



# Course Descriptions

Course descriptions list the number of lecture hours for which the class meets each week, e.g. “three lecture” and the number of lab hours of weekly class meeting time, e.g. “three lab.” Some classes are divided between lecture time and “lab” time. Thus, a class that is “three lecture, three lab” meets for six hours each week – three hours in a lecture format and three hours in a lab (“hands-on”) format. NPC courses that transfer directly to other Arizona public community colleges and three state universities now have an additional notation: the **Shared Unique Number (SUN)**. The **SUN#** symbol appears with those course descriptions. For an explanation of the SUN advantages, see page 62 in this catalog.

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## Administration of Justice Studies (AJS)

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### AJS 102 • Intensive Police Academy

36 credits

Intensive Police Certification meets the Arizona Peace Officers Standards and Training (AzPOST) curriculum: criminal and traffic investigations, community relations, administration of justice, patrol procedures, report writing, physical conditioning, defensive tactics, weapons proficiency/safety, and first aid. **Prerequisite:** Sponsorship by Arizona law enforcement agency. 32 lecture; 12 lab.

## Anthropology (ANT)

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### ANT 102 • Cultural Anthropology

3 credits

Survey of the elements of human cultures with an emphasis on the differing adaptations that humans have made throughout time to differing ecological conditions. Students also study the theories by which anthropologists attempt to explain the formation of cultures and the work of anthropologists, both in the past and in the present. **Prerequisite:** Satisfactory placement. Three lecture.

### ANT 104 • Biological Anthropology and Human Origin

4 credits

Study of human evolution and variation, including fossil hominids and their tools, primate anatomy and behavior, human genetics and the environment. **Prerequisite:** Satisfactory placement. Three lecture; three lab.

### ANT 120 • Buried Cities and Lost Tribes

3 credits

Examines human history through archaeology. Emphasizes how archaeological inquiry informs our understanding of the change among human societies including the emergence of modern humans, transitions from hunting and gathering lifeways to agriculture and urban life, the development of stratified states and the significance of archaeology in the contemporary world system. **Prerequisite:** Satisfactory placement. Three lecture.

### ANT 205 • Southwest Native American Cultures

3 credits

Survey of the cultural traditions and modern conditions of Native Americans of the Southwestern United States. The course focuses on social organization, economic systems, religions, language and art function as parts of integrated systems adapted in unique ways to ecological conditions. **Prerequisite:** Satisfactory placement. Three lecture.

### ANT 210 • Southwest Archaeology

3 credits

Introduction to the archaeology of the American Southwest. Concepts used in this course include chronology of Southwestern inhabitants, subsistence patterns, settlement patterns and cultural groups. **Prerequisite:** Satisfactory placement. Three lecture.

## Art (ART)

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### ART 101 • Understanding Art

3 credits

Understanding, enjoyment and relationship of the visual arts to everyday life through the study of styles, techniques and meaning in painting, sculpture and architecture. Broad historical overview of art from prehistoric through contemporary. **Prerequisite:** Satisfactory placement. Three lecture.

### ART 103 • Basic Design

3 credits

**SUN#** ART 1112

Basic art elements (line, shape, form, value, color and texture) and compositional principles as applied to two- and three-dimensional projects. Introduction to basic tools and materials used in the visual process. Recommended as prerequisite for all art courses. Two lecture; two lab.

### ART 105 • Beginning Drawing I

3 credits

**SUN#** ART 1111

Introduction to the fundamentals of drawing, including perspective and basics of composition using a variety of techniques and media (pencil, charcoal, pen and ink.) Subject matter includes still life, landscape and the human figure. Recommended as a prerequisite for all art courses. Two lecture; two lab.

### ART 110 • Figure Drawing I

3 credits

Development of skill and expressiveness in drawing the human figure from the model. Anatomy will be introduced. **Prerequisite:** ART 105 is recommended. Two lecture; two lab.

### ART 115 • Art History I

3 credits

**SUN#** ART 1101

Historical survey of painting, sculpture and architecture of the world from Prehistoric through Middle Ages art. **Prerequisite:** Satisfactory placement. Three lecture.

### ART 116 • Art History II

3 credits

**SUN#** ART 1102

Historical survey of painting, sculpture and architecture of the world from the Renaissance through modern times. **Prerequisite:** Satisfactory placement. Three lecture.

### ART 140 • Lettering

3 credits

Letter forms as produced using various tools and materials (lettering pens, felt-tip markers, brush, etc.) with emphasis on spacing, composition and technical skills. Two lecture; two lab.

### ART 150 • Advertising Design

3 credit

Introductory study of principles, tools and techniques applied to forms of visual communication in advertising art, commercial design, graphics and photography. **Prerequisite:** ART 103 is recommended. Two lecture; two lab.

### ART 155 • Printmaking

3 credits

Methods of reproducing multiple editions of images. Types of prints covered are monoprints, paper and cardboard prints, linoleum or woodcut prints, silk screen prints, experimental prints, etched or engraved prints, and lithographs. Emphasis on individual creative expression. **Prerequisite:** ART 105 is recommended. Two lecture; two lab.

### ART 170 • Sculpture I

3 credits

Introduction to materials and techniques utilized in producing three-dimensional forms. Various materials will be introduced (wood, clay, metal, plaster) and creative exploration is encouraged. **Prerequisite:** ART 103 or ART 105 is recommended. Two lecture; two lab.

**ART 175 • Painting I**

3 credits

Fundamentals of color theory and color mixing, composition and materials, and techniques of painting. Also covered are painting supports and frame building. **Prerequisite:** ART 105 is recommended. Two lecture; two lab.

**ART 180 • Watercolor I**

3 credits

Introduction to watercolor techniques and materials, color theory and color mixing, and composition. **Prerequisite:** ART 105 is recommended. Two lecture; two lab.

**ART 185 • Hand building Pottery**

3 credits

Exploration of the nature and techniques of clay using the four basic methods: forming from the solid, using small building units, large building units and paddling. Emphasis will be not only on learning technique but encouraging students to develop their own techniques and style. Two lecture; two lab.

**ART 186 • Clay Sculpture**

3 credits

Introduces students to the techniques, materials and creative aspects of clay sculpture. Two lecture; two lab.

**ART 187 • Raku Pottery**

3 credits

Introduction to Raku pottery, including the history of Raku, contemporary trends, techniques of kiln building, glazing, firing and production of clay art objects. Raku pottery techniques emphasize spontaneity and controlled “accidents” in the process. Two lecture; two lab.

**ART 190 • Ceramics I**

3 credits

Hand building techniques of clay (pinch, coil, slab), properties of clay, throwing on the wheel, decorating, glaze application and creative exploration are covered. **Prerequisite:** ART 103 or ART 105 is recommended. Two lecture; two lab.

**ART 205 • Drawing II**

3 credits

Continued study in drawing with emphasis on composition, experimentation with new techniques, materials and personal creative expression. **Prerequisite:** ART 105. Two lecture; two lab.

**ART 206 • Figure Drawing II**

3 credits

Continued study in drawing the human form with emphasis on management of materials and creativity. **Prerequisite:** ART 110. Two lecture; two lab.

**ART 215 • Native American Art**

3 credits

Intended to provide students with an introduction and selective overview of art of the native peoples of North America. Focus is on significant two- and three-dimensional art as well as installation art before and after establishment of formal art institutions. **Prerequisite:** Satisfactory placement. Three lecture.

**ART 220 • Painting II**

3 credits

Continued study of painting materials and methods with an emphasis on composition, creativity and exploration. **Prerequisite:** ART 175. Two lecture; two lab.

**ART 225 • Watercolor II**

3 credits

Continued study in watercolor with emphasis on composition, experimentation with media and methods, creativity and personal expression. **Prerequisite:** ART 180. Two lecture; two lab.

**ART 231 • Art in the Elementary School**

3 credits

Study of the relationship of art and learning in the elementary school, with emphasis on basic art curriculum, interdisciplinary studies, cultural and artistic experiences, child development in art, and influences of national and state standards on school arts programs. Three lecture.

**ART 245 • Ceramics II**

3 credits

Emphasizes increasing skill in forming methods. Types of clay, glaze composition and experimentation, and kilns and kiln firing are investigated. **Prerequisite:** ART 190. Two lecture; two lab.

**ART 246 • Ceramics III**

3 credits

Advanced problem solving and investigation with emphasis on individual creative development and personal expression in ceramics. **Prerequisite:** ART 245. Two lecture; two lab.

**ART 247 • Ceramics IV**

3 credits

Explore and study ceramic glazes, glaze materials, types of glazes, calculating glaze formulas, sources of color in glazes, mixing and application. **Prerequisite:** ART 190, ART 245 and ART 246. Two lecture; two lab.

**ART 280 • Art Studio – Two-Dimensional**

3 credits

Continuation of investigation, advanced problem-solving and personal creative development in area of two-dimensional specialization. Course may be repeated. **Prerequisite:** Minimum of six hours in a specific two-dimensional medium. Two lecture; two lab.

**ART 281 • Art Studio – Three-Dimensional**

3 credits

Continuation of investigation, advanced problem-solving and personal creative development in area of three-dimensional specialization. Course may be repeated. **Prerequisite:** Minimum of six hours in a specific three-dimensional medium. Two lecture; two lab.

**ART 289 • Figurative Ceramics**

3 credits

Exploration of the human form in clay. Solid sculpting and hollowing techniques will be used in combination with ceramic surface options. Human anatomy and proportions will be examined through portraiture and with the use of a live model. Two lecture; two lab.

**Automotive Technology (ATO)****ATO 103 • Safety and Hazardous Materials**

2 credits

Course includes five areas of safety instruction: dressing for safety, vehicle safety, hoist operation and safety, hand and pneumatic tool safety and hazardous chemicals. **Prerequisite:** Satisfactory placement. Two lecture.

### **ATO 107 • Engine Repair I**

3 credits

Using a variety of tests, students diagnose base engine components to determine engine condition, cooling system and lubrication system. Students remove the engine for repair and/or replacement.

**Prerequisite:** Satisfactory placement. One lecture; four lab.

### **ATO 108 • Engine Repair II**

2 credits

Focus on the diagnosis, repair and/or replacement of the engine valve train, cylinder head and lower end components such as; engine pistons, cylinders, crankshaft, and friction bearings.

**Prerequisite:** ATO 107. One lecture; two lab.

### **ATO 109 • Engine Performance I**

3 credits

Covers automotive systems related to engine performance and drivability. Areas of instruction include work order information, engine leak inspection, engine noise and vibration diagnosis, base engine diagnosis and testing and cooling system diagnosis and repair. **Prerequisite:** Satisfactory placement. One lecture; four lab.

### **ATO 110 • Engine Performance II**

3 credits

Covers automotive systems related to engine performance and drivability. Areas of instruction include ignition system primary and secondary circuits, fuel delivery systems, diagnosis of drivability problems caused from ignition and fuel delivery systems, exhaust emission testing and analyzing. **Prerequisite:** ATO 109. One lecture; four lab.

### **ATO 111 • Engine Performance III**

3 credits

Covers automotive systems related to engine performance and drivability. Areas of instruction include work order information, engine leak inspection, engine noise and vibration diagnosis, base engine diagnosis and testing, and cooling system diagnosis and repair. **Prerequisite:** ATO 110. One lecture; four lab.

### **ATO 112 • Automatic Transmission Systems I**

3 credits

Covers general automatic transmission and transaxle diagnosis in vehicle repair and maintenance. **Prerequisite:** Satisfactory placement. One lecture; four lab.

### **ATO 113 • Automatic Transmission Systems II**

3 credits

Covers off-vehicle automatic transmission and transaxle repair. Students remove the transmission from the vehicle, disassemble, inspect and replace needed parts/components, reassemble, install, and test the transmission. **Prerequisite:** ATO 112. One lecture; four lab.

### **ATO 114 • Brake Systems I**

3 credits

Covers operation, inspection, repair and maintenance of the brake hydraulic systems, power brake systems and wheel bearings.

**Prerequisite:** Satisfactory placement. One lecture; three lab.

### **ATO 115 • Brake Systems II**

2 credits

Covers operation, inspection, diagnosis and repair of automotive disc and drum brake systems, including anti-lock braking, traction and stability control systems. **Prerequisite:** ATO 114. One lecture; two lab.

### **ATO 205 • Suspension and Steering Systems**

4 credits

Covers the operation, diagnosis, service and repair of steering and suspension systems. Areas of instruction include front and rear suspension, wheels, tires, steering and four-wheel alignment.

**Prerequisite:** Satisfactory placement. Two lecture; four lab.

### **ATO 207 • Electrical and Electronics Systems I**

3 credits

Covers basic automotive electronics and electrical systems including work order information, identifying and interpreting electrical/electronic system problems, diagnosing electrical /electronic integrity of series-parallel circuits using principles of electricity (Ohms law). Students demonstrate proper use of a digital multi-meter during diagnosis of electrical problems, including source voltage, voltage drop, current flow, and resistance. **Prerequisite:** Satisfactory placement. One lecture; four lab.

### **ATO 208 • Electrical and Electronics Systems II**

3 credits

Covers automotive starting and charging systems. Students perform diagnosis, repair and replacement of the components and subsystems of the vehicles starting and charging system. **Prerequisite:** ATO 207. Two lecture; three lab.

### **ATO 209 • Electrical and Electronics Systems III**

3 credits

Covers diagnosis and repair of lighting systems, gauges and warning devices, driver information systems and accessories equipment such as power windows, locks, seats, cruise control, sound systems, anti-theft systems and CAN/BUS systems. **Prerequisite:** ATO 208. Two lecture; three lab.

### **ATO 210 • Heating and Air Conditioning Systems**

4 credits

Covers operation, diagnosis, service and repair of automotive heating and air conditioning systems. **Prerequisite:** Satisfactory placement. Two lecture; four lab.

### **ATO 212 • Manual Drive Train and Axles**

4 credits

Covers the operation, service and repair of manual drive train and axle systems including clutch systems, manual transmissions/transaxles, front-wheel drive axle shafts, and constant velocity (CV) joints.

**Prerequisite:** Satisfactory placement. Two lecture; four lab.

## **Biology (BIO)**

### **BIO 100 • Biology Concepts**

4 credits

A one-semester introductory course covering basic principles and concepts of biology for non majors. Designed for students who wish to study biology to fulfill general education credit requirements.

*Does not satisfy prerequisite requirements for enrollment in advanced biology courses.* **Prerequisite:** Satisfactory placement. Three lecture; three lab.

### **BIO 105 • Environmental Biology**

4 credits

A one-semester introductory course covering basic principles and concepts of Environmental Biology. Explore methods of scientific inquiry and behavior of matter, energy, organisms and the environment. Designed for students desiring a biology class to help fulfill degree general education requirements. *BIO 105 does not satisfy prerequisite requirements for enrollment in advanced BIO courses.* Three lecture; three lab.

## BIO 160 Introduction to Human Anatomy and Physiology

4 credits

One-semester introductory course examining structure and function of the major systems of the human body. Basic principles and concepts of these systems are examined. *Does not meet Nursing Program prerequisites.* **Prerequisite:** Satisfactory placement. Three lecture; three lab.

## BIO 181 General Biology I

4 credits

SUN# BIO 1181

Principles of biological science underlying the structure and function of living things: basic chemistry, cells and organelles, enzymes, respiration, photosynthesis, reproduction, genetics, genomics and evolution. Entry-level course for biology majors and students entering health care professions. *Requirement for all advanced biology courses.* **Prerequisite:** Satisfactory placement. Three lecture; three lab.

## BIO 182 • General Biology II

4 credits

SUN# BIO 1182

This is the second part of a technical entry-level course for biology majors or medical/health care students needing a full-year course completion before undertaking advanced biology courses. **Prerequisite:** BIO 181. Three lecture; three lab.

## BIO 201 • Human Anatomy and Physiology I

4 credits

SUN# BIO 2201

First semester of a two-semester sequence in which human anatomy and physiology are studied using a body systems approach. Emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. Topics include basic anatomical and directional terminology; fundamental concepts and principles of histology; integumentary, skeletal, muscular and nervous systems; and special senses. **Prerequisite:** BIO 181; **Co-requisite:** CHM 130 or CHM152. Three lecture; three lab.

