilitation techniques are introduced for neurological and pathological conditions. Normal growth and development, as well as orthotics, prosthetics and airway clearance techniques are covered.

Prerequisites: PTA 125, 126, 130, 131 & 140

Corequisites: PTA 205, 206 & 208

#### **PTA 208 Rehabilitation Techniques Lab 2(0-6)**

This lab is coordinated with the lectures presented in Rehabilitation Techniques. Rehabilitation treatments are practiced for

common neurological and pathological conditions. Students also gain hands-on experience with orthotics, prosthetics, adaptive equipment, airway clearance techniques and normal growth and development.

Prerequisites: PTA 125, 126, 130, 131 & 140

Corequisites: PTA 205, 206 & 207

### **PTA 210 Clinical Forum 3(3-0)**

This seminar course offers networking with classmates and instructors to solve clinical problems, improve communication skills, and reinforce professional behavior. Emphasis is on evidencebased clinical decision making, ethical practice, planning for future employment, and professional growth.

Prerequisites: PTA 205, 206, 207 & 208

Corequisites: PTA 240

### **PTA 240 Clinic II 12(0-15)**

Full-time clinical assignments provide a broad range of practice opportunities with patient/clients. Students will be assigned to hospitals, out-patient centers, nursing homes, schools or rehabilitation centers for 40 hours/week for 13 weeks. The students are under the direct supervision of a clinical instructor (physical therapist or physical therapist assistant.)

Prerequisites: PTA 205, 206, 207, 208, all with a minimum grade of B-, and Obtain/keep a current First Aid Certificate and CPR Certificate for the Health Care Provider or an AED/CPR Certificate for the Professional Rescuer.

Corequisites: PTA 210

## **(RAD) RADIOGRAPHY**

### **RAD 100 Introduction to Radiologic Technology 3(2-2)**

This course is an introduction to the radiologic technology profession. Also presented are an introduction to the principles of radiographic exposure, digital imaging, and image processing. Practice in the fundamentals of equipment operation and image processing in the Campus x-ray lab provides the basis for developing initial psychomotor skills necessary to function as a radiologic technologist.

Prerequisite: Admission to the Program

Corequisite: RAD 110

### **RAD 110 Radiation Physics 3(2-2)**

Radiation Physics (RAD 110) is a course designed to prepare students with a basic understanding of the principles of Radiation Physics, X-Ray Production and Interactions. Areas of concentration include Units of Measurement, Forces, Motion, Electrostatics, Magnetism, Basic Electrical Circuits, and Atomic and Nuclear Physics. Emphasis will be placed on the study of ionizing radiation which is especially important to the

Radiographer. Two hours per week will be devoted to lecture and discussion and the remaining two hours will be spent in the laboratory conducting experiments associated with the lecture topics.

Prerequisite: Admission to the Radiography Program

Corequisite: RAD 100

### **RAD 115 Principles of Radiographic Exposure 3(2-2)**

This course contains a study of the prime factors in radiographic techniques determination, the geometric and photographic basis of radiographic image formation, and how these relate to radiographic quality. Methods of technical conversions for adjusting radiographic technique to maintain radiographic quality are studied. An overview of the different systems of radiographic techniques is presented and students learn how to formulate a radiographic technique system. The basic principles of digital imaging are presented. Lab exercises augment the instruction.

Prerequisites: RAD 100 and RAD 110

Corequisites: RAD 130

### **RAD 130 Radiographic Procedures I 4(2.5-3)**

An introduction to radiographic positioning fundamentals, terminology, and procedures. The study of the fundamentals of patient care is integrated with study of the basic radiographic procedures of the thorax, abdomen, upper and lower extremities, pelvic girdle, spinal column, cranium, facial bones, and sinuses. Digital imaging basics are studied as well. Practice of the basic skills required in these procedures will be done in the campus x-ray labs. A cumulative final will be given the last week of classes.

Prerequisites: RAD 100 and RAD 110

Corequisite: RAD 115

### **RAD 175 Radiographic Procedures II 3(2-2)**

A continuation of Radiographic Positioning I Fundamentals, terminology and procedures. The study of the fundamentals of patient care is integrated with study of the basic radiographic procedures of the upper gastrointestinal system, lower gastrointestinal system, gall bladder and biliary ducts, urinary system, mammary gland, pediatric radiography, arthrography, and myelography. Practice of the basic skills required in these procedures will take place in the campus x-ray lab. A cumulative final will be given the last week of classes.

Prerequisites: RAD 115 and RAD 130

Corequisites: RAD 180

### **RAD 180 Clinical Education I 6(0-15)**

The first phase of clinical practicum in the hospital environment. The students review the hospital organization and operation, become familiar with hospital policies and procedures and are introduced to and integrated into the Radiology Department operations. Opportunity to develop and perfect the initial skills needed to function as a radiologic technologist is scheduled,

and the basic radiographic procedures are practiced and assessed. Student film conferences are conducted and pertinent clinical issues are discussed. This course will meet for 19 weeks.

Prerequisite: Successful completion of all first-year requirements.

Prerequisite: RAD 115 and RAD 130

Corequisites: RAD 175

### **RAD 200 Clinical Education I 8(0-15)**

The first phase of clinical practicum in the hospital environment. The students review the hospital organization and operation, become familiar with hospital policies and procedures and are introduced to and integrated into the Radiology Department operations. Opportunity to develop and perfect the initial skills needed to function as a radiologic technologist is scheduled, and the basic radiographic procedures are practiced and assessed. Student film conferences are conducted and pertinent clinical issues are discussed. This course will meet for 19 weeks.

Prerequisite: Successful completion of all first-year requirements.

Corequisites: RAD 201, RAD 215

### **RAD 201 Clinical Issues in Radiography I 2(2-0)**

This course is the first in a series of courses intended to augment first year introductory courses and complement clinical education. Topics covered are medical legal issues, medical ethics, communication in radiology, and critical thinking/problem solving in radiography. In addition, students evaluate selected radiographs taken during clinical education. A semester project integrating didactic concepts with clinical education is conducted. Review is begun for the American Registry of Radiologic Technologists examination.

Prerequisite: RAD 175

Corequisite: RAD 200

### **RAD 205 Clinical Education II 7(0-15)**

The second phase of clinical practicum in the hospital environment provides the opportunity for the student radiologic technologist to develop and perfect the skills to function as a radiologic technologist. Additional radiographic procedures are practiced and assessed. Student film conferences are again conducted. This course will meet for 20 weeks.

Prerequisite: RAD 215

### **RAD 211 Sectional Anatomy 1(1-0)**

Content begins with a review of gross anatomy of the entire body. Detailed study of gross anatomical structures will be conducted systematically for location, relationship to other structures and function. Gross anatomical structures are located and identified in axial (transverse), sagittal, coronal and orthogonal (oblique) planes. Illustrations and anatomy images will be compared with MR and CT images in the same imaging planes and at the same level when applicable. The characteristic

appearance of each anatomical structure as it appears on a CT, MR and ultrasound image, when applicable, will be stressed.

Prerequisites: BIO 141, BIO 142, RAD 175, RAD 180

Corequisites: RAD 201, RAD 205, RAD 214, RAD 215, BIO 110.

### **RAD 213 Radiation Protection 1(1-0)**

This course continues and summarizes the study of the principles of radiation protection included in previous program courses. The practical applications of radiation protection in the clinical setting are discussed. Minimizing patient exposure while maintaining image quality is emphasized, as is radiation safety for medical imaging and other medical professionals.

Prerequisites: RAD 175 and RAD 180

Corequisites: RAD 201, RAD 205, and RAD 215

### **RAD 215 Radiation Biology 1(1-0)**

This course provides a study of the application of radiation and its effects. Areas of concentration are on the response and the biological effects of ionizing radiation on cells and tissues.