## BIO 202 • Human Anatomy and Physiology II

4 credits

SUN# BIO 2202

Second semester of a two-semester sequence in which human anatomy and physiology are studied using a body systems approach. Emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. Topics include endocrine and cardiovascular systems, lymphatic system and immunity; respiratory and digestive systems; metabolism; urinary system; fluid/electrolyte and acid/base balance; and reproductive systems. **Prerequisite:** BIO 201. Three lecture; three lab.

## BIO 205 • Microbiology

4 credits

SUN# BIO 2205

Bacterial, viral, fungal and protozoan biology, including microbial cytology, nutrition and metabolism, growth and reproduction, cultivation applications and bio-industrial/bio-medical technologies. **Prerequisites:** BIO 181 and either CHM 130 or CHM 152. Three lecture; three lab.

## BIO 241 • Human Genetics

3 credit

An introduction to the basic concepts and principles of human heredity with an emphasis on the medical and health aspects of human genetics. Topics include Mendelian genetics, cytogenetics, molecular /biochemical genetics, polygenetics and population genetics. **Prerequisite:** BIO 181 or equivalent or instructor permission. Three lecture.

## Business (BUS)

### BUS 100 • Introduction to Business

3 credits

Introduction to business operations. Includes marketing, management, human resources, finance, stakeholder relations, and the economic environment of capitalism. Three lecture.

### BUS 101 • Business Grammar

1 credit

A review of grammar, punctuation, spelling, forms of address and up-to-date formatting techniques as they apply to business writing, and correct usage of business reference materials. One lecture.

### BUS 102 • Proofreading Mastery

1 credit

Develop the ability to recognize common errors in mechanics, form and content often overlooked in documents and apply this skill in practical operations. **Prerequisites:** BUS 101 and keyboarding skills of 20 words per minute. One lecture.

### BUS 103 • Success on Your Job

2 credits

How to successfully get and keep a job. Emphasizes human relations, time management, business dress, business etiquette, positive attitude development and résumé/portfolio development. Two lecture.

### BUS 104 • Developing Your Professionalism

1 credit

Provides student with knowledge and awareness of professionalism in the workplace. Presents students with methods and approaches to improving and developing his or her professional presence. One lecture.

### BUS 105 • Techniques of Supervision

3 credits

The basic principles of supervision with attention given to the development of skills needed to become a successful manager. Three lecture.

### BUS 106 • Techniques of Personal Finance

3 credits

Personal money management with emphasis on budgeting, use of credit, insurance, investments and other financial planning topics. Three lecture.

### BUS 107 • Basic Keyboarding

1 credit

Students learn correct technique to build good keyboarding skills for the entire keyboard including letters, numbers and symbols. One-half lecture; one lab.

### BUS 108 • Basic Keyboarding & Document Processing

3 credits

Students learn to type by touch with acceptable or better technique, increase speed and accuracy and format documents (emails, letters, memos, reports and tables) using word processing software. Two lecture; two lab.

### **BUS 109 • Advanced Keyboarding and Document Processing**

3 credits

Advanced course to increase keyboarding speed and accuracy while maintaining proper technique. Format documents (emails, letters, memos, reports, legal and medical documents and tables) using word processing software from arranged and unarranged copy.

**Prerequisite:** BUS 108 or instructor permission Two lecture; two lab.

### **BUS 110 • Small Business Management**

3 credits

Emphasizes launching and growing new entrepreneurial ventures. Topics covered are small business principles, management, marketing, accounting, finance and budgeting techniques. Three lecture.

### **BUS 111 • Ten-Key Skill Mastery**

1 credit

Teaches numeric keypad by touch (without looking at keys) to develop speed and accuracy necessary to apply this knowledge in a variety of data entry situations. One-half lecture; one lab.

### **BUS 112 • Fundamentals of Bookkeeping**

3 credits

Introduction to accounting principles that includes: Accounting for a proprietorship, analyzing transactions, cash control systems, journals, general ledgers, payroll records, financial statements and adjusting entries. Two lecture; two lab.

### **BUS 113 • Fundamentals of Business Writing**

1 credit

Develops useful skills and strategies for successful workplace writing. Provides a practical approach to writing. Topics include drafting, editing and producing professional documents and graphics. **Prerequisite:** Keyboarding skill of 20 words per minute. One lecture.

### **BUS 115 • Business Law**

3 credits

Introduction to the legal environment of business, including general principles of the law of contracts, negotiable instruments, agency sales and contracts, property and title, bankruptcy and basic principles of law as applied to business. Three lecture.

### **BUS 116 • Business Calculation Skills**

3 credits

Coverage of mathematical calculations commonly used in business, for example, determining discounts, interest due. Two lecture; two lab.

### **BUS 117 • Principles of Financial Accounting I**

3 credits

Introduction to principles of accounting. Topics include journalizing entries, preparation of financial statements, accounting for cash and receivables, assets and liabilities. Three lecture.

### **BUS 118 • Computerized Medical Billing**

3 credits

Introduction to terminology and practices associated with computerized medical billing and provides experience with the program. Designed for students with basic keyboarding skills. Three lecture.

### **BUS 119 • Medical Office Administrative Procedures**

3 credits

Trains student for administrative duties in a medical office. Students learn exercises in judgment, independent action and coping with interruptions. Covers proper techniques for communications, making appointments, transcribing patient histories, recording charges and payment, completing insurance forms and maintaining financial records. **Prerequisite:** BUS 108 or instructor permission. Three lecture.

### **BUS 120 • Principles of Financial Accounting II**

3 credits

**SUN#** ACC 2201

Formal accounting concepts, procedures and practices. Accounting techniques for corporate entities, financing, inventory cost control systems, accounting for stocks and bonds. **Prerequisite:** BUS 117 or instructor permission. Two lecture; two lab.

### **BUS 121 • Principles of Accounting – Managerial**

3 credits

**SUN#** ACC 2202

Covers accounting equity issues, statements of change in financial position, analysis of financial statements and cost accounting. **Prerequisite:** BUS 120 or instructor permission. Two lecture; two lab.

### **BUS 122 • Computerized Accounting with Quickbooks**

3 credits

Computer accounting concepts on Quickbooks software, preparing balance sheets, income statements, statement of cash flows, setting up a business accounting system, adjusting entries, budgeting and reports. Two lecture; two lab.

### **BUS 123 • Income Tax Procedures**

3 credits

Overview of individual, partnership and corporation income tax system. Includes tax calculation, who must file, filing status, exemptions, itemized deductions and standard deductions. Introduction to capital gains and losses along with tax information available through the IRS also included. Three lecture.

### **BUS 125 • Payroll Accounting**

3 credits

Payroll accounting concepts using manual and computerized systems. Includes payroll and personnel records, computing wages and salaries, Social Security taxes, income tax withholding, unemployment compensation and journal entries. Three lecture.

### **BUS 126 • Vocabulary for the Medical Office**

3 credits

Introduction to medical word roots, combining forms, prefixes and suffixes needed to become familiar with medical terms used in the front medical office. Three lecture.

### **BUS 128 • Microsoft Excel Applications for Business**

3 credits

Explores spreadsheet software to design electronic spreadsheets for business, financial analysis and forecasting. Two lecture; two lab.

### **BUS 130 • Machine Transcription**

**3 credits**

Development of transcription skills using modern transcription units. Grammar, punctuation, spelling and skills are emphasized. Students learn speed and accuracy in document production. **Prerequisites:** BUS 108. Two lecture; two lab.

**BUS 131 • Medical Transcription Fundamentals**

3 credits

Development of medical transcription skills, including punctuation and spelling of medical terms. Listening skills, including techniques for understanding foreign speakers of English, are developed.

Development of accuracy in medical transcription is emphasized.

**Prerequisites:** BUS 108 and BUS 126. Two lecture; two lab.

**BUS 132 • Introduction to Public Administration**

3 credits

A study of the roles and functions of public bureaucracies within the larger governmental and social systems, the critical importance of technology, intergovernmental communication and information exchanges among all levels of government. Three lecture.

**BUS 133 • Business Mathematics**

3 credits

An introduction to the practice in mathematics of fundamental business operations and applications including payroll, finance, interest, loans and investments. **Prerequisite:** CCP 088 or satisfactory placement. Three lecture.

**BUS 136 • Legal Terminology**

3 credits

Balance in quantity and quality in exposure to legal terms necessary to become proficient in reading law, researching, writing pleadings, creating reports and all other legal communications found in legal professions. Enables beginning student to quickly grasp legal terminology through clear language and engaging repetitive exercises. Three lecture.

**BUS 144 • Professional Office Skills**

3 credits

Survey of the evolving modern office and the procedures related to modern technology. Basic skills covered include human relations, oral/written communications, records management, basic mathematics and business grammar review, reprographics, time management, supervision/management and telecommunications. **Prerequisite:** Keyboarding skills equivalent to 20 words a minute. Three lecture.

**BUS 149 • Microsoft Publisher Basics**

1 credit

Basics of desktop publishing using Microsoft Publisher software. Includes page layout, graphics, and manipulating text using various tools, scanned images and special effects. Designed for students with basic keyboarding skills. **Prerequisite:** Keyboarding skills of 20 words per minute. One-half lecture; one lab.

**BUS 150 • Administrative Policymaking**

3 credits

Framework for understanding and analyzing the challenges of American public administrative decision-making. Students are introduced to decision areas such as education, poverty, regulation and the environment. Three lecture.

**BUS 151 • Microsoft Excel Basics**

1 credit

Introduction to Microsoft Excel spreadsheet software with personal and business applications. Designed for student with basic keyboarding skills. Half-credit lecture; one lab.

**BUS 152 • Microsoft Word Basics**

1 credit

Get started with Microsoft Word. Learn to create, edit, format and print Word documents. Learn to create and format tables, sort data, merge cells, perform calculations and custom format. **Prerequisite:** Basic keyboarding skills. One-half lecture; one lab.

**BUS 155 • Microsoft Word Level I**

3 credits

Level I coverage of Microsoft Word. Software applications include preparing reports, letters, memos and other business documents, creating macros, and inserting graphics into documents. Designed for student with basic keyboarding skills. **Prerequisite:** Keyboarding skills equivalent to 20 words per minute. Two lecture; two lab.

**BUS 170 • Written Business Communication**

3 credits

Effective communication in organizational setting. Topics include memo and letter writing skills, reports and other business documents. **Prerequisites:** Keyboarding skills of 20 words per minute, and BUS 101 and BUS 102 or instructor permission. Three lecture.

**BUS 180 • Organizational Behavior**

3 credits

Introduction to theories of organization including communication and teamwork, motivation, group behavior, organizational culture and organizational design. Examination of real-world examples. **Prerequisite:** BUS 100 or instructor permission. Three lecture.

**BUS 181 • Medical Records Management**

1 credit

Various filing methods used in the processing of medical records as well as issues related to confidentiality and release of medical records. One lecture.

**BUS 182 • Records Management**

3 credits

Covers types of records management systems, approaches to filing including developments in digital data storage. Three lecture.

**BUS 183 • Electronic Medical Records**

3 credits

Introduces all facets of electronic health record (EHR) applications in medical practice. Includes coverage of administrative topics such as billing systems and scheduling appointments as well as clinical tasks including charting progress notes and working with diagnostic orders. **Prerequisite:** BUS 126 or instructor permission. Two lecture; two lab.

**BUS 185 • Ethics in Management**

3 credits

Introduction to theories of ethics for organizational managers. Perspectives on ethics are covered with applications to stakeholders and consideration of government regulation. Analysis of real-world examples. Three lecture.

**BUS 186 • Introduction to Law Office Procedures**

3 credits

Introduction to procedures taking place in a law office including: (a) general operations, (b) terminology and procedures used in non-litigation matters and (c) an understanding of all the processes and paperwork involved in litigation. Designed for student with keyboard/word processing skills. **Prerequisites:** BUS 108 or instructor permission. Three lecture.



### **BUS 187 • Legal Document Processing**

2 credits

Introduction to concepts and practices in using word processing features to prepare legal documents. Simulates actual work the student might perform on the job. Designed for student with keyboard/word processing skills due to extensive transcribing.

**Prerequisites:** BUS 108 or instructor permission One and a half lecture; one lab.

### **BUS 201 • Quantitative Methods**

3 credits

Basic business statistics including the collection, tabulation, and analysis of business and economic data. Topics will include methods of statistical description, probability theory and statistical inference in business and economics. **Prerequisite:** MAT 152. Three lecture.

### **BUS 202 • Professional Customer Service**

1 credit

Provides student with knowledge of customer service and the fundamental abilities and strategies leading to successful customer service in any type of organization. One lecture.

### **BUS 203 • Introduction to Communication**

3 credits

This course facilitates critical analysis of communication in a variety of social and cultural contexts and examines communication products and processes, as well as the various ways we negotiate their importance and invest them with meaning. Topics included are the theory and practice of communication skills in public, small group, and interpersonal settings, and the study of the speech communication process. Three lecture.

### **BUS 206 • Legal, Ethical, Global & Regulatory Environment of Business**

3 credits

Basic coverage of the environment of business, including legal and ethical issues and the regulatory and global environment of business that affect business policies and decisions. Three lecture.

### **BUS 210 • Principles of Management**

3 credits

Presents principles of management with general applicability to all types of enterprises, management philosophy, and decision making; principles involved in planning, directing, and controlling as well as concepts in management. Three lecture.

### **BUS 211 • Introduction to International Business**

3 credits

A basic overview of international business to introduce students to international trade concepts. Focus of the course is on international business environment issues that influence global business practices, decisions and applications. Topics will include government and environmental influences, export and import strategies, and global marketing and operation strategies. Three lecture.

### **BUS 214 • Executive Office Administration**

3 credits

Provides knowledge of office management including coverage of managerial concepts needed by an office manager: budgets, quality control, systems analysis and methods to improve office productivity. **Prerequisites:** BUS 100 or BUS 144 or BUS 119. Three lecture.

### **BUS 215 • Principles of Retail Management**

3 credits

Provides a strategic decision-making approach illustrating how retailers plan for, and adapt to, today's changing and complex retail environment. Topics include target markets, retailing strategies, competitive analysis and merchandising. Three lecture.

### **BUS 216 • Merchandising Practices and Policies**

3 credits

Covers merchandising topics including financial budgeting and assessment, branding, vendor evaluation, technology trends and the implications of global markets. Three lecture.

### **BUS 220 • Principles of Marketing**

3 credits

Marketing concepts in the areas of retailing and wholesaling. Special emphasis is given to consumer needs and the relationship of the consumer with the marketing system as a whole. Distribution methods, costs, pricing, buying habits and motivation are covered. Three lecture.

### **BUS 225 • Human Resources Management**

3 credits

Covers concepts in motivation, leadership, organizational development, workplace diversity, safety, job design and career planning. Three lecture.

### **BUS 227 • Medical Coding**

4 credits

Medical coding is the transformation of narrative descriptions of diseases, injuries and health care procedures into numeric or alphanumeric designations (code numbers). Students learn to assign and identify the information by using the accurate ICD, HCPCS and CPT code books. Medical terminology and anatomy briefly covered. **Prerequisite:** BUS 126 or instructor permission. Four lecture.

### **BUS 230 • Organizational Leadership**

3 credits

Traditional leadership theory with current leadership topics including culture, ethics, diversity, strategic leadership and change management. Provides models for effectively handling leadership functions. **Prerequisites:** BUS 110 or BUS 210. Three lecture.

### **BUS 231 • Microsoft Office Level I**

3 credits

Covers Windows, Office Manager, Microsoft Word, Excel, Access and PowerPoint. Students apply problem-solving techniques to complete a variety of projects including integrating Office applications. Combined with BUS 234 prepares student for Microsoft Office User Specialist (MOUS) certification. **Prerequisites:** Keyboard skills of 20 words per minute. Two lecture; two lab.

### **BUS 234 • Microsoft Office Level II**

3 credits

Advanced course covers application of Microsoft Office Suite including Word, Excel and Access. Students apply problem-solving techniques to complete professional-looking documents and projects. Students successfully completing this course and BUS 231 are prepared to take the Microsoft Office User Specialist (MOUS) certification exams. **Prerequisites:** BUS 231 Two lecture; two lab.

**BUS 236 • Advanced Medical Transcription I**

4 credits

First of an advanced two-course plan of study that provides training in medical transcription in various areas of medicine. A high level of typing skill, reading ability and perseverance are required in order for student to successfully complete this course. **Prerequisites:** BUS 131. Two lecture; three lab.

**BUS 237 • Advanced Medical Transcription II**

4 credits

Second of an advanced two-course plan of study; provides training in more specialized areas of medicine. A high level of typing skill, reading ability and perseverance are required in order for student to successfully complete this course. **Prerequisites:** BUS 236. Two lecture; three lab.

**BUS 240 • Entrepreneurship**

3 credits

Combines practical, step-by-step approach with a theoretical foundation to form basic understanding of the theory, process and practice of entrepreneurship. Provides the opportunity to apply ideas and develop useful entrepreneurial skills. **Prerequisites:** BUS 110. Three lecture.

**BUS 255 • Microsoft Word Level II**

3 credits

Level two coverage of Microsoft Word. Software applications include advanced software applications such as tables and charts, inserting and modifying pictures and illustrations, linking and embedding objects and creating and modifying newsletters. **Prerequisites:** BUS 155 or instructor permission. Two lecture; two lab.

**Chemistry (CHM)****CHM 130 • Fundamental Chemistry**

4 credits

SUN# CHM 1130

A fundamental introductory course presenting chemistry for nursing/allied health, general education and non-chemistry major students. **Prerequisite:** MAT 109 or satisfactory placement. Three lecture; three lab.

**CHM 151 • General Chemistry I**

4 credits

SUN# CHM 1151

Chemistry for the science and engineering student. The first part of a standard college and university sequence. Emphasis on inorganic chemistry concepts and principles. **Prerequisites:** High school chemistry and MAT 109/112 or MAT 121, or satisfactory placement. Three lecture; three lab.

**CHM 152 • General Chemistry II**

4 credits

SUN# CHM 1152

Second half of a standard college and university general chemistry sequence. Emphasis on thermodynamics, kinetics and equilibrium. **Prerequisite:** CHM 151. Three lecture; three lab.

**College and Career Preparation (CCP)****CCP 010 • Literacy I**

2 credits

Introduction to beginning reading and writing to build a foundation based in everyday activities and career readiness utilizing the Laubach method. **Prerequisite:** Satisfactory placement. One lecture; two lab.

**CCP 020 • Literacy II**

2 credits

Introduction to second level of reading and writing skills utilizing Labauch method with emphasis on sight and written vocabulary. Continued use of technology as it applies to career readiness. **Prerequisite:** Diagnostic testing and/or CCP 010 mastery. One lecture; two lab.

**CCP 030 • Literacy III**

2 credits

Level three literary skills including reading and writing words with long and short vowel patterns; diagramming parts of speech; increased reading and writing vocabulary; applying the writing process to a variety of writing products will enhance keyboard skills. **Prerequisite:** Diagnostic testing and/or CCP 020 mastery. One lecture; two lab.

**CCP 052 • Reading/Writing Applications I**

3 credits

Reading and writing study and practice with integrated math application activities through a career focus. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

**CCP 55X • Opportunities Through Education**

0 credits

Orientation to assess a student's readiness for the High School Equivalency test. Placement testing will determine areas of remediation while introducing students to the various services and academic degrees offered by NPC. One-half lecture.

**CCP 062 • Reading and Writing Applications II**

3 credits

Students are taught to comprehend complex functional, informational, and literary texts. Students are taught to apply the writing process to create a variety of analytical writing products that reflect the understanding of materials read. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

**CCP 068 • Mathematical Applications II**

3 credits

Instruction and practice of foundational math skills with real-world applications for work, home, and continuing education. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

**CCP 072 • Reading and Writing Applications III Science**

3 credits

Strengthens the skills of reading and writing in the areas of Life Science, Physical Science, and Earth and Space Science in preparation for college and career success. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

**CCP 074 • Reading and Writing Applications III Social Studies**

3 credits

Strengthens skills and concepts in the areas of US history, civics, political systems, economics, and geography with integration of reading and writing skills in preparation for college and career success. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

**CCP 078 • Math Applications III**

3 credits

A comprehensive approach to mathematical concepts for application in the workforce with math instruction and practice using real-world careers with each concept. This is a preparation course for college and career readiness. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

### CCP 082 • Reading/Writing Applications IV

3 credits

Reading and writing skills are integrated with science and social studies to create proficiency in independently disseminating complex information in a variety of content areas. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

### CCP 087 • High School Equivalency Exam Prep II

3 credits

Content review, study preparation, and confidence building to complete one or more sub-tests of the Arizona high school equivalency exam. **Prerequisite:** Satisfactory placement. Three lecture.

### CCP 088 • Beginning Algebra with Applications

3 credits

Beginning algebra through mathematical exploration and modeling of real problems. Topics include signed numbers, measurement, one and two variable data, linear equations, graphing, and polynomials. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

### CCP 098 • High School Equivalency Ready

0.5 credit

Provides students with test taking strategies, computer skill assessments, and high school equivalency practice tests to determine readiness to pass the Arizona high school equivalency test. **Prerequisite:** Satisfactory placement. One-half lecture.

### CCP 103 • Workforce Skills

2 credits

Enhances soft skills and provides instruction and practice with workforce skills in three key subject areas: Reading for Information, Applied Mathematics, and Locating Information plus soft skills in Work Discipline, Teamwork, Managerial Potential, and Customer Service Orientation. Includes National Career Readiness Certificate Plus preparation and WorkKeys Assessment. One lecture; two lab.

### CCP 104 • Workforce Skills II

2 credits

Advanced workforce skills in three key subject areas: Reading for Information, Applied Mathematics, and Locating Information plus skills in Customer Service, Problem Solving and Critical Thinking. Emphasis will be placed on developing a functional Resume and refining interview skills. **Prerequisite:** Satisfactory placement. One lecture; two lab.

## Computer Information Systems (CIS)

Students must have keyboarding ability or instructor permission in order to take any CIS course.

### CIS 102 • Computer Literacy

3 credits

Fundamentals of desktop computing environments, operating systems, file management, connecting to and using the Internet for search, email basics, word processing, databases, spreadsheets, media composition and editing. *Not for transfer.* Two lecture; two lab.

### CIS 103 • Introduction to Windows

1 credit

Introduction to Windows operating environment on IBM compatible computers. Hardware, terminology and working with icons, pull-down menus, dialog boxes, and file area included. *This course is not for CIS majors.* One lecture; one lab.

### CIS 105 • Computer Applications and Information Technology

3 credits

 CIS 1120

Introduces business information systems and the uses of business application software with emphasis on database and spreadsheet packages. **Prerequisite:** Satisfactory placement. Three lecture.

### CIS 111 • Introduction to Programming

3 credits

Introduces students to concepts of problem solving using structured and object-oriented programming in Java, algorithmic design and computer systems concepts, and social and ethical responsibilities. **Prerequisites:** CIS 105, MAT 112 or MAT 121, or instructor permission. Two lecture; two lab.

### CIS 113 • Multimedia

3 credits

Multimedia application of basic to advanced video and audio editing skills using Adobe and/or other comparable software. Two lecture; two lab.

### CIS 115 • Introduction to Graphic Communication Technology

3 credits

Introduction to the conceptualization, visualization and production of visual communication using the computer as a designer, illustrator and photographer's tool for printing and digital applications. Two lecture; two lab.

### CIS 116 • Computer Photographic Imaging

3 credits

Introduction to digital raster imaging through visual problem solving. Basic foundation in the use of Adobe Photoshop software as a photographer, illustrator and designer tool for the printing and Internet industries. Two lecture; two lab.

### CIS 117 • Two-Dimensional Computer Design

3 credits

Introduction to two-dimensional digital vector images through visual problem solving. Basic foundation in the use of Adobe Illustrator software as an illustrator and designer's tool in the printing industry and the Internet. Two lecture; two lab.

### CIS 118 • Graphics, Interactive and Animated

3 credits

The course will take students from simple to complex application of the Flash authoring tool. Throughout the course students will progress from basic graphics, to animation, interactivity, audio and video and action script. Students will create optimized Flash movies that can be published as Flash, or mobile application files. Two lecture; two lab.

### CIS 119 • Page Layout and Design

3 credits

Hands-on layout and design concepts using industry standard layout and design software. Students learn to produce professional documents that can be output to various devices and formats, including printers, Portable Document Files (PDF) and exported to XHTML and XML. Two lecture; two lab.

### CIS 122 • Introduction to Computer Presentation Graphics

1 credit

Introductory course using Microsoft PowerPoint to create professional electronic presentations. One lecture; one lab.

**CIS 125 • Effective Communication with Digital Media**

3 credits

Designed for new web developers, online educators and businesses to learn digital media. Students apply learned skills to create effective online text, audio, graphics, animation and full-motion video. Other topics covered are e-learning and effective presentations. **Prerequisite:** CIS 105 or instructor permission. Two lecture; two lab.

**CIS 140 • Computer Setup and Repair for Home and Business**

3 credits

Basic personal computer repair and troubleshooting covering topics related to home and business users. Topics include: purchasing, upgrading or building a computer system, computer technology, system boards, processors, memory modules, monitors and hard disk drives. Includes the use of diagnostic utilities, virus software and how to troubleshoot common problems. Two lecture; two lab.

**CIS 141 • Managing and Maintaining Your PC I (A+)**

3 credits

In-depth instruction on PC hardware, networking, laptops, printers, and operational procedures. Students gain from hands-on instruction. Course includes about 50% of the competencies required for A+ certification. **Prerequisite:** CIS 105 or instructor permission. Two lecture; two lab.

**CIS 142 • Managing and Maintaining Your PC II (A+)**

3 credits

In-depth instruction on operating systems, security, mobile devices, and troubleshooting techniques. Students gain from hands-on instruction. Course includes about 50% of the competencies required for A+ certification. **Prerequisite:** CIS 141 or instructor permission. Two lecture; two lab.

**CIS 145 • Network+ Certification Preparation**

3 credits

Overview of networking concepts, protocols, terminology and history. Students learn and apply skills through traditional methods as well as hands-on labs. Prepares students for the CompTIA Network+ examination. **Prerequisite:** CIS141 or instructor permission. Two lecture; two lab.

**CIS 146 • Security + Certification Preparation**

3 credits

This course will prepare students for the CompTIA Security+ Certification examination. Topics include network security, compliance and operational security, threats and vulnerabilities, access control, cryptography, access control and identity management. **Prerequisite:** CIS 145. Three lecture.

**CIS 150 • Digital Culture**

3 credits

Trans-disciplinary inquiry into the history, nature and implications of digital spaces and cultures. Students develop critical thinking capabilities and a humanistic perspective on the nature of cyberspace. Three lecture.

**CIS 161 • Microsoft Operating System**

3 credits

In-depth uses of current Microsoft operating system. Students develop and demonstrate skill in creating, editing and managing graphic and textual files, and in configuring relevant hardware, software and interfaces. Two lecture; two lab.

**CIS 168 • Web Authoring Tools**

3 credits

Content authoring for the Web using software with a graphical user interface. Students build basic and comprehensive websites using the capabilities of the GUI and related suite software such as styles in linked CSS files, animation and creating interactivity through the integration of multimedia into static pages. Two lecture; two lab.

**CIS 171 • GNU Linux Operating System**

3 credits

Students learn to install, configure, maintain and troubleshoot Linux systems. Introduces the command line and graphical user interface for routine user and systems administration purposes. **Prerequisite:** CIS 105 or instructor permission. Two lecture; two lab.

**CIS 183 • Introduction to Internet**

3 credits

A beginner's course for people who want to learn to use the Internet. Students learn how to use this connection in a productive way to access services, resources and information, and to communicate electronically with others. Two lecture; two lab.

**CIS 187 • Introduction to Web Development**

3 credits

Introduction to the theory, art and practice of web design and development. Students learn to write and manage valid and accessible pages and sites that maintain high standards of usability regardless of client computing platform, connection speed or browser choice. Two lecture; two lab.

**CIS 190 • Introduction to JavaScript**

3 credits

Students learn the fundamentals of JavaScript as a web programming language, including basic programming concepts as they apply to using and writing JavaScript with a focus on creating interactivity using JavaScript with text and graphics. **Prerequisite:** CIS 187 or instructor permission. Two lecture; two lab.

**CIS 200 • BASIC Programming**

3 credits

Emphasizes advanced applications of the BASIC language, integrating elements of systems analysis necessary for support in programming and problem solving. **Prerequisite:** CIS 111 or instructor permission. Two lecture; two lab.

**CIS 217 • JAVA Programming, Introductory**

3 credits

An introduction to the JAVA Programming Language. Students write programs in JAVA compiled with Sun's Microsystems JDK. Both JAVA applications and applets are covered. **Prerequisite:** CIS 111 or instructor permission. Two lecture; two lab.

**CIS 225 • Programming in C Language**

3 credits

An introduction to computer programming using C language. Students write programs in C with an emphasis on problem analysis, structure and design. **Prerequisites:** CIS 111 and CIS 171, or instructor permission. Two lecture; two lab.

**CIS 226 • Programming in C++**

3 credits

An introduction to computer programming using C++ language. Students write programs in C++ with an emphasis on problem analysis, structure and design. **Prerequisite:** CIS 111 or instructor permission. Two lecture; two lab.

### **CIS 243 • Database-Driven Websites**

3 credits

An introductory course to web development using PHP and MySQL. Students learn to build professional quality, database-driven websites. Also introduces students to the paradigm of object-oriented programming and regular expressions, processing XML and secure coding practices. **Prerequisite:** CIS 187 or instructor permission. Two lecture; two lab.

### **CIS 245 • Database Management and Concepts**

3 credits

Modeling and design of DBMS systems using advanced database management system software. Emphasizes hands-on projects and activities while investigating the applied use of databases in personal and professional settings. **Prerequisite:** CIS 105 or instructor permission. Two lecture; two lab.

### **CIS 250 • Electronic Commerce**

3 credits

Introduces students to electronic commerce on the Internet. Emphasizes techniques to plan and develop a platform-independent e-commerce website. Focus on Web business strategies, marketing, advertising, legal and security considerations, current issues in e-Commerce, payment processing and the hardware and software tools necessary to support electronic storefronts. **Prerequisite:** CIS 243 or instructor permission. Two lecture; two lab.

### **CIS 260 • Web Design Technologies**

3 credits

Overview of current technologies used by Web design professionals to create visually pleasing and interactive Web pages. Students develop an understanding of basic Web technologies and their functions, and create simple Web applications. **Prerequisite:** CIS 183 or instructor permission. Two lecture; two lab.

### **CIS 265 • Web Programming**

3 credits

Advanced Web development and programming techniques using a variety of scripting and programming languages and supporting technologies. Students enhance their skills in client-side and server-side programming. Intended for students with a solid background and understanding in Web development and programming. **Prerequisite:** CIS 243 or instructor permission. Two lecture; two lab.

### **CIS 275 • Web Server Administration**

3 credits

Managing a Web server environment using Linux/Unix. Covers the basics of systems administration and user management with a focus on Web services. Focuses on networking, troubleshooting, administering Web and database services, support for scripting languages, process/resource monitoring and security techniques. Covers current topics in the Web hosting industry. **Prerequisite:** CIS 171 or instructor permission. Two lecture; two lab.

### **CIS 280 • Systems Analysis and Design**

3 credits

Introduction to the methodologies of systems analysis and design. Emphasizes developing interviewing skills, identifying organizational problems and objectives, analyzing and documenting systems, physical modeling and design. Students gain experience in the creation of UML diagrams, a project repository, data normalization and data flow modeling. **Prerequisite:** CIS 111 or instructor permission. Two lecture; two lab.

### **CIS 285 • Internet in the Classroom**

1 credit

Explores the uses of the Internet in the classroom as a teaching tool. One lecture.

### **CIS 286 • Educational Technology**

3 credits

A technology literacy course for current and future educators in K-12 and postsecondary education. The course emphasizes skill development and familiarity in e-learning tools, online educational resources, instructional design, distance learning and educational technology standards. Knowledge and skills will be assessed through discussions, hands-on projects and digital portfolios. Three lecture.