Prerequisites: RAD 175 and RAD 180

Corequisites: RAD 201, RAD 205, RAD 211, RAD 213, and BIO.110

### **RAD 217 Radiographic Techniques II 2(2-0)**

A continuation of advanced study in radiologic technology. Radiographic procedures and imaging methods used to demonstrate special anatomical areas or systems are investigated. The pathological processes that necessitate radiological investigation are introduced and correlated with their diagnostic manifestation on the imaging format utilized.

Prerequisites: RAD 200, RAD 201, RAD 215

Corequisites: RAD 220, RAD 221

### **RAD 220 Clinical Education II 9(0-15)**

The second phase of clinical practicum in the hospital environment provides the opportunity for the student radiologic technologist to develop and perfect the skills to function as a radiologic technologist. Additional radiographic procedures are practiced and assessed. Student film conferences are again conducted. This course will meet for 20 weeks.

Prerequisite: RAD 215

### **RAD 221 Clinical Issues in Radiography II 2(2-0)**

This course is the second in a series of courses intended to augment first year introductory courses and complement clinical education. Topics covered are critical thinking and problem solving skills in radiography and communication in medical imaging, and career planning. In addition, students evaluate selected radiographs taken during clinical education. A capstone portfolio is produced. Review for the American Registry of Radiologic Technologists examination is continued. Students are required to pass a capstone simulated registry examination.

Prerequisites: RAD 201, RAD 205, RAD 211, RAD 213, and RAD 215

Corequisites: RAD 217, RAD 230, and RAD 250

### **RAD 225 Clinical Education III 5(0-15)**

The final phase of clinical practicum in the hospital environment designed to perfect the basic skills and develop the fundamental skills in more technically-exacting procedures. Remaining entry-level procedures are assessed, and student film conferences are conducted. This course will meet for 12 weeks.

Prerequisites: RAD 220, RAD 221

Corequisite: RAD 225.

### **RAD 226 Clinical Issues in Radiography III 1(1-0)**

This course is a third in a series designed to augment clinical education. Included in this course is a capstone component that requires successfully completing a simulated registry examination. Other topics include interviewing skills and continuing education professional requirements.

Prerequisites: RAD 220, RAD 221

Corequisite: RAD 225

### **RAD 227 Radiography Review Series Capstone 1(1-0)**

This course is part of a series to be offered on an independent study basis for students who have previously completed a Radiography Program accredited by the Joint Review Committee on Education in Radiologic Technology. Students taking this course require a refresher or remedial course of study in order to re-qualify for the American Registry of Radiologic Technologists examination. The course primarily provides a review of all basic concepts on Radiography, as contained in the primary textbook. Other topics covered are preparation for review, American Registry of Radiologic Technologists examination procedure, and test-taking skills. As a capstone feature, students are required to take two simulated registry examinations, and must pass (75%) at least one of them.

Prerequisites: RAD 101, RAD 111, RAD 116, RAD 176

Corequisite: RAD 214

### **RAD 230 Radiographic Quality Assurance 1(1-0)**

The course discusses the principles of a department wide quality assurance program. The concepts, instrumentation, and testing methods used in radiology departments for quality control of the radiographic imaging system(s) are also covered.

Prerequisites: RAD 201, RAD 205, RAD 211, RAD 213, RAD 215

Corequisites: RAD 217, RAD 221, RAD 250

### **RAD 240 Radiographic Review and Refresher 1(1-0)**

A review and/or update course for practicing radiographers or for those who have not been practicing for a period of time. The content is mutually agreed upon by the individual students and program coordinator. The design and methods of implementation of the course are developed by the program coordinator and a contract is drawn up specifying the content, objective, time frame, credit hours, and requirements. The em-

phasis of the content is tailored to the needs of the individuals with emphasis placed on effective allocation and utilization of available resources to achieve the objectives established.