### **CIS 295 • Applied Project for CIS**

3 credits

Capstone course intended for students nearing completion of their CIS degree program. Builds on the skills and knowledge acquired in previous courses, emphasizing “real world” situations, and provides an opportunity for students to demonstrate their various competencies and communication skills. **Prerequisites:** Must complete at least 15 credits towards an area of specialization in CIS and instructor permission. Two lecture; two lab.

## **Construction Technology (CON)**

### **CON 100 • Construction Math and Safety**

3 credits

Introduces principles and procedures for working safely in construction. Also focuses on basic math skills needed to calculate slope, volume, area and unit conversion. Explores OSHA 10-Hour construction safety topics. Three lecture.

### **CON 105 • Engineering Principles and Construction Methods**

3 credits

Examines basic engineering calculations, architectural design principles, materials used in construction, technical specifications, documents, contracts, methods and systems. Research project included. Three lecture.

### **CON 107 • Safety and Job Hazard Recognition**

1 credit

Explores Federal Occupational Health and Safety Administration (OSHA) regulations as they pertain to the construction industry with focus on hazards in the workplace and methods to reduce work-related injuries. One lecture.

### **CON 110 • Plan Reading, Site Layout, Communication and Employment**

3 credits

Introduction to basic skills of reading plans and specifications, communication fundamentals, site layout, and employability skills. Three lecture.

### **CON 121 • Cabinetmaking I**

3 credits

Design and fabrication of wood and composition cabinets. Includes shop safety, cabinet style and design by function, materials, work plans, bill of materials and cutting lists, identification/use/care of hand tools, portable power tools and woodworking machinery, face frame and casework construction, basic joints, gluing techniques, finishing and installation methods. **Prerequisites:** CON 100. Two lecture; two lab.

**CON 124 • Masonry Systems**

3 credits

Theory and practice of construction with mortar, brick, block (concrete masonry units), reinforced brick and reinforced concrete masonry. **Prerequisites:** CON 100, CON 110. Two lecture; two lab.

**CON 125 • Concrete Systems**

3 credits

Explores theory and practice of methods and materials used for forming structural concrete and concrete placement in residential and commercial construction. **Prerequisites:** CON 100, CON 110. Two and one-half lecture; one lab.

**CON 126 • Framing Systems**

4 credits

Hands-on identification of different types of framing systems commonly used in the construction industry. Topics include: wall components, floor systems, stair and ceiling layouts. Lectures cover appropriate building codes and interpretation of construction documents as they pertain to carpentry. **Prerequisites:** CON 100, CON 110. Two lecture; four lab.

**CON 140 • Computer Applications in Construction**

3 credits

Computing theory and practice in computer applications for the design and construction industry. Introduction to Microsoft Excel, Word, Project, PowerPoint and/or estimating software. Explores some basics of CAD software for development of work plans. Includes basics of creating spreadsheets for estimating. Three lecture.

**CON 145 • Roofing, Thermal and Moisture Protection Systems**

3 credits

Explores hands-on roofing materials from low-slope to steep-slope roofing systems. Students construct varying types of exterior finishes, weatherization and waterproofing systems. Lectures cover thermal properties of materials, thermal resistance and heat transfer. **Prerequisite:** CON 126 or instructor approval. Two lecture; two lab.

**CON 180 • Construction Service Learning**

3 credits

Places students in construction settings to perform and learn construction related duties in accordance with their goals and objectives in a service-based project that benefits the community. Six lab.

**CON 181 • Building Maintenance**

3 credits

Maintenance of residential, commercial, industrial and public buildings. Discusses safety and first aid, structural parts of buildings, exteriors, doors and windows, interiors, finish carpentry, concrete/masonry, landscape maintenance, electrical and mechanical system maintenance. Two lecture; two lab.

**CON 200 • Integrated Construction Management/ Design Laboratory**

3 credits

Construction of mock structures including building and assemblage of components, progress reporting, safety documentation, quality control, coordination of teams among design, management and trades. **Prerequisites:** CON 110 and CON 140 or department consent; **Co-requisites:** CON 145 or DRF 230. Two lecture; two lab.

**CON 221 • Cabinetmaking II**

3 credits

Advanced standard techniques of cabinetmaking. Includes shop safety for special setups, standard and customized cabinet dimensioning, detailed working drawings, specialized cabinet joinery, molding and trim applications, bending and laminating veneers and plastic laminates, design and fabrication of multi-component cabinet systems. **Prerequisites:** CON 121. Two lecture; two lab.

**CON 222 • Cabinetmaking III**

3 credits

Specialized techniques in cabinet production. Includes identification/use/care of specialized hand tools/portable power tools/machinery for mass production of cabinets, jigs and fixtures, designing and estimating materials for production cabinetry, production projects. **Prerequisites:** CON 221. Two lecture; two lab.

**CON 223 • Heavy Highway Construction**

3 credits

Introduces students to the basics of earthwork. Discussion of highway/heavy construction trade and pertinent safety; explores construction documents used for highway/heavy civil construction projects. Students required to perform hands-on calculations to determine site layouts, earthwork grades and material requirements. **Prerequisite:** CON 105. Two lecture; two lab.

**CON 227 • Electrical, Mechanical and Plumbing Systems**

3 credits

Lecture-based approach to mechanical systems and basic electrical theories as they relate to building trades. Hands-on approach taken for plumbing and electrical systems. **Prerequisite:** CON 110. Two lecture; two lab.

**CON 230 • Sustainable Construction**

3 credits

Role of constructors in the green environment with discussions exploring impacts of land development, materials and manufacturing processes. Features LEED Green Building Council criteria, green building technology and structure orientation. **Prerequisite:** CON 105. Three lecture.

**CON 241 • Electrical Level I**

3 credits

Orientation to the trade of electrical work, electrical safety, introduction to electrical circuits, introduction to the National Electric Code (NEC), device boxes, hand bending and electrical installation. **Prerequisite:** CON 227 or department chair approval. Two lecture; two lab.

**CON 242 • Electrical Level II**

3 credits

Lectures on sine wave generation, alternating current, lighting systems and transformers. Hands-on installation of light fixtures, conduit bending, cable pulling and switches. **Prerequisite:** CON 241 or department chair approval. Two lecture; two lab.

**CON 263 • Cost Estimating, Scheduling and Planning**

3 credits

Students calculate quantities of materials used in construction projects using spreadsheets and computers. Once quantities are determined, cost and duration to time of completion are applied to each task. **Prerequisite:** CON 140 or instructor approval. Two lecture; two lab.

## Cosmetology (COS)

### COS 113 • Introduction to Cosmetology

10 credits

Demonstration and hands-on instruction in all competencies necessary to perform cosmetology services. Student must successfully perform each competency before progressing to next course. Provides state-mandated 300 hours of cosmetology instruction.

**Prerequisite:** Minimum 16-22 years of age with an official high school transcript with two English courses, one mathematics, one science and a minimum of ten credits -OR- Minimum age of 16 with a GED or high school diploma -OR- 23 years of age; -AND- AZ state identification -AND- satisfactory placement 20 lab.

### COS 114 • Theory of Cosmetology II

3 credits

Orientation and all aspects of business skills relating to cosmetology. **Prerequisite:** COS 113 or instructor permission. Three lecture.

### COS 115 • Theory of Cosmetology III - General Sciences

3 credits

Infection control, anatomy and physiology, hair, skin, nails, electricity and chemistry. **Prerequisite:** COS 114 or instructor permission. Three lecture.

### COS 116 • Theory of Cosmetology IV - Hair Care

2 credits

All aspects of hair care, chemical texturizing and coloring. **Prerequisite:** COS 115 or instructor permission. Two lecture.

### COS 117 • Theory of Cosmetology V - Skin and Nail Care

2 credits

Topics include facial/makeup, hair removal and nail care. **Prerequisite:** COS 116 or instructor permission. Two lecture.

### COS 130 • Nail Technology Theory I

3 credits

Introduction to the Theory of Nail Technology: Orientation and Business Skills. **Prerequisite:** Satisfactory placement. Three lecture.

### COS 131 • Nail Technology Theory II

3 credits

Theory of Nail Technology: Scientific concepts. **Prerequisite:** COS 130. Three lecture.

### COS 132 • Nail Technology Basic Practicum Practice I

2 credits

This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. Four and a half lab.

### COS 133 • Nail Technology Basic Practicum Practice II

2 credits

This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. **Prerequisite:** COS 132 Four and a half lab.

### COS 134 • Nail Technology Advanced Practicum Practice III

2 credits

This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. **Prerequisite:** COS 133 Four and a half lab.

### COS 135 • Nail Technology Advanced Practicum Practice IV

2 credits

This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. **Prerequisite:** COS 134 Four and a half lab.

### COS 136 • Nail Technology Advanced Practicum Practice V

2 credits

This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. **Prerequisite:** COS 135 Four and a half lab.

### COS 137 • Nail Technology Advanced Practicum Practice VI

2 credits

This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. **Prerequisite:** COS 136 Four and a half lab.

### COS 138 • Nail Technology Advanced Practicum Practice VII

2 credits

This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. **Prerequisite:** COS 137 Four and a half lab.

### COS 201 • Basic Clinical Practice I

4 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins. **Prerequisite:** COS 113; Four lab.

### COS 202 • Basic Clinical Practice II

4 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins. **Prerequisite:** COS 201 or instructor permission; Four lab.

**COS 203 • Basic Clinical Practice III**

4 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 202 or instructor permission; Four lab.

**COS 204 • Advanced Clinical Practice IV**

4 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 203 or instructor permission; Four lab.

**COS 205 • Advanced Clinical Practice V**

4 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 204 or instructor permission. Four lab.

**COS 206 • Advanced Clinical Practice VI**

4 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins. **Prerequisite:** COS 205 or instructor permission. Four lab.

**COS 207 • Advanced Clinical Practice VII**

4 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 206 or instructor permission. Four lab.

**COS 208 • Advanced Clinical Practice VIII**

4 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 207 or instructor permission. Four lab.

**COS 209 • Science for Cosmetology Instructors**

1 credit

Instructional techniques for teaching/demonstrations of the safe use of chemicals, safety precautions in use of electricity and electrical equipment, and cosmetic chemistry. Theory and practical procedures are explained and demonstrated for each topic.

**Prerequisites:** Cosmetology license and instructor permission.

One lecture.

**COS 210 • Management for Cosmetology Instructors**

3 credits

Instructional techniques for teaching and mastering an introduction to personal improvement, Arizona laws and rules governing cosmetology business ethics, telephone techniques, receptionist techniques, and shop management. **Prerequisites:** Cosmetology license and instructor permission. Three lecture.

**COS 211 • Instructing in Cosmetology I**

3 credits

Student instructor will learn correct instructional procedures pertaining to manicuring, shampooing, fingerwaving, haircutting and curl construction, enabling her or him to stress all safety precautions, and to demonstrate manipulative skills to students clearly and confidently. **Prerequisites:** Cosmetology license and instructor permission. Three lecture.

**COS 212 • Instructing in Cosmetology II**

3 credits

Basic instructional methods and techniques for the effective observation and assistance to experienced instructors in the performance of their duties, and to perform skill demonstrations in chemical applications. **Prerequisites:** Cosmetology license, COS 211 and instructor permission. Three lecture.

**COS 213 • Instructing in Cosmetology III**

3 credits

Basic instructional methods and techniques for the effective instructing of students in the skills of haircutting with razor and scissors, observing and performing guidelines, roller placement, and the clear and enthusiastic demonstration of all skills needed. **Prerequisites:** Cosmetology license, COS 212 and instructor permission. Three lecture.

**COS 214 • Instructing in Cosmetology IV**

3 credits

Designing lesson plans, demonstration schedules, theory schedules, quizzes and examinations, and observing and absorbing human relations in dealing with students and patrons. **Prerequisites:** Cosmetology license, COS 213 and instructor permission. Three lecture.

**COS 215 • Basic Practicum Practice I**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 113; Four and a half lab.

**COS 216 • Basic Practicum Practice II**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 215; Four and a half lab.



**COS 217 • Basic Practicum Practice III**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 216; Four and a half lab.

**COS 218 • Basic Practicum Practice IV**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 217; Four and a half lab.

**COS 219 • Basic Practicum Practice V**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 218; Four and a half lab.

**COS 220 • Basic Practicum Practice VI**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 219; Four and a half lab.

**COS 221 • Basic Practicum Practice VII**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 220; Four and a half lab.

**COS 222 • Basic Practicum Practice VIII**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 221; Four and a half lab.

**COS 223 • Advanced Practicum Practice IX**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 222; Four and a half lab.

**COS 224 • Advanced Practicum Practice X**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 223; Four and a half lab.

**COS 225 • Advanced Practicum Practice XI**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 224; Four and a half lab.

**COS 226 • Advanced Practicum Practice XII**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 225; Four and a half lab.

**COS 227 • Advanced Practicum Practice XIII**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 226; Four and a half lab.

**COS 228 • Advanced Practicum Practice XIV**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 227; Four and a half lab.

**COS 229 • Advanced Practicum Practice XV**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 228; Four and a half lab.

**COS 230 • Advanced Practicum Practice XVI**

2 credits

One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.

**Prerequisite:** COS 229; Four and a half lab.

## Drafting (DRF)

### DRF 120 • Technical Drafting I

3 credits

Basic skills for technical drafting using AutoCAD. Topics include language of industry, drafting skills, drafting office practices, theory of shape description, applied geometry, basic dimensioning, working drawings, sections and conventions, and printmaking machines. Two lecture; two lab.

### DRF 130 • Architectural Drafting I

3 credits

Basic techniques and fundamentals of architectural drafting with emphasis on line work, lettering and basic technical drawing. Basic drafting skills are developed through projects devoted to acquiring knowledge of basic residential construction methods and their graphical representation. Emphasis on industry standards. **Prerequisite:** DRF 120 or instructor permission. Two lecture; two lab.

### DRF 140 • Civil Drafting

3 credits

Focus on the application of civil drafting and practice of fundamental graphical concepts and related material as they apply to site planning. **Prerequisite:** DRF 120 or instructor permission. Two lecture; two lab.

### DRF 145 • AutoSketch

3 credits

An introductory course in Computer-Aided Drafting/Design using AutoSketch. Recommended for those students who want to pursue study of AutoCAD but have no computer or drafting experience. Two lecture; two lab.

### DRF 150 • AutoCAD I

3 credits

Specializing in two-dimensional drawings and the application of Computer Aided Drafting Design. Topics include system startup, setting up drawings, drawing fundamentals, getting around with display controls, graphic entities, introduction to editing, grouping entities into blocks, drawing enhancements, dimensioning and plotting drawings. Two lecture; two lab.

### DRF 200 • Applied Drafting and Design

2 credits

The application of advanced drafting and design skills in a challenging format. Topics include defining areas of interest, advanced sketching skills, advanced manual drafting skills, advanced AutoCAD skills, project work plans, activities and evaluation. Repeatable with different student/instructor/division director created specific learning object. **Prerequisite:** 15 credit hours of drafting core courses. Four lab.

### DRF 220 • Technical Drafting II

3 credits

An advanced course in technical drafting. Topics include drawing threaded fasteners, drawing miscellaneous types of fasteners, forming processes, welding drawings, manufacturing materials, auxiliary views, pictorial drawings, functional drafting and drawing for numerical control. **Prerequisite:** DRF 120. Two lecture; two lab.

### DRF 230 • Architectural Drafting II

3 credits

An advanced course in architectural drafting. Topics include site/plot plans, foundation plans, floor plans, elevations, sections, framing plans, internal elevations, electrical plans, plumbing plans, sketching, perspective drawing, shading and coloring and building codes. **Prerequisite:** DRF 130. Two lecture; two lab.

### DRF 250 • AutoCAD II

3 credits

Covering two-dimensional specialized techniques and continued development of AutoCAD skills. Emphasis is on advanced student project(s). Topics include advanced editing, attributes and data extraction, customizing macros and menus, tailoring menu systems, using AutoLISP for drawing automation, grouping entities into blocks, drawing enhancements, dimensioning and plotting drawings. **Prerequisite:** DRF 150 or instructor permission. Two lecture; two lab.

### DRF 251 • AutoCAD 3-D

3 credits

Theory and application of three-dimensional (3-D) drafting capabilities. Topics include 3-D conversion, sectioning for 2-D plotting and dimensioning. **Prerequisite:** DRF 130 or instructor permission. Two lecture; two lab.

### DRF 252 • AutoCAD Productivity

3 credits

The use of the AutoCAD program to create personalized applications of AutoCAD customized menus and templates. Topics include making a first menu, fine-tuning a system, DOS - a closer look, creating and editing macros, improving screen menus, designing and creating tablet menus, AutoCAD's advanced user interface, automating drawings, productivity tips and tricks, and AutoCAD productivity library. **Prerequisite:** DRF 250 or instructor permission. Two lecture; two lab.

## Early Childhood Development (ECD)

### ECD 100 • Providing a Healthy Environment

1 credit

Procedures to protect the health of young children and promote the development of lifelong health habits and attitudes for children in early childhood programs. One-half lecture; one lab.

### ECD 101 • The Child's Total Learning Environment

1 credit

Planning and organizing the physical environment into functional learning areas, stressing the importance of a planned arrangement for classroom furniture, equipment and materials. One-half lecture; one lab.

### ECD 102 • Ensuring a Safe Environment

1 credit

Safety concerns and procedures for children in an Early Childhood Program. One-half lecture; one lab.

### ECD 103 • Planned Arrangements and Schedules

1 credit

Methods of lesson planning and classroom scheduling to meet the needs of young children. One-half lecture; one lab.

### ECD 105 • Guidance Principles for Encouraging Self-Discipline

1 credit

Designed to encourage the child to take responsibility for his/her own actions. One-half lecture; one lab.

### ECD 107 • Collecting, Organizing and Using Teaching Aids

1 credit

Acquiring, maintaining and using effective teaching tools. One-half lecture; one lab.

**ECD 108 • Techniques for Observing Children**

1 credit

Effectively observing and recording child characteristics and behavior. One-half lecture; one lab.

**ECD 110 • Building Relationships with Parents Through Communication**

1 credit

Building parent-teacher relationships by developing effective communication and cooperation between parents and the early childhood setting. One-half lecture; one lab.

**ECD 111 • Supporting the Growth and Education of Parents**

1 credit

Awareness of parents' values for their children by helping parents gain more understanding about their children's needs. One-half lecture; one lab.

**ECD 112 • Enhancing Family Involvement**

1 credit

Emphasis on involving parents and community members in the early childhood program. One-half lecture; one lab.

**ECD 113 • Fostering Communication and Language Skills**

1 credit

Assessing, understanding and fostering the development of communication skills of young children. Techniques for helping children develop communication skills in their primary language. One-half lecture; one lab.

**ECD 114 • Beginning Mathematical Concepts**

1 credit

Mathematics concepts and activities to help children develop an understanding of relationships. One-half lecture; one lab.

**ECD 115 • Nutrition in Early Childhood**

1 credit

Introduction to nutrition, methods of using nutrition experiences in the classroom, and structuring and implementing the education of nutrition into the early childhood program. One-half lecture; one lab.

**ECD 116 • Sciencing and Discovery**

1 credit

Techniques for helping children increase their awareness and appreciation of their natural environment. One-half lecture; one lab.

**ECD 117 • Enhancing Questions and Problem-Solving Abilities**

1 credit

Problem solving processes used by young children and methods to develop observation, classification and prediction skills in young children. One-half lecture; one lab.

**ECD 118 • Blocks in Early Childhood Program**

1 credit

Block play in the early childhood curriculum and techniques that encourage and enhance block activities. One-half lecture; one lab.

**ECD 119 • Field Trips**

1 credit

Planning and methods of evaluating field trips. Techniques for enhancing the field trip experience. One-half lecture; one lab.

**ECD 120 • Enhancing a Positive Self-Concept**

1 credits

Roles a child's self-image play in development and learning processes. One-half lecture; one lab.

**ECD 122 • Encouraging Open Expression**

1 credit

Encouraging children to express their feelings openly as an effective way to foster positive personality development. One-half lecture; one lab.

**ECD 123 • Music and Creative Movement**

1 credit

Use of music and creative movement in the early childhood curriculum and methods for providing a variety of musical experiences. One-half lecture; one lab.

**ECD 124 • Dramatic Play in the Early Childhood Setting**

1 credit

Techniques to encourage child participation in role-playing activities. Methods for using dramatic play and the construction and storage of materials are stressed. One-half lecture; one lab.

**ECD 125 • Creative Media**

1 credit

Values and skills needed to implement a creative media program and selecting materials for creative experiences. One-half lecture; one lab.

**ECD 126 • Large Muscle Development**

1 credit

Physical maturation process of young children, the value of gross motor activities, and techniques for providing a variety of spontaneous and teaching directed activities. One-half lecture; one lab.

**ECD 127 • Small Muscle Development**

1 credit

Physical maturation process, the value of small muscle activities, development of eye-hand coordination and techniques for providing a variety of fine motor activities. One-half lecture; one lab.

**ECD 128 • Incorporating the Children's Culture**

1 credit

Importance of cultural factors and methods of incorporating elements of a child's culture into the classroom. One-half lecture; one lab.

**ECD 129 • Planning and Implementing a Bilingual Program**

1 credit

Providing young children with communication skills in their primary language with exposure to a basic vocabulary of a second language. (This course will be made language specific for the group of children with which the student is involved). One-half lecture; one lab.

**ECD 130 • Woodworking**

1 credit

Woodworking experiences and techniques for providing young children with a variety of woodworking activities. One-half lecture; one lab.

**ECD 136 • Understanding How Children Learn**

1 credit

Special skills which young children bring to the classroom and how to use those skills to help each child expand his/her world. One-half lecture; one lab.

**ECD 143 Inclusion of Children with Special Needs**

2 credits

An overview of the concepts of quality inclusion of children with special needs, including information on laws which govern services to children with disabilities, knowledge of individualized plans, a review of typical and atypical child development, developmentally appropriate activities for children, working collaboratively with families, service providers and multidisciplinary teams. One lecture; two lab.

**ECD 147 • Prenatal and Infant Development**

1 credit

Development of an infant from conception through infancy. Includes theories of development and the birth process. Student must complete ECD 147, 148, 149 and 150 in numerical order. One-half lecture; one lab.

**ECD 148 • Toddler Development**

1 credit

Development of toddlers from 12 months to 36 months of age. Must complete ECD 147, 148, 149 and 150 in numerical order. One-half lecture; one lab.

**ECD 149 • Development of the Preschool Child**

1 credit

Development of children from 3 to 5 years of age. Must complete ECD 147, 148, 149 and 150 in numerical order. One-half lecture; one lab.

**ECD 150 • Middle Childhood Years**

1 credit

Theories, trends and research in the development of the middle childhood years including the principles of physical, social, emotional and intellectual growth. Must complete ECD 147, 148, 149 and 150 in numerical order. One-half lecture; one lab.

**ECD 151 • Mathematics for School-Agers**

1 credit

Theories, research and concrete experiences related to mathematical reasoning and skills of the school age child. One-half lecture; one lab.

**ECD 152 • Learning Environment for School-Agers**

1 credit

The school-age environment for the care and education of children and youth includes both indoor and outdoor spaces, as well as the materials available and the management of activities in the program. One-half lecture; one lab.

**ECD 153 • Guidance Principles for School-Agers**

1 credit

A study of positive guidance and discipline techniques that can be used to encourage children and youth to develop self-discipline and take responsibility for their actions. One-half lecture; one lab.

**ECD 154 • Environments for Infants and Toddlers**

1 credit

A composite of practical theories and principles for the arrangement of a safe, healthy environment for infants and toddlers with emphasis on indoor/outdoor environments, material selection and usage based on observation and participation in an infant/toddler care setting. One-half lecture; one lab.

**ECD 155 • Curriculum and Learning Materials for Infants**

1 credit

Practical theories and principles for the infant curriculum with emphasis on responsive relationships, developmental stages, applied observation. Course provides developmentally appropriate learning materials that are safe and interesting for infant exploration. One-half lecture; one lab.

**ECD 156 • Curriculum and Learning Materials for Toddlers**

1 credit

Practical theories and principles for the toddler curriculum with emphasis on responsive relationships, developmental stages, applied observation, and providing developmentally appropriate learning materials that are safe and interesting for toddler exploration. One-half lecture; one lab.

**ECD 158 • Developing and Utilizing Observations Skills in Infant and Toddler Programs**

1 credit

Techniques and skills to effectively observe and record characteristics and developmental stages of infants and toddlers, record keeping procedures, overview of a variety of care giving settings, and observation and participation in an infant/toddler program. One-half lecture; one lab.

**ECD 159 • Recordkeeping Skills for Infant/Toddler Care**

1 credit

Assists with the setting up and maintaining of records needed by caregivers to ensure the smooth and effective operation of the infant/toddler program, and to provide accountability to regulating agencies, funding agencies and consumers. One-half lecture; one lab.

**ECD 163 • Cognitive Development of Infants and Toddlers**

1 credit

Theories, trends and principles of cognitive growth and development of infants and toddlers, and examination of development stages and norms through observation and participation in an infant/toddler care program. One-half lecture; one lab.

**ECD 164 • Practical Applications of Cognitive Development**

1 credit

Stages of growth of young children, including appropriate toys and activities that support their cognitive growth as they move through the stages. One-half lecture; one lab.

**ECD 165 • Language Development of Infants and Toddlers**

1 credit

A study of the normal language skills development in infants and toddlers, including activities to foster language development and help identifying language delays. One-half lecture; one lab.

**ECD 166 • Encouraging Autonomy and Positive Self-Concept**

1 credit

Defines trust and autonomy and identifies the type of care which fosters the development of autonomy and positive self-concept in infants and toddlers. One-half lecture; one lab.

### **ECD 167 • Guidance and Discipline of Infants and Toddlers**

1 credit

Appropriate guidance techniques for various developmental levels without impeding infants and toddlers' needs to explore and experiment. One-half lecture; one lab.

### **ECD 168 • Enhancing Social Competence of Infants and Toddlers**

1 credit

Skills and techniques to enhance the social competence of infants and toddlers by providing an appropriate environment, by providing for positive interaction between caregiver and child, and by providing opportunities for interactions with peers. One-half lecture; one lab.

### **ECD 169 • Sensorimotor Learning in Infancy and Toddlerhood**

1 credit

Sensorimotor period of development of young children in their first two years of life. One-half lecture; one lab.

### **ECD 172 • Physical Development in Infancy and Toddlerhood**

1 credit

The normal sequence of physical development in infants and toddlers, utilizing observations and participation in infant and toddler care activities to individualize the program. One-half lecture; one lab.

### **ECD 175 • Professionalism**

1 credit

Components of professionalism of the early childhood profession, including ethical behavior, advocacy and commitment to professional growth. One-half lecture; one lab.

### **ECD 181 • Recordkeeping for the Family Day Care Provider**

1 credit

Fundamentals of a record keeping system in a family day care setting, including recording income and expenses, tax consideration and maintaining program records. One-half lecture; one lab.

### **ECD 182 • Family Day Care as a Small Business**

1 credit

The multifaceted aspects of the business of providing family child care such as zoning, certification, insurance, hours of care, fees, advertising, program and parent/provider agreements. One-half lecture; one lab.

### **ECD 183 • Balancing Work and Family in a Family Day Care Setting**

1 credit

Principles of achieving balance in work and family life while operating a family day care business. Includes components of being self-employed and home-based, communication techniques, time management skills, conflict resolution and components of self-care. One-half lecture; one lab.

### **ECD 185 • Early Childhood Provider Basics**

3 credits

Ten topic areas of basic early childhood training: child development, health, safety, nutrition, learning environments including behavior management, early literacy, early mathematics, special needs, community resources and professionalism. Two and one-half lecture; one lab.

### **ECD 200 • Introduction to Early Childhood Education**

3 credits

Teaching the young child. Course covers the total early childhood field ~ types, objectives, philosophy, curriculum and the history of such programs. **Prerequisite:** Satisfactory placement. Three lecture.

### **ECD 201 • Exploring Early Childhood Program Philosophies**

1 credit

Variety and complexity of early childhood programs leading to the development of a personal program philosophy. One-half lecture; one lab.

### **ECD 211 • Providing Food and Nutrition Services**

1 credit

Planning, developing, implementing and evaluating nutrition and food services for early childhood programs. One-half lecture; one lab.

### **ECD 216 • Transitions**

1 credit

Study and application of transitions of children in varied early childhood settings, including the nature of transitions and the use of transitional activities. One-half lecture; one lab.

### **ECD 217 • Early Literacy**

1 credit

Development of reading and writing skills for young children. Includes the process of reading and writing and appropriate environments and adult responses. One-half lecture; one lab.

### **ECD 220 • Preschool Behavior Problems**

3 credits

Step-by-step approach in dealing effectively with behavior problems of preschool children. **Prerequisite:** Satisfactory placement. Three lecture.

### **ECD 221 • Stress Management for Educators**

2 credits

Strategies for managing time, space and people in the early childhood setting. **Prerequisite:** Satisfactory placement. Two lecture.

### **ECD 222 • Young Children with Special Needs**

3 credits

Focuses on the holistic view of the field of early childhood special education, including assessment, range of services, intervention and the prevention of the emergence of future problems or disabilities. Three lecture.

### **ECD 231 • Planning and Managing an Early Childhood Program**

2 credits

Designing, planning, implementing and managing an early childhood program based upon needs assessment and program philosophy. One lecture; two lab.

### **ECD 232 • Designing Indoor and Outdoor Environments**

2 credits

Focus on the arrangement of the indoor and outdoor play and work spaces in early childhood environments in accordance with the program's philosophy, goals, objectives, and needs of children, staff and families. One lecture; two lab.

**ECD 233 • Developing Policies and Procedures for Early Childhood Programs**

2 credits

An Internet course leading to the development and/or revision of written policies and procedures for an early childhood setting based upon applicable state, local and/or federal regulations. Two lecture.

**ECD 234 • Staffing an Early Childhood Program**

2 credits

An overview of the skills essential for personnel management in an early childhood program, including staffing selection and patterns, record keeping, employee compensation, assessing, evaluating and training of staff. One lecture; two lab.

**ECD 235 • Budget and Financial Management**

2 credits

Planning, developing and implementing an accounting and financial system for use in an early childhood program setting. One lecture; two lab.

**ECD 236 • Marketing the Early Childhood Program**

2 credits

Developing skills to market the early childhood program to parents and community, including recruitment and enrollment. One lecture; two lab.

**ECD 237 • Evaluating an Early Childhood Program**

1 credit

Development and implementation of an evaluation system for an early childhood program, including children's program, staff and overall program. One-half lecture; one lab.

**ECD 250 • Child Development I**

3 credits

The child from conception through the preschool years.  
**Prerequisite:** Satisfactory placement. Three lecture.

**ECD 251 • Child Development II**

2 credits

The child from the middle childhood years through adolescence.  
**Prerequisite:** ECD 250. Two lecture.

**ECD 270 • CDA Assessment Preparation**

2 credits

Assists the student in preparation for successfully completing direct CDA assessment process for receiving the national CDA Credential. **Prerequisite:** Completion of recommended early childhood coursework prior to applying for CDA assessment and with instructor permission. Complete minimally 480 clock hours of working with young children in specific setting. Two lecture.

**Economics (ECN)****ECN 211 • Principles of Macroeconomics**

3 credits

**SUN#** ECN 2201

Study of the economic system as a whole, including the level of employment and diversity in income, fiscal and monetary policies, and the role of government in the economy. Also covered are economics of resource issues related to market failure and sustainability. **Prerequisite:** Satisfactory placement. Three lecture.

**ECN 212 • Principles of Microeconomics**

3 credits

**SUN#** ECN 2202

Elements of supply and demand analysis. Examination of market structures, market allocation and externalities, labor markets and income distribution, and decision making by the individual firm.  
**Prerequisite:** Satisfactory placement. Three lecture.

**Education (EDU)****EDU 101 • Effective Tutoring**

1 credit

For those who work with students as tutors, scribes or note takers. The course identifies new methods and approaches to tutoring, including qualities, goals, strategies and implementation guidelines for the development of an effective tutoring relationship. One lecture.

**EDU 102 • Laubach Literacy Tutor Training**

1 credit

The philosophy, methods, techniques and materials employed in teaching of basic reading to the nonreader using the Laubach system of reading. One lecture.