### **RAD 250 Clinical Education III 7.5(0-15)**

The final phase of clinical practicum in the hospital environment designed to perfect the basic skills and develop the fundamental skills in more technically-exacting procedures. Remaining entry-level procedures are assessed, and student film conferences are conducted. This course will meet for 12 weeks.

Prerequisites: RAD 220, RAD 221

Corequisite: RAD 225.

## **(REL) RELIGION**

### **REL 111 Intro to Academic Study of Religion 3(3-0)**

Major forms of world religions, religious activity, and experience studied as an essential element of human life. Dimensions of the academic study of religion covered include myth, meaning, ritual, symbolism, traditions, religious social institutions, comparative religious study, the sacred, civil religion, religious art, and the social creation of moral ideologies.

Prerequisites: none

### **REL 200 Religion, Race, Class & Discrimination 3(3-0)**

An introduction for beginning students to the study of the experiences of Americans who have lived with race and class discrimination in American society. Native American, African-American, and Hispanic-American groups provide the focus for the class.

### **REL 225 Death & Dying 3(3-0)**

Each of us must deal with a complex of personal responses to death and grief while ascribing meaning and purpose to our lives. In a rapidly changing social and cultural world, conceptualizations of death, living, and grieving often compete with traditional community relationships and meaning. Death, living, and dying will be examined using dimensions of the academic study of Religion, Social Sciences, and the humanities. Death, grieving, and images and ideas of life will be explored. Topics covered include cultural, personal, emotional, legal, philosophical, moral, medical, social, and religious conceptualizations of living and dying. Myth, meaning, visual culture, music, ritual, symbolism, traditions, religious social institutions, civil religion, and the social creation of religious moral ideologies will be examined in the course.

### **REL 250 African-American Religion 3(3-0)**

An introduction for beginning students to the study of African-American Religion from African religious expression, syncretic expressions, Christianity, and Islam to contemporary religious movements.

### **REL 290-99 Special Topics 3(3-0)**

These courses are designed to investigate various topics in Religion that are not included in current courses. Topics will be announced.

## **(SCI) SCIENCE**

### **SCI 200 Science, Technology, & Society 3(2-2)**

This course is designed to introduce students from a variety of programs to the sciences. This introduction will focus on the way science and technology impacts each person's everyday life and their particular role in the environment. Knowledge will be gained for individuals to achieve scientific literacy sufficient to understand public issues. The course will stress interaction through student presentations and student-led discussions.

Prerequisites: Level I General Education courses (ENG 111; SPE 101 or SPE 257)

### **SCI 290-299 Selected Topics 3(3-0)**

These courses are designed to investigate various topics in Science that are not included in current courses. Topics will be announced.

## **(SOC) SOCIOLOGY**

### **SOC 101 Principles of Sociology 3(3-0)**

This course discusses the principles governing relationships among human beings & the organization of human societies. Primary emphasis on contemporary American society with integration of classical theories of sociology.

### **SOC 200 Contemporary Social Problems 3(3-0)**

This course identifies the factors and issues in humanity's quest of a high quality of life in a changing technological society. The nature, extent, and consequences of major social problems are examined in terms of underlying social processes as well as specific factors.

Prerequisite: SOC 101 recommended.

### **SOC 202 Social Psychology 3(3-0)**

This course examines the relationship between the individual and society. Contemporary theory and research are applied to areas such as symbol interaction, self, socialization, conformity, aggression and violence, group behavior, the social construction of reality, etc. Students are also introduced to the basic methods in social psychology and their application in everyday life.

Prerequisite: SOC 101 recommended.

### **SOC 220 Sexuality and Society 3(3-0)**

This course analyzes the impact of society on sex and sexuality. Emphasis is on interpersonal relationships and factual information necessary to enable students to understand better their

own sexuality. Topics including sex roles, sexual interaction, sexual physiology, and public issues related to sex are discussed utilizing contemporary research and cultural definitions.

Prerequisite: SOC 101 recommended.