**EDU 103 • Laubach ESOL Tutor Training**

1 credit

Prepares literacy tutors to teach English to speakers of other languages. Trainees learn how to use the Laubach literacy materials designed to teach adults basic English literacy skills. **Prerequisite:** EDU 102. One lecture.

**EDU 136 • Introduction of Reading Programs**

1 credit

An overview of reading and literacy development including the reading and language process. Course covers the components of effective reading programs as well as strategies and practices to support critical thinking development, learning styles and methods to support literacy success for all students. One-half lecture; one lab.

**EDU 137 • Principles of Child Guidance**

1 credit

Methods of promoting children's social and emotional growth and intelligence. Techniques include positive guidance and discipline methods and strategies which promote sound relationships and the development of positive self concept and self esteem. One-half lecture; one lab.

**EDU 138 • Managing Children's Behavior**

1 credit

Methods and strategies for understanding and working with specific behavioral challenges which are not improving through general guidance. Covers why children behave in challenging ways and how to best support positive change. One-half lecture; one lab.

**EDU 139 • Assisting in Teaching Elementary School Physical Education**

1 credit

Methods and activities for assisting in the instruction of physical education in the elementary school. One-half lecture; one lab.

**EDU 140 • Assisting in Teaching Elementary School Writing**

1 credit

Methods and materials used in teaching the fundamental principles of writing. Topics include the writing process, reading, speaking, thinking, paragraphs, poetry, usage, punctuation, spelling and capitalization. One-half lecture; one lab.

### **EDU 143 • Assisting in Teaching Elementary School Math**

1 credit

Materials and methods used in teaching elementary school mathematics, including easy-to-make materials and remedial math tutorial techniques to be used individually or in small groups. One-half lecture; one lab.

### **EDU 144 • Assisting in Teaching Elementary School Science**

1 credit

Methods and materials used for assisting in teaching elementary school science. One-half lecture; one lab.

### **EDU 145 • Assisting in Teaching Elementary School Social Studies**

1 credit

Methods and materials used for assisting in teaching elementary school social studies. One-half lecture; one lab.

### **EDU 146 • Assisting in Teaching Elementary School Music**

1 credit

Methods and materials used in elementary school music programs. Includes songs, dances and rhythm activities. One-half lecture; one lab.

### **EDU 147 • Assisting in Teaching Elementary School Reading**

1 credit

Course defines the reading process, reviews learning to read from the readiness stage through fluent reading. Includes bilingual problems, and major approaches. Emphasis on developing language and reading in the bilingual setting and methods to enhance learning. One-half lecture; one lab.

### **EDU 148 • Assisting in Teaching Elementary School Art**

1 credit

Methods and materials used in teaching elementary school art. One-half lecture; one lab.

### **EDU 149 • Use of Bulletin Boards and Classroom Decorations**

1 credit

Development of ideas for bulletin boards and classroom decorations for holidays, special occasions and specific academic subjects. One-half lecture; one lab.

### **EDU 200 • Introduction to Education**

3 credits

Surveys the field of education. Historical development; the requirements for admission into teaching; approaches and theory; problems of teachers; organization and administration; and ethical and legal aspects and foundations of education are examined. **Prerequisite:** Satisfactory placement. Three lecture.

### **EDU 201 • Substitute Teaching in the Schools**

3 credits

An overview of responsibilities and methods for substitute teaching in K-12 classrooms. Three lecture.

### **EDU 202 • Occupational/Physical Therapy Educational Assistant**

3 credits

An orientation to working as a technical assistant to an occupational/physical therapist in the school setting. Three lecture.

### **EDU 203 • Speech Therapy Educational Assistant**

3 credits

An orientation to working as a technical assistant to a speech therapist in the school setting. Three lecture.

### **EDU 204 • The Effective Teacher**

3 credits

Designed for teachers focusing on the well-managed classroom, including developmentally appropriate practices for toddlers through school age children, effective lesson planning, classroom procedures, positive guidance practices, and supporting the learning and involvement of special needs children with strategies for building relationships with families. Three lecture.

### **EDU 205 • Community College in America**

3 credits

An introduction to the community college, an institution unique to the United States. Study includes the history, philosophy and future of community colleges. **Prerequisite:** Satisfactory placement. Three lecture.

### **EDU 210 • Literacy Tutor Practicum I**

3 credits

Students receive instruction in the philosophy, methods, techniques and materials employed to teach basic literacy. Students then practice and develop their teaching skills by tutoring in a community literacy program or educational institution. **Prerequisite:** Instructor permission. One lecture; four lab.

### **EDU 211 • Literacy Tutor Practicum II**

3 credits

Students enhance their tutoring skills through a continuation of Practicum I. **Prerequisite:** EDU 210. One lecture; four lab.

### **EDU 214 • Mentoring Practicum I**

3 credits

Combines the knowledge acquired in mentor training with the concepts and practices of being a mentor. The student will work 60 hours during the term one-to-one with a young person aged 4 to 18. **Prerequisite:** Pre-screening by the instructor. Two lecture; four lab.

### **EDU 215 • Mentoring Practicum II**

3 credits

A continuation of Mentoring Practicum I. The student may work with a new individual or the same one as in EDU 214. **Prerequisite:** EDU 214. Two lecture; four lab.

### **EDU 220 • Diversity in Education**

3 credits

An introduction to multicultural education and the various forms of human diversity found in classrooms, schools and communities. Emphasis on the role of stereotyping and prejudice as they affect teachers and learners. **Prerequisite:** Satisfactory placement. Three lecture.

### **EDU 222 • Introduction to Special Education**

3 credits

The history, practices, advances, problems and challenges of the special education field from birth to adulthood. **Prerequisite:** Satisfactory placement. Three lecture.

**EDU 223 • Classroom Observation Skills**

1 credit

Presentation of classroom observation skills to identify effective teaching practices. Eight areas related to positive learning outcomes include learning climate, classroom management, lesson clarity, instructional variety, task orientation, student engagement, student success and higher thought processes. Prepares pre-service teachers for classroom observation assignments in conjunction with the core EDU courses. **Prerequisite:** Concurrent enrollment in EDU 200. One lecture.

**EDU 250 • Critical and Evaluative Reading for Educators**

3 credits

Emphasizes application of critical inquiry skills to varied and challenging reading materials. Includes analysis, synthesis, and evaluation through written discourse. **Prerequisite:** ENL 101. Three lecture.

**EDU 260 • Technology Integration in the Classroom – SmartBoard I**

1 credit

Designed for classroom teachers who wish to explore incorporation of interactive Smart Board for students in grades K-12. Focuses on learning the software, instructional models that incorporate best practices within instructional design, and lesson plan development. Concepts of this class especially applicable with ELL students to master state standards. One lecture.

**EDU 271 • Phonics Based Reading and Decoding**

3 credits

Overview of research, curricular content and instructional practices associated with Research Based Systematic Phonics Instruction (RBSPI) and other methods for teaching reading. Emphasis on methods mandated by Arizona legislation. Three lecture.

**EDU 272 • Educational Psychology**

3 credits

Focus on the study and application of psychological principles, theories, and methodologies related to teaching and learning. Current trends and Arizona State Board of Education professional teaching standards covered; includes 10 hours field experience. **Prerequisite:** PSY 101 or instructor permission. Three lecture.

**EDU 275 • Instructional Skills**

2 credits

Review of basic ideas about teaching, current practices, and new instructional strategies and techniques. Participants are encouraged to address different learning domains – psychomotor, cognitive and affective. Two lecture.

**EDU 276 • Managing the Learning Environment**

3 credits

Classroom management techniques, discipline models, student behavior and misbehavior, group dynamics, student self-motivation, and learning styles. Arizona State Board of Education professional teaching standards emphasized; includes 20 hours field experience. **Prerequisite:** Satisfactory placement. Three lecture.

**EDU 280 • Introduction to Structured English Immersion (SEI) Augmented**

3 credits

Emphasis on understanding English Language Learners (ELL) in the K-12 classroom. Covers the history, culture, theory, methods, and an introduction to both the English Language Proficiency (ELP) standards and the Arizona English Language Learner Assessment (AZELLA). Three lecture.

**EDU 281 • Introduction to Structured English Immersion (SEI)**

1 credit

Emphasis on understanding English Language Learners (ELL) in the mainstream classroom. Brief history, culture, theory, methods, and introduction to both the English Language Proficiency (ELP) standards and the Arizona Structured English Language Proficiency (SELP) test. Includes review of alternative methods of assessment. One lecture.

**EDU 282 • Structured English Immersion (SEI) and English as a Second Language (ESL) Teaching Methods**

3 credits

Methods of developing and analyzing lesson plans in all content areas using English Language Learners (ELL) standards. Emphasis on components of curriculum content, teaching strategies, development/evaluation/adaptation of teaching materials, and the role of culture in learning. Examines the alignment of ELL proficiency standards to the Arizona Language Arts Academic Standards. Three lecture.

**EDU 286 • Educational Technology**

3 credits

A technology literacy course for current and future educators in K-12 and postsecondary education. This course emphasizes skill development and familiarity in e-learning tools, online educational resources, instructional design, distance learning, and educational technology standards. Knowledge and skills will be assessed through discussions, hands-on projects and digital portfolios. Three lecture.

**EDU 291 • Children's Literature**

3 credits

Review of children's literature from a variety of world cultures, including application of literary criteria to folk and modern literature for children. Elementary curriculum supported and developed through literature. **Prerequisites:** ENL 101 or instructor permission. Three lecture.

**Emergency Medical Technology (EMT)****EMT 104 • CPR and First Aid****0.5 credits**

Designed to certify the student in CPR (Health Care Provider level) and First Aid (American Heart Association *or* ASHI). (Eight contact hours.) One-half lecture.

**EMT 120 • Emergency Medical Responder**

3 credits

EMR scope of practice includes simple skills focused on life-saving interventions for critical patients. Render on-scene emergency care while awaiting additional EMS response and serving as part of transporting crew, but not as primary caregiver. **Prerequisites:** Must be 18 years of age, American Heart Association Heartsaver CPR with AED *or* ASHI with AED. Three lecture



### **EMT 121 • Emergency Medical Responder Refresher**

1 credit

Sixteen-hour refresher course for the Emergency Medical Responder. Designed to meet recertification requirements of the National Registry of Emergency Medical Technicians for Emergency Medical Responders. One lecture.

### **EMT 130 • Emergency Medical Technician Preparatory Course**

3 credits

**Course is required for anyone entering EMT 132 EMT-Basic.** Introduction to medical terminology with basic anatomy and physiology of the human body as cornerstones for providing care to patients in the pre-hospital environment. Healthcare Provider CPR, a prerequisite for the EMT 132 course, is included. **Prerequisite:** Satisfactory placement. Three lecture.

### **EMT 132 • Emergency Medical Technician – Basic**

9 credits

Students learn skills to recognize and properly treat illness and injury in the pre-hospital setting. Successful completion of the course leads to certification by the National Registry of EMTs and the Arizona Department of Health Services. **Prerequisites:** Must be 18 years of age; current healthcare provider CPR (to include adult, child, infant and AED); satisfactory placement is required; successful completion of EMT 130 or permission from EMT program coordinator. Eight lecture; one lab.

### **EMT 133 • EMT – Basic Refresher**

2 credits

A 32-hour continuing education class that fulfills the National Registry of Emergency Medical Technicians and Arizona Department of Health Services requirements for recertification as a basic EMT in the state. **Prerequisite:** Current certification as an EMT-B with NREMT or State of Arizona. Two lecture.

### **EMT 134 • EMT IVC**

1.5 credits

Course designed for the EMT Basic to develop intravenous skills to provide advanced care to patients to enhance their outcome. **Prerequisites:** Current certification as an EMT-B in the State of Arizona; written approval from the EMT-B's EMS provider agency and from an administrative medical director who agrees to provide medical direction for the EMT-B. One lecture; one-half lab.

### **EMT 236 • Advanced Cardiac Life Support (ACLS)**

2 credits

Didactic and psychomotor skills training and validation in techniques of Advanced Cardio Life Support according to the most recent standards and guidelines of the American Heart Association. **Prerequisites:** Current American Red Cross or American Heart Association Basic Life Support/Health Care Provider validation. Physician, registered nurse, certified paramedic, current enrollment in a paramedic (or advanced) program, or permission from the EMS program coordinator/instructor. One lecture; two lab.

### **EMT 237 • Pediatric Advanced Life Support (PALS) Provider Course**

1 credit

Didactic and psychomotor skill education and training in techniques of Pediatric Life Support, according to the most recent standards and guidelines of the American Heart Association and PEPP. Includes advanced airway management, defibrillation, arrhythmia recognition, pharmacology, intraosseous infusion and management of trauma, shock and respiratory medical emergencies. **Prerequisite:** Physician, registered nurse, licensed practical nurse, respiratory therapist, certified paramedic, certified intermediate, current enrollment in a paramedic (or advanced) program, or permission from the EMS program coordinator/instructor. One lecture.

### **EMT 238 • Advanced Cardiac Life Support (ACLS) Renewal Course**

0.5 credits

Renewal didactic and psychomotor skill education and training in techniques of Advanced Cardiac Life Support according to the most recent standards and guidelines of the American Heart Association. Includes advanced airway management, defibrillation, cardioversion, arrhythmia recognition, pharmacology, and management of heart attack and stroke patients. **Prerequisites:** Physician, registered nurse, licensed practical nurse, respiratory therapist, certified paramedic, certified intermediate, current enrollment in a paramedic (or advanced) program, or permission from the EMS program coordinator/instructor. Current ACLS Provider Card or permission of the Regional faculty for the course. One-half lecture.

### **EMT 239 • Pediatric Advanced Life Support (PALS) Renewal Course**

0.5 credits

Renewal didactic and psychomotor skill education and training in techniques of Pediatric Life Support according to the most recent standards and guidelines of the American Heart Association and PEPP. Includes advanced airway management, defibrillation, arrhythmia recognition, pharmacology, intraosseous infusion, and management of trauma, shock and respiratory medical emergencies. **Prerequisite:** Physician, registered nurse, licensed practical nurse, respiratory therapist, certified paramedic, certified intermediate, current enrollment in a paramedic (or advanced) program, or permission from the EMS program coordinator/instructor. One-half lecture.

### **EMT 240 • Basic Electrocardiogram (ECG) and Pharmacology**

3 credits

This is a **prerequisite** for EMT 244 and for any healthcare provider who wishes to learn or refresh on the Basic ECG rhythms and their pharmacologic management. The content includes cardiac electrophysiology, all the basic heart rhythms, introduction of pharmacologic management and medication calculations. Three lecture.

### **EMT 241 • Advanced Life Support (ALS) Refresher**

3 credits

A 48-hour continuing education class that fulfills the National Registry of Emergency Medical Technicians and Arizona Department of Health Services requirements for recertification as a paramedic or intermediate EMT in the state of Arizona. **Prerequisite:** must be certified as an EMT-P or EMT-I in the state of Arizona. Three lecture.

**EMT 244 • Paramedic Training I**

23 credits

Develop advanced knowledge and skills for recognition of and appropriate management of illness and injury in the pre-hospital setting as described in course objectives. Successful completion of this semester course leads to admission to EMT 245. **Prerequisites:** EMT 240; current Arizona State Certified EMT for at least 1 year; satisfactory placement; current Health Care Provider CPR; negative TB skin test within last 6 months; proof of MMR and Hep B immunization or signed waiver; and successful completion of a minimum of 24 clock hours of hazardous materials training that meets the requirements of the National Fire Protection Association's NFPA 472. 17 lecture; six lab.

**EMT 245 • Paramedic Training II**

26 credits

Develop advanced knowledge and skills for recognition of and appropriate management of illness and injury in the pre-hospital setting as described in course objectives. Successful completion of this second semester provides the opportunity to test for certification by the National Registry of EMTs and the Arizona Department of Health Services. **Prerequisites:** EMT 244; current Arizona State Certified EMT; current Health Care Provider CPR; negative TB skin test within last 6 months, proof of MMR and Hep B immunization or signed waiver. 16 lecture; 10 lab.

**EMT 250 • Instructor Strategy Course**

1.5 credits

Course designed to create new instructors by providing them with guidelines for creating lesson plans, implementing lectures, and performing impromptu and planned lecture presentations. Is a precursor to specific instructor classes for any pre-hospital course or American Heart Association course that NPC-EMS division may provide. Combines classroom instruction, skill development, application exercises and student demonstrations. One and one-half lecture; 0.3 lab.

**EMT 251 • Instructor Strategy Renewal Course**

0.5 credits

Update and refresh instructors by providing them with new guidelines for creating lesson plans, implementing lectures, and performing impromptu and planned lecture presentations. Combines classroom instruction, skill development, and application exercises and student demonstrations. **Prerequisites:** current instructor for NPC (includes adjunct faculty), current AHA ACLS, PALS, CPR, NREMT instructor. One-half lecture.

**English (ENL)****ENL 101 • College Composition I**

3 credits

**SUN** ENG 1101

A course in the basic principles of college-level reading and writing. The course includes several academic essays and a short research paper. **Prerequisite:** Satisfactory placement, or CCP 082. Three lecture.

**ENL 102 • College Composition II**

3 credits

**SUN** ENG 1102

A course in the basic principles of college-level reading and writing, including literary analysis, documented critical essays, and a longer research paper. **Prerequisite:** "C" or better in ENL 101. Three lecture.

**ENL 109 • Technical Writing**

3 credits

Surveying of the basic principles of preparing reports and other work-related documents. The course emphasizes the generation of documents used in engineering, science and business. **Prerequisite:** ENL 101. Three lecture.

**ENL 110 • Scriptwriting**

3 credits

Students study and write media scripts for television and radio commercials, documentaries, instruction videos, dramatizations, interviews, and questionnaires/surveys. Three lecture.

**ENL 201 • Literary Magazine Production**

3 credits

Basic principles of magazine production. Students serve as staff for the *Northern Flight Literary and Fine Arts Magazine* and learn fundamentals of editorial selection, copy editing, proofreading, design and layout. Students use computer programs, such as Adobe Photoshop and Adobe Illustrator. Three lecture.

**ENL 202 • Literary Magazine Editing**

3 credits

Students serve as editors and oversee all aspects, except budget issues, of the production of the *Northern Flight Literary and Fine Arts Magazine* working with the NF staff. Editors schedule timelines for production; supervise editorial selection, editing, design layout, printing proofs, and collaborate with college personnel in general advertising and establishing exhibits. **Prerequisite:** ENL 201 Three lecture.

**ENL 203 • Literary Magazine Editing II**

3 credits

Direct the *Northern Flight Literary and Fine Arts Magazine* staff. Senior editors set the tone for the magazine and have responsibility for all aspects of the magazine's production up to the design and layout phase: staff assignments, creating meeting agendas, conducting staff meetings, editorial selection, editing duties, publicity, and organizing and maintaining files. Senior editors are selected by the instructor. **Prerequisites:** ENL 201, ENL 202. Three lecture.

**ENL 204 • Literary Magazine Editing III**

3 credits

Direct the *Northern Flight Literary and Fine Arts Magazine* staff. Senior editors set the tone for the magazine and have responsibility for all aspects of the magazine's production: staff assignments, creating meeting agendas, conducting staff meetings, editorial selection, editing duties, publicity, organizing and maintaining files, overseeing all stages of the design and layout of the magazine, and making final printing arrangements. Senior editors are selected by the instructor. **Prerequisites:** ENL 201, ENL 202, ENL 203. Three lecture.

**ENL 210 • Screenplay Writing**

3 credits

Students study the history, form, format and style of the screenplay genre, observe film clips; read screenplay models and movie reviews; write a movie review; and write a treatment and first act of an original screenplay script. As a final project, students read and/or direct their scripts. Three lecture.

### **ENL 220 • World Literature I**

3 credits

A survey of influential and widely known literature of the Western world through the Renaissance. **Prerequisite:** Satisfactory placement. Three lecture.

### **ENL 221 • World Literature II**

3 credits

A survey of literature of the Western world from the Renaissance to the 20th century. **Prerequisite:** Satisfactory placement. Three lecture.

### **ENL 224 • English Literature I**

3 credits

A survey of significant writers, works and developments in English literature from the Middle Ages through the Restoration and 18th century. Meets the common program requirements for English or humanities majors. **Prerequisite:** Satisfactory placement. Three lecture.

### **ENL 225 • English Literature II**

3 credits

A survey of the significant writers, works and developments in English literature from the Romantic Movement to the Modern/Post-Modern period. Meets the common program requirements for English or humanities majors. **Prerequisite:** Satisfactory placement. Three lecture.

### **ENL 230 • American Literature I**

3 credits

A survey of selected readings in American literature from the colonial period to 1865. **Prerequisite:** 'C' or better in ENL 101 or instructor permission. Three lecture.

### **ENL 231 • American Literature II**

3 credits

A survey of readings in American literature from 1865 to the present. **Prerequisite:** 'C' or better in ENL 101 or instructor permission. Three lecture.

### **ENL 233 • Literature of the Southwest**

3 credits

A survey of writers of the American Southwest, emphasizing Anglo, Native American and Mexican-American writers. **Prerequisite:** Satisfactory placement. Three lecture.

### **ENL 234 • Native-American Literature**

3 credits

Native-American literature, including traditional oral literature, as well as related problems and perspectives of understanding contemporary Native-American writing. **Prerequisite:** Satisfactory placement. Three lecture.

### **ENL 236 • Creative Writing I**

3 credits

Elements of fiction, poetry, literary nonfiction and drama. Students are required to create and submit individually designed projects according to his/her specific writing interests. **Prerequisite:** ENL 101. Three lecture.

### **ENL 237 • Creative Writing II**

3 credits

Extended practice in the art of writing fiction, poetry, literary nonfiction and drama. Emphasis on creative, individual expression and critical rewriting. **Prerequisite:** ENL 236. Three lecture.

### **ENL 291 • Children's Literature**

3 credits

Review of children's literature from a variety of world cultures, including application of literary criteria to folk and modern literature for children. Elementary curriculum supported and developed through literature. **Prerequisites:** ENL 101 or instructor permission. Three lecture.

## **Film and Digital Video (FDV)**

### **FDV 130 • Video Production**

3 credits

Study and practice of basic principles and techniques of video production: audio, lighting, camera, video recording, graphics and sets, producing, directing, and field production. Two lecture, two lab.

### **FDV 140 • Video Editing**

3 credits

Introduction to the theories, history and practices of editing. Students will work with nonlinear video editing stations to gain experience editing and learning the concepts, procedures and challenges of this art form. Two lecture, two lab.

### **FDV 150 • Introduction to Film**

3 credits

Introduction to the history, ideology and aesthetics of film, film theory and film criticism. **Prerequisite:** Satisfactory placement. Three lecture.

### **FDV 160 • Digital Audio For Film/TV**

3 credits

Practical, hands-on experience in recording and editing audio for film and digital video productions. Develops skills using microphones, digital recorders, and digital audio workstations. Overview of principles of audio for motion pictures. Emphasis on how to achieve professional results in creating a soundtrack for film and television productions. Two lecture, two lab.

### **FDV 210 • Screenplay Writing**

3 credits

Students study the history, form, format and style of the screenplay genre, observe film clips; read screenplay models and movie reviews; write a movie review; and write a treatment and first act of an original screenplay script. As a final project, students read and/or direct their scripts. Three lecture.

### **FDV 220 • Film Aesthetics**

3 credits

Provides in-depth study of common aesthetic techniques used in the making of films and digital videos. Focus on the filmmaker's decision process and how it affects the critical reception of the final film. Prepares students to undertake their own film/video projects by introducing them to the audio-visual language of film. **Prerequisite:** Satisfactory placement for general education in reading and writing. Three lecture.

### **FDV 222 • Digital Video Pre-Production Applications**

2 credits

Pre-production of student's own short video project. Topics include casting and rehearsing for narrative productions, and researching and pre-interviewing for documentary productions. Skill development in budgeting, location scouting, and basics of producing motion pictures. **Prerequisite:** FDV 130 or SPT 230 or instructor permission. One lecture, three lab.

**FDV 232 • Digital Video Production Applications**

2 credits

Production of student's own short video project, initiated in FDV 222. Builds and expands upon production skills learned in FDV 130 and FDV 260. Skill development in camera, design, lighting, sound, and the myriad skills involved in producing and directing one's own work. **Co-requisite:** FDV 222 or instructor permission. One lecture, three lab.

**FDV 242 • Digital Video Post-Production Applications**

2 credits

Post-production of student's own short video project, initiated in FDV 222 and FDV 232. Builds and expands upon post-production skills learned in FDV 240. Topics include advanced non-linear video editing, advanced digital audio editing, and preparing finished work for screening and distribution. **Co-requisite:** FDV 222 and 232 or instructor permission. One lecture, three lab.

**Fire Science (FRS)****FRS 101 • Principles of Fire and Emergency Services Administration**

3 credits

This course introduces the student to the organization and management of a fire and emergency services department and the relationship of government agencies to the fire service. Emphasis is placed on fire and emergency services, ethics, and leadership from the perspective of the company officer. Three lecture.

**FRS 104 • Firefighter I and II**

10 credits

Beginning firefighting skills for the new fire department recruit or individual seeking to enter the fire service workforce. Instruction follows NFPA Standard 1001 and the Arizona Center for Fire Service Excellence to become eligible for Firefighter I & II certification. An approved agency sponsorship is preferred but not required. Seven lecture; three lab.

**FRS 110 • Hazardous Materials for First Responder**

2 credits

Basic information and skills needed for appropriate response to hazardous materials emergencies. Follows state and national standards for the response, identification, safety and containment of a hazardous materials incident. Two lecture.

**FRS 126 • Rope Rescue I**

1 credit

Foundational class in techniques and concepts in fire service rope rescue. One lecture.

**FRS 127 • Rope Rescue II**

1 credit

Hands-on class covering basic and advanced skills in technical litter evacuations in vertical environments. **Prerequisite:** FRS 126. One lecture.

**FRS 128 • Rope Rescue III**

1 credit

Hands-on class focusing on teamwork, rescue leadership and application of all rope rescue skills in real-life exercises. **Prerequisite:** FRS 127. One lecture.

**FRS 130 • The Incident Command System**

1 credit

Course designed to meet the needs of fire officers and managers with responsibility to use, deploy, implement and/or function within a department incident command system. One lecture.

**FRS 132 • Fire Investigation I**

3 credits

This course is intended to provide the student with the fundamentals and technical knowledge needed for proper fire scene interpretations, including recognizing and conducting origin and cause, preservation of evidence and documentation, scene security, motives of the fire setter, and types of fire causes. **Prerequisites:** FRS 200, FRS 202, FRS 207 or instructor permission. Three lecture.

**FRS 135 • Fire Protection Hydraulics and Water Supply**

3 credits

This course provides a foundation of theoretical knowledge in order to understand the principles of the use of water in fire protection and to apply hydraulic principles to analyze and to solve water supply problems. **Prerequisites:** Demonstration of a competency in high school-level algebra or the equivalent is recommended. Two lecture; one lab.

**FRS 137 • Strategies and Tactics**

3 credits

This course provides the principles of fire ground control through utilization of personnel, equipment and extinguishing agents. Three lecture.

**FRS 138 • Legal Aspects of Emergency Services**

3 credits

This course will address federal, state, and local laws that regulate emergency services and includes a review of national standards, regulations, and consensus standards. Three lecture.

**FRS 139 • Confined Space Operations**

3 credits

This course will provide students who, during the course of their duties, may come upon or respond to a confined space emergency event, recognize the hazards, its potential, and to make the appropriate notifications as well as establishment and operations of a Confined Space Rescue. Two lecture; one lab.

**FRS 141 • Fire Service Communication**

3 credits

Application of written and oral communication in the fire service. Students write incident reports, daily logs, and investigative and personnel documents along with oral presentations. **Prerequisite:** ENL 101. Three lecture.

**FRS 150 • Wildland Firefighter**

2 credits

Students acquire entry-level skills for wildland firefighter positions. Includes hands-on instruction to utilize tools and equipment for the wildland firefighter. Students also acquire knowledge of wildland fire behavior, safety procedures and tactics. Two lecture.

**FRS 200 • Fire Behavior and Combustion**

3 credits

This course explores the theories and fundamentals of how and why fires start, spread, and are controlled. Three lecture.

**FRS 201 • Fire Protection Systems**

3 credits

This course provides information relating to the features of design and operation of fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, water supply for fire protection and portable fire extinguishers. Three lecture.

## FRS 202 • Principles of Emergency Services

3 credits

This course provides an overview to fire protection, career opportunities, culture and history of emergency services; organization and function of public and private fire protection services; fire departments as part of local government; laws and regulations affecting the fire service; introduction to fire strategy and tactics. Three lecture.

## FRS 203 • Fire Prevention

3 credits

This course provides fundamental knowledge relating to the field of fire prevention. Topics include: history and philosophy of fire prevention; organization and operation of a fire prevention bureau; use and application of codes and standards; plans review; fire inspections; fire and life safety education; and fire investigation. Three lecture.

## FRS 207 • Building Construction for Fire Prevention

3 credits

This course provides the components of building construction related to firefighter and life safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, pre-planning fire operations and operating at emergencies. **Prerequisite:** FRS 202 or instructor permission. Three lecture.

## FRS 208 • Principles of Fire and Emergency Services Safety and Survival

3 credits

This course introduces the basic principles and history related to the national firefighter life safety initiatives, focusing on the need for cultural and behavioral change throughout the emergency services. Three lecture.

## French (FRE)

### FRE 100 • Beginning French Conversation

3 credits

Introduction to French through emphasis on phonology, basic structures and vocabulary manipulation. Three lecture.

### FRE 101 • Elementary French I

4 credits

**SUN#** FRE 1101

Focus on speaking and understanding French through an audio-aural approach comprised of dialogues, pattern drills, grammar and situation. Reading and writing skills are introduced. **Prerequisite:** Satisfactory placement. Four lecture.

### FRE 102 • Elementary French II

4 credits

**SUN#** FRE 1102

Continuation of FRE 101. Emphasis continues on the four basic skills of hearing, speaking, reading and writing. Augmented basic vocabulary, new grammatical structures and increased focus on culture. **Prerequisite:** FRE 101. Four lecture.

## Geography (GEO)

### GEO 110 • World Regional Geography

3 credits

Basic physical, cultural and economic elements and their integration in a world and regional basis. **Prerequisite:** Satisfactory placement. Three lecture.

## GEO 111 • Physical Geography

4 credits

Study of the Earth's formative processes, including atmospheric, hydrologic, volcanic and glacial. The effects of the Earth's formative processes on the landscape, climate, vegetation and soils are examined as are the impact of human activity on these processes. **Prerequisite:** Satisfactory placement. Three lecture; three lab.

## GEO 120 • Human Geography

3 credits

Systematic study of human use of the earth; including spatial organization of economic, social, political and perceptual environments. **Prerequisite:** Satisfactory placement or instructor permission. Three lecture.

## Geology (GLG)

### GLG 101 • Introduction to Geology I Physical Geology

4 credits

**SUN#** GLG 1101

Physical geologic concepts and principles pertaining to Earth's structure, composition and changes. **Prerequisite:** Satisfactory placement. Three lecture; three lab.

### GLG 102 • Introduction to Geology II Historical Geology

4 credits

Historical geologic concepts and principles pertaining to Earth's origin and development. **Prerequisite:** GLG 101. Three lecture; three lab.

## German (GER)

### GER 100 • Beginning German Conversation

3 credits

Introduction concentrating on phonology, vocabulary, basic patterns and structure drills that prepare the way for rapid acquisition of conversational German and for German 101. Three lecture.

### GER 101 • Elementary German I

4 credits

**SUN#** GER 1101

Systematic approach to develop the skills of comprehension, speaking, reading and writing. Fundamentals of grammar, basic vocabulary and conversation. **Prerequisite:** Satisfactory placement. Four lecture.

### GER 102 • Elementary German II

4 credits

**SUN#** GER 1102

Emphasis continues on the four basic skills introduced in German 101: comprehension, speaking, reading and writing. Augmented basic vocabulary, new grammatical structures, more conversation and increased focus on culture. **Prerequisite:** GER 101. Four lecture.