### **SOC 222 Juvenile Delinquency 3(3-0)**

This course provides the student with a concentrated overview of theory and research in the field of juvenile delinquency. Students will review research findings on various aspects of juvenile delinquency, of the characteristics of young offenders, and of the results of different forms of judicial and therapeutic interventions designed to prevent or control delinquent activities.

Prerequisite: SOC 101

### **SOC 225 Death & Dying 3(3-0)**

Each of us must deal with a complex of personal responses to death and grief while ascribing meaning and purpose to our lives. In a rapidly changing social and cultural world, conceptualizations of death, living, and grieving often compete with traditional community relationships and meaning. Death, living, and dying will be examined using dimensions of the academic study of Religion, Social Sciences, and the humanities. Death, grieving, and images and ideas of life will be explored. Topics covered include cultural, personal, emotional, legal, philosophical, moral, medical, social, and religious conceptualizations of living and dying. Myth, meaning, visual culture, music, ritual, symbolism, traditions, religious social institutions, civil religion, and the social creation of religious moral ideologies will be examined in the course.

### **SOC 250 The American Family 3(3-0)**

This course analyzes the development of the family as a contemporary social-institution. Factors which influence the makeup, stability, and the cultural and interpersonal contributions of the modern American family are discussed.

### **SOC 289 Gender Studies 3(3-0)**

This course is an analysis of the impact of gender throughout the social world. The impact of gender in social institutions, cultural definitions, & interpersonal relationships will be explored. Gender inequality & its reproduction will be a focus. Emphasis will be on the relationship of gender to other aspects of social location and diversity.

Prerequisite: SOC 101 recommended

### **SOC 290-299 Current Topics in Sociology 3(3-0)**

Courses designed to investigate current topics of sociological relevance not included in courses currently listed. Topics will be announced.

## (SPE) SPEECH

### **SPE 101 Fundamentals of Communications 3(3-0)**

A basic course in interpersonal communication & public speaking. Through observation, presentation, games, role play, valuing, & personal encounter, the student learns to encode & receive messages, verbal & nonverbal, with confidence & empathy. Skills in perception & concentration are emphasized.

### **SPE 105 Basic American Sign Language I 3(3-0)**

This course is designed to give students a basic introduction to American Sign Language which includes signing and finger spelling, expressive and receptive, and information about deaf culture and different sign systems.

### **SPE 195 Intercultural Communication 3(3-0)**

This course introduces the student to the field of intercultural communication, emphasizing the way in which culture influences perception of yourself and others and the manner in which it affects communication behaviors and expectations. In addition, this course provides an opportunity to explore other cultures, heighten cultural awareness and sensitivity, and develop communication skills to successfully negotiate through diverse cultural experiences. In that culture refers not only to national differences, but to differences of all types (e.g., values, gender, race, communication patterns), this course will focus on the way we can manage the differences between ourselves and others in a mutually satisfying manner.

### **SPE 205 Basic American Sign Language II 3(3-0)**

Continuation of SPE 105. This course increases the student's receptive and expressive skills while continuing to provide information and knowledge of deaf culture.

Prerequisite: SPE 105 or permission of the instructor

### **SPE 215 Basic American Sign Language III 3(4-0)**

This course continues to increase students sign vocabulary and knowledge of the grammatical structure of American Sign Language (ASL). English and ASL idioms are explored, as well as additional uses of classifiers. Students will begin to develop skills in changing English text to ASL.

### **SPE 225 Basic American Sign Language IV 3(4-0)**

This course will build upon previously learned American Sign Language (ASL) vocabulary, grammar, and structure. Students will continue to increase their understanding of and correct use of ASL. Special emphasis will be placed on developing skills in signing English texts in ASL.

Prerequisite: SPE 215

### **SPE 251 Foundations of Communication 3(3-0)**

This course concerns itself with theories and research in the field of human communication. There will be three segments to this course. The first will consider preliminary issues of definitions of communication and theory and broad theoretical approaches

to communication. The second will consider theories specific to elements of the communication process (such as persuasive outcomes and verbal/nonverbal behaviors). The final segment will focus on context-specific theories.

Prerequisite: 9 hours of SPE completed

### **SPE 253 Small Group Communication 3(3-0)**

This course examines the major concepts, principles, and theories associated with human communication behavior in small groups and provides practice with effective group communication skills. This course will enable you to be better able to analyze and evaluate your own participation in groups and to engage in competent communication practices in the group context. Since both interpersonal processes and problem-solving features of groups are important determinants of the group's overall effectiveness, this course will focus on both these areas.

### **SPE 257 Public Speaking 3(3-0)**

This course is designed to build and refine the students overall communication skills, with special emphasis given to public speaking contexts. Students will examine theories and techniques for creating public speaking and apply these principles in class activities.

### **SPE 261 Interpersonal Communication 3(3-0)**

This course is designed to build and refine the student's interpersonal communication skills. Special emphasis will be given to understanding how relationships form and the role of communication in initiating, maintaining, and terminating relationships. Students will examine and develop skills in interpersonal communication for both personal and professional contexts. Although the central theme of the course will remain consistent for all students, assignments and communication activities will be adapted to each students chosen professional emphasis.

### **SPE 263 Professional Interviewing 3(3-0)**

This course is designed to build and refine the students overall communication skills, with special emphasis given to various professional interviewing situations (employment, counseling, etc.). Students will examine the concepts and theories relevant to interview communication practices, apply these principles to communication issues and problems encountered in interview situations, and, through continued practice, set and achieve goals essential to preparing for and conducting successful interviews. Although the central theme of the course will remain consistent for all students, assignments and communication activities will be adapted to each students chosen professional emphasis.

### **SPE 264 Organizational Communication 3(3-0)**

This course is designed to introduce the student to the current theories and practices relevant to the management of communication systems in formal organizations and provide the student with a practical understanding of organizational

communication.

### **SPE 265 Theories of Persuasion 3(3-0)**

This course is structured to give the student an understanding of persuasion theory and how it functions within society. Specifically, this course will focus on the principles of attitude formation and change, its relationship to behavioral outcomes, and the role of communication in actuating those outcomes.

### **SPE 267 Nonverbal Communication 3(3-0)**

This course is designed to increase awareness of the different concepts and theories associated with nonverbal communication and to allow the student to improve skills in this area of communication. Throughout the course, students will examine the different elements which make up the nonverbal message system and, within each area, talk about some of the current social and communication issues relevant to today's world.

### **SPE 285 Directed Activities in Forensics 3(3-3)**

This course is designed to build and refine the student's overall communication skills, with special emphasis given to public speaking contexts and interactions that go beyond those traditionally available in a classroom setting. Students may choose to compete (at the local, state, and/or national level) in debate, individual events (persuasive speaking, impromptu speaking, etc.), or both. Students will participate in forensics activities as part of the Central Michigan University Forensics Team.

Prerequisite: Permission of the Instructor

### **SPE 290 Internship in Communication Studies 1(1-0)**

This course is designed to provide the student with real world experience in which to apply the knowledge and skills he/she has developed in studying communication. With an advisor, the student will arrange to work with an organization for college credit. The student will be expected to participate and process his/her experience with both the college advisor and the organizational supervisor. Students must obtain application forms and internship guidelines from the Chair of the Communication Studies program.

Prerequisite: Permission of Chair of the Communication Studies program.

## **(SPN) SPANISH**

### **SPN 101 Elementary Spanish I 4(4-0)**

This course is designed to introduce students to basic conversational Spanish. It emphasizes essential grammar and touches on Hispanic culture since culture is an essential part in learning a new language. Student should, upon course completion, have the ability to speak, write, and understand basic Spanish conversation.

### **SPN 102 Elementary Spanish II 4(4-0)**

SPN 102 is a continuation of SPN 101; therefore, it will begin with a review of the material covered in SPN 101. Students in SPN 102 will continue the study of grammar and vocabulary and will use these to communicate utilizing speaking, writing, listening, and reading skills. The course is designed to provide the basis for further study of Spanish at an intermediate level. Students are expected to study the material outside of class and come to class prepared to participate.

Prerequisite: SPN 101 or equivalent or 1 year of high school Spanish.

### **SPN 201 Intermediate Spanish I 4(4-0)**

SPN 201 is a course designed to help students in the acquisition of language skills necessary for verbal communication, grammar, reading, and writing at the intermediate level in Spanish. Cultural themes of the Hispanic world will be discussed in order to have a better cultural understanding.

Prerequisite: SPN 102 or equivalent course, or 2 years of High School Spanish

## **(SSC) SOCIAL SCIENCE**

### **SSC 111 Intro to the Academic Study of Religion 3(3-0)**

Major forms of world religions, religious activity, and experience studied as an essential element of human life. Dimensions of the academic study of religion covered include myth, meaning, ritual, symbolism, traditions, religious social institutions, comparative religious study, the sacred, civil religion, religious art, and the social creation of moral ideologies.

Prerequisites: none

### **SSC 200 The Social Sciences & Contemporary America 3(3-0)**

This course will introduce each of the various social sciences and demonstrate their respective and unique perspectives on the human experience. It will also endeavor to help the student to understand the scientific method of inquiry and its advantages, as well as other ways of knowing. Finally, through a thematic approach, the student will seek to apply the various social science perspectives to illuminate understanding of his/her world.

Prerequisites: Level I General Education courses (ENG 111; SPE 101 or SPE 257)

### **SSC 225 Death & Dying 3(3-0)**

Each of us must deal with a complex of personal responses to death and grief while ascribing meaning and purpose to our lives. In a rapidly changing social and cultural world, conceptualizations of death, living, and grieving often compete with traditional community relationships and meaning. Death, living,

and dying will be examined using dimensions of the academic study of Religion, Social Sciences, and the humanities. Death, grieving, and images and ideas of life will be explored. Topics covered include cultural, personal, emotional, legal, philosophical, moral, medical, social, and religious conceptualizations of living and dying. Myth, meaning, visual culture, music, ritual, symbolism, traditions, religious social institutions, civil religion, and the social creation of religious moral ideologies will be examined in the course.

## (TAI) THEATRE

### TAI 204 Theatre-Musical 3(3-0)

Discussion of musical theatre including all aspects of a production. A musical production is included as part of the course.

### TAI 205 Children's Theatre 3(3-0)

Discussion of theatre for children including all aspects of a production. A children's theatre production is included as part of the course.

### TAI 206 Theatre-Mystery 3(3-0)

Discussion of mystery as a form of theatre including all aspects of a production. A mystery production is included as part of the course.

### TAI 207 Theatre - Comedy 3(3-0)

Discussion of comedy theatre including all aspects of a production. A comedy production is included as part of the course.

### TAI 208 Theatre-Serious Drama 3(3-0)

Discussion of serious drama including all forms of tragedy. A serious dramatic production is included as part of the course.

### TAI 275 Appreciation of the Theatre 3(3-0)

A survey of theatre history and an introduction to basic types of plays; concepts of professional and amateur; and principles of play selection, casting, and promotion are covered in this course.

### TAI 277 Stagecraft and Stagelighting 4(4-0)

This course includes the basic principles of scenery construction and the theory and practice of stage lighting.

### TAI 287 Costuming 3(3-0)

This course is a survey of costume history, Egyptian to the present, and includes an introduction to design and construction techniques.

## (WLD) WELDING TECHNOLOGY

### WLD 126 Sense IA 3(2-2)

Fundamentals of oxy-acetylene cutting, oxy-acetylene brazing,

ARC welding, MIG welding, TIG welding, F.C.A.W, manual plasma cutting, carbon arc gouging and safety procedures are included in this course. Emphasis is placed on safe welding procedures in Flat, Horizontal positions and a variety of joint types.

### WLD 127 Sense IB 3(2-2)

Fundamentals of oxy-acetylene cutting, ARC welding, MIG welding, TIG welding, F.C.A.W, manual plasma cutting, carbon arc gouging and safety procedures are included in this course. Emphasis is placed on safe welding procedures in all positions, a variety of joint types and in materials Steel, Stainless Steel and Aluminum

Prerequisite: WLD 126

### WLD 130 Metal Fabrication 3(2-2)

Fundamentals of metal fabrication procedures and metal layout procedures are covered in this course. Pipe layout and procedures are also covered.

Prerequisites: WLD 127 and DRF 101

### WLD 150 Non-Destructive Testing I 3(3-0)

A course to familiarize the student with the theory, technique, and equipment used for magnetic particle and liquid penetrant test methods as they are applied to inspection and nondestructive testing in the metal fabrication industry for quality control.

### WLD 225 Advanced Welding 8(12-0)

Multi-position welding will be emphasized. The use of arc, TIG, and MIG welding equipment and weld-testing devices are covered. Reading of welding prints and use of A.W.S. welding symbols are also included. This course prepares students to pass A.W.S. structural code welding tests on plate.

Prerequisite: WLD 127

### WLD 226 Industrial Welding 8(12-0)

This course builds further proficiency in manual welding processes along with the associated welding theories. The welding processes in this course include submerged arc welding, TIG, MIG, SMAW, and pattern layout; and operation of multi-oxyacetylene electric-eye cutting torches.

Prerequisite: WLD 225

### WLD 227 Advanced Industrial Welding 8(12-0)

A further study of destructive and nondestructive testing, study and operation of plasma-arc welding (PAW) and plasma-arc cutting (PAC) are included in the course. The students also become more proficient in their chosen areas of manual welding processes.

Prerequisite: WLD 226

### WLD 245 Pipe Welding 3(4-0)

This course is designed to prepare students to meet the requirements of the A.W.S. D1.1-79 (American Welding Society) and A.S.M.E. Section 9 code (American Society of Mechanical

Engineers) for power piping. This course includes safety in welding and cutting; pipe beveling; preparation of beveled or branch pipe; electrode selection; butt weld-vertical fixed position 2G; butt weld-horizontal fixed position 5G; and pipe layout.

Prerequisite: WLD 125 or WLD 127.

### **WLD 246 Advanced TIG Pipe Welding 3(4-0)**

This course is designed for the individual who is interested in becoming proficient in the TIG process in all welding positions for pipe welding. Students weld ferrous and nonferrous piping in horizontal and vertical fixed positions as required of A.W.S. D1.1-79 (American Welding Society), A.S.M.E. Section 9 code (American Society of Mechanical Engineers), and A.P.I. Standard 1104, 15th Edition (American Petroleum Institute).

Prerequisite: WLD 245

### **WLD 249 Beginning Robotics 3(4-0)**

This course will enable students to set-up and teach the robot to weld parts or assemblies in an efficient manner. Students will learn the appropriate safety techniques required to operate and maintain the robot. Students will learn to write and copy various programs utilizing the World Coordinate System, and they will edit and test these programs.

Prerequisites: WLD 126 and WLD 127 with a grade of C or better

### **WLD 281 Spec Projects - Welding I 2(2-2)**

Students engage in intensive practice in a chosen welding technique or process such as MIG or TIG welding.

Prerequisite: WLD 127 or equivalent experience as determined by the Instructor

### **WLD 282 Spec Projects - Welding II 2(2-0)**

Continuation of WLD 281.

Prerequisite: WLD 281

### **WLD 290 Special Topics: Begin. Metal Sculpture 3(3-3)**

This course is designed to introduce students to the art of shaping and joining various types of metal to create works of art. They will learn how to gas weld, braze, solder, and arc weld many types of metals to create class projects. They will also learn how to fabricate, cut, bend and roll all types of metals. This course will also prepare students to continue in a specific area of concentration or interest in Advanced Metal Sculpture II.