## Health and Physical Education (HPE)

### HPE 096A Fitness Ball Workout

1 credit

Workout that engages core muscles; improves overall balance, control and strength; and targets legs, inner thighs, arms, abs and buttocks. Two lab.

### HPE 096B • Flexercise I

0.5 credit

Designed for students to gain or maintain flexibility through stretching and flexibility exercises. Exercises will teach students breathing technique, help reduce stress, release toxins in the body and regain energy. One lab.

**HPE 097A • Beginning Hula Dance**

0.5 credit

Hand and body movements of traditional hula dance will be discussed and performed. One lab.

**HPE 097B • Intermediate Hula Dance**

0.5 credit

Continue to learn hula dancing, including 10 to 15 dances and instruments (*kalasu*, *puili*, *ili ili* and coconuts). In addition, learn the basics of other Polynesian dances, including Tahitian, Samoan and Maori, including lyrics and interpretations of each.

**Prerequisite:** HPE 097A or instructor permission. One lab.

**HPE 097C • Advanced Mexican Folkloric Dance**

1 credit

Advanced course working on all the basics taught in beginning and intermediate classes. The *zapateados* will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances.

**Prerequisite:** instructor permission. Two lab.

**HPE 097E • Beginning Belly Dance**

1 credit

Students increase stamina, fluid movement, and learn to accompany themselves with finger cymbals while performing choreographed free-style dance movements. Techniques will be taught by demonstration and video. Two lab.

**HPE 097F • Intermediate Belly Dance**

1 credit

Students increase stamina, fluid movement and learn to accompany themselves with finger cymbals while performing more complex choreographed free-style dance movements. Techniques taught by demonstration and video. **Prerequisite:** HPE 097E or instructor permission. Two lab.

**HPE 097G • Western Line Dance**

0.5 credit

Covers old and new line dances; all steps choreographed to individual songs. One lab.

**HPE 097H • Beginning Progressive Two-Step Swing**

0.5 credit

Introduction to two-step swing. Includes overview of two-step techniques, beginning level patterns, moves and terms. Also covers dance floor etiquette and correct dance posture. One lab.

**HPE 097I • Intermediate Progressive Two-Step Swing**

0.5 credit

Continuation of Beginning Progressive Two-Step Swing using faster music and more intricate patterns and moves. Includes overview of intermediate Two-Step techniques, moves and terms. One lab.

**HPE 098A • Yoga Overview**

0.5 credit

Series of stretching and breathing exercises designed to increase flexibility and strength to create better concentration and to promote feelings of relaxation, emotional strength and a sense of centeredness and awareness. One lab.

**HPE 101A • Yoga for Relaxation**

1 credit

Focus on combination of breathing, concentration and physical movements. Routines followed by five to 10 minutes of relaxation techniques. Two lab.

**HPE 101B • Beginning Yoga**

1 credit

An introduction to basic yoga poses, breathing techniques, principles of relaxation and body awareness designed to increase flexibility, strength, to create better concentration and promote feelings of relaxation. Two lab.

**HPE 101C • Intermediate Yoga**

1 credit

Students will build upon skills learned in beginning yoga, refining postures, breathing and meditation. Pranayama techniques and intermediate level Asanas will be introduced. Discussion of yoga philosophy will be interwoven with physical practice. **Prerequisite:** HPE 101B or instructor permission. Two lab.

**HPE 106 • Aerobics**

1 credits

Aerobics is a series of progressive conditioning exercises performed to music. Exercises are based upon the four components of fitness: flexibility, muscular strength and endurance, body composition and cardiovascular endurance. Classes are designed to satisfy the conditioning requirements of men and women of all ages. Two lab.

**HPE 110 • Beginning Weight Training**

1 credit

Designed to supplement an aerobic cardiovascular training program. Includes basic anatomy and exercise physiology, muscle groups and the appropriate exercises for each. Also includes weight training principles, systems and safety. Two lab.

**HPE 111 • Advanced Weight Training**

1 credit

Designed to supplement an aerobic cardiovascular training program. Includes basic anatomy and exercise physiology, muscle groups, and appropriate exercises for each. Also includes advanced use of the machines and free-weights. Body building techniques are presented, if requested. Two lab.

**HPE 115 • Golf**

1 credit

Principles of the game: safety, approach shots, full strokes, putting, special shots, rules and strategy for beginning and intermediate golfers. For non-beginners, the course provides an opportunity to review fundamentals and practice those aspects of the game that are more difficult. (*A special greens fee must be paid at the beginning of each class.*) One lecture; one lab.

**HPE 124 • Beginning Swimming**

1 credit

Focus on swimming fundamentals. Emphasizes orientation to the aquatic environment and basic swimming skills. Personal safety and rescue skills are included to help participants meet safety goals. Provides instruction in developing physical fitness through swimming. Two lab.

**HPE 126 • Fitness Swimming**

1 credit

Progressive swim for fitness program with workouts gradually increasing from 100 yards to two miles; fundamental and advanced techniques, plus dives, in-water starts and turns. Personal safety and rescue skills are included. Must be able to swim 25 yards, front crawl. Two lab.

### **HPE 127 • Aqua Fit**

1 credit

Recreational, nonclinical, warm water activity program approved by the Arthritis Foundation. Exercises designed to decrease pain and stiffness, improve joint flexibility, reduce muscle weakness, and improve balance and coordination. Swimming ability not necessary to participate. Two lab.

### **HPE 128 • Aquatic Calisthenics**

1 credit

A program of basic exercise utilizing a water environment for improvement of general muscle tone, strength and flexibility; also includes fundamentals of basic rescue and water safety. Two lab.

### **HPE 136 • Karate I**

1 credit

Introduction to the basic skills of the martial art of Karate, its philosophy and history. Includes simple self-defense techniques and mental discipline. **Prerequisite:** Signed waiver of responsibility. Two lab.

### **HPE 137 • Karate II**

1 credit

The basic skills of *Tae Kwon-Do* and/or *Shonto Kan* and the history and philosophy of Karate. Includes physical and mental conditioning techniques and advanced Karate skills. **Prerequisites:** HPE 136 and signed waiver of responsibility. Two lab.

### **HPE 150 • Physical Fitness I**

1 credit

A practical introduction to the theory and skills of lifetime fitness with emphasis upon aerobic and physical endurance activities to maintain and/or improve the student's cardio-respiratory system and overall fitness level. Student fitness profiles are developed and utilized to determine an individualized exercise program. Two lab.

### **HPE 151 • Physical Fitness II**

1 credit

A practical introduction to the theory and skills of lifetime fitness with emphasis upon aerobic and physical endurance activities to maintain and/or improve the student's cardio-respiratory system and overall fitness level. Student fitness profiles are developed and utilized to determine an individualized exercise program. Two lab.

### **HPE 152 • Physical Fitness III**

1 credit

A practical introduction to the theory and skills of lifetime fitness with emphasis upon aerobic and physical endurance activities to maintain and/or improve the student's cardio-respiratory system and overall fitness level. Student fitness profiles are developed and utilized to determine an individualized exercise program. Two lab.

### **HPE 153 • Physical Fitness IV**

1 credit

A practical introduction to the theory and skills of lifetime fitness with emphasis upon aerobic and physical endurance activities to maintain and/or improve the student's cardio-respiratory system and overall fitness level. Student fitness profiles are developed and utilized to determine an individualized exercise program. Two lab.

### **HPE 154 • Physical Fitness V**

1 credit

A practical introduction to the theory and skills of lifetime fitness with emphasis upon aerobic and physical endurance activities to maintain and/or improve the student's cardio-respiratory system and overall fitness level. Student fitness profiles are developed and utilized to determine an individualized exercise program. Two lab.

### **HPE 155 • Physical Fitness VI**

1 credit

A practical introduction to the theory and skills of lifetime fitness with emphasis upon aerobic and physical endurance activities to maintain and/or improve the student's cardio-respiratory system and overall fitness level. Student fitness profiles are developed and utilized to determine an individualized exercise program. Two lab.

### **HPE 161 • Land Navigation and Wilderness Survival**

2 credits

Instruction in the basic skills necessary to survive in a wilderness environment. Wilderness travel and recreation experiences are provided. One lecture; two lab.

### **HPE 192 • Square Dance**

1 credit

Instruction and participation in a variety of North American square and round dances. Two lab.

### **HPE 218 • Personal Health**

3 credits

Emphasizes total wellness, preventive medicine and individual responsibility. Students learn to assess their current health practices, strengthen those that are positive and replace those that are negative. Three lecture.

### **HPE 232 • Water Safety I Instructor**

3 credits

Course begins with a review and retest of all the advanced lifesaving skills. Students are taught (a) to recognize and avoid hazardous water conditions and practices, (b) to use self-rescue skills to get out of dangerous situations, and (c) to develop skills in rescuing or assisting persons in danger of drowning. **Prerequisites:** 17 or older; ARC Advanced Lifesaving Certificate and ARC Swimmer's Certificate; or the ability to perform all the required Swimmer Skills. One lecture; four lab.

## **Health Sciences (HES)**

### **HES 102 • Health Career Occupations**

3 credits

Geared toward helping student interested in a health care career discover types of career opportunities available. Fosters the development of critical thinking skills using problem solving models. Topics include health care today and National Healthcare Skills Standards. Three lecture.

### **HES 106 • Introduction to Community Health Work**

3 credits

Prepares community advisers to provide outreach health prevention, advocacy, education and referral services within prescribed neighborhood. Competencies taught include community health and human services, capacity building, cultural mediation, health education assessment and teaching. **Prerequisite:** Admission to Community Health Advisory Program. Three lecture.

### **HES 108 • Community Health Work Field Work**

6 credits

Community health adviser skills are practiced and evaluated in community-based health and human service agencies/settings. Students complete 320 clock hours of direct service scheduled in an eight-week block at 40 hours per week or 16 weeks at 20 hours per week. **Prerequisite:** HES 106. One lecture, 20 lab.

**HES 109 • Phlebotomy**

4 credits

Theory and practice of phlebotomy and specimen processing with practicum. Requires separate community clinical site practicum be arranged. **Prerequisites:** HES 170; current health care provider CPR card; satisfactory placement; current negative TB skin test or negative chest X-ray; hepatitis B series proof of immunity or waiver; MMR and varicella immunization proof of immunity or waiver; be 18 years of age with high school diploma or equivalent; or instructor permission. Three lecture; three lab.

**HES 120 Law and Ethics of the Health Care Professional**

3 credits

Overview of medical law and ethics relevant to the health care professional, including patient consents, invasion of privacy, malpractice, government regulations, confidentiality and the environment of health care institutions. Three lecture.

**HES 145 • Nutrition**

3 credits

Essential nutrients and their relationship to health and the body's use of those nutrients. Includes studies of therapeutic diets and medical conditions for which they are prescribed. Discusses dietary guidelines and federal Recommended Dietary Allowance (RDA) in effective meal planning and nutritional evaluation. Three lecture.

**HES 170 • Medical Terminology for Clinical Health Professionals**

3 credits

Selected medical terminology directly related to health care practice, common medical procedures, body systems and anatomy and physiology. Emphasis is on practical application in the clinical setting through visually reinforced hands-on learning. Includes extensive memorization of common medical abbreviations and acronyms used in direct clinical care. Three lecture.

**HES 180 • Basic Pharmacology**

3 credits

Body systems approach focusing on drug classifications. Includes basic math review, dosage calculations and medication administration methods. **Prerequisite:** Any MAT course numbered 100 or higher. Three lecture.

**Heavy Equipment Operations (HQO)****HQO 108 • NCCER Core Curriculum Review**

4 credits

Review of basic safety, mathematics and power tools. Introduction to blueprints, basic rigging, communication and employability skills. Two lecture; four lab.

**HQO 109 • Basic Operation Techniques/Tractors**

3 credits

Basic instruction for safe operations and preventative maintenance on each type of equipment; including proper mounting, startup procedures, and basic movements of the machine and its attachments. Also covers operation of utility tractors and heavy-duty articulated tractors. Two lecture; two lab.

**HQO 111 • Orientation to Trade – Heavy Equipment Safety, Identification of Equipment**

3 credits

Introduces basic machine operations for construction, transport, materials, handling and other heavy equipment. Provides student with correct theory, safety and operations activities for proficiency with various types of equipment. Three lecture.

**HQO 113 • Grades Part I**

2 credits

Introduction to the concepts of elevations and grading, the use and interpretation of grade stakes, and basic process of grading construction sites, distance measuring, and finish grades. **Co-requisites:** HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture.

**HQO 119 • Introduction to Earthmoving and Trucks**

3 credits

Summarizes the earthmoving process, including the heavy equipment operator's role in ensuring an efficient and profitable operation. Covers the use of dozers, scrapers, loaders, excavators, and trucks in the earthmoving process and detailed operation of on- and off-road dump trucks. **Co-requisites:** HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture; two lab.

**HQO 121 • Rollers and Scrapers**

3 credits

Covers operations of various machines used to compact soil, as well as soil classification and compaction. Also the duties and responsibilities of operators, safety rules, and preventative maintenance of both the scraper and the roller. **Co-requisites:** HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture; two lab.

**HQO 122 • Loaders and Forklifts**

3 credits

Covers the various uses of loaders and forklifts, as well as operator maintenance and safety. Operating procedures for loaders include loading, grading and excavation; lifting, transporting, and placing various types of loads for forklifts. **Co-requisites:** HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture; two lab.

**HQO 123 • Excavation Mathematics and MSHA Training**

3 credits

Covers formulas and methods used to compute cut and fill requirements on a job, illustrates techniques used to quickly estimate excavations and provides a brief overview of software used to compute excavation requirements. MSHA: New Miner Training taught by Arizona Mine and Safety; includes first-aid training and MSHA certification. **Prerequisite:** Satisfactory placement or instructor permission, or TLC 092. Three lecture.

**HQO 210 • Grades Part II and Civil Blueprint Reading**

4 credits

Uses previous course (Grades Part I) information to teach proper methods for setting grades, interpreting grade stakes, and reading site plans to ensure earthmoving work meets specifications. Civil blueprint reading section explains how to read site plans to obtain cut and fill information. Also identifies safety and legal issues for heavy equipment operators such as underground utilities and property lines. **Prerequisite:** HQO 113; **co-requisites:** HQO 108, HQO 109 and HQO 111 or instructor permission. Four lecture.

**HQO 211 • Backhoes and Dozers**

4 credits

Daily inspections, safety, application, attachments, operating controls, maintenance requirements, transporting procedures, and operating methods for dozers and backhoes. Dozer section covers clearing, backfilling, stockpiling and demolition. The backhoe section covers trenching, loading, demolition, backfilling, laying pipe and excavation of foundations. **Co-requisites:** HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture; four lab.



### **HQO 212 • Introduction to Crew Leader and Excavators**

4 credits

Covers basic project planning, scheduling techniques, coordination and communication of work assignments from heavy equipment to other trades and crafts, as well as project set up and material purchasing requirements. Daily inspections, safety, application, attachments, operating controls, maintenance requirements, transporting procedures and operating methods for excavators. Emphasizes safe operations of the equipment. **Co-requisites:** HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture; four lab.

### **HQO 230 • Motor Graders**

4 credits

Daily inspections, safety, application, attachments, operating controls, maintenance requirements, transporting procedures, and operating methods for motor graders. Emphasizes safe operations of the equipment. **Co-requisites:** HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture; four lab.

### **HQO 231 • Advanced Operational Tech and MSHA Annual Refresher**

3 credits

Advanced topics for equipment operators, including safety, controlling and working around water, calculating operation costs, and laying pipe. Safety meetings, reporting, inspections, investigations, and hazardous material requirements, as well as the use, calibration and maintenance of laser instruments. MSHA: Annual Refresher Training taught by Arizona Mine and Safety; includes first-aid training and MSHA re-certification. **Prerequisite:** HQO 123 or instructor permission; **co-requisites:** HQO 108, HQO 109 and HQO 111 or instructor permission. Three lecture.

### **HQO 232 • Finishing and Grading and Soils**

3 credits

Various types of heavy equipment to finish and trim grades and slopes of pads, ditches and other structures; specification and procedures for checking the final grade; how shrink and swell factors affect equipment selection and performance. Also, soils classification systems and techniques for working with various soil types. **Prerequisites:** HQO 113 and HQO 123; **co-requisites:** HQO 108, HQO 109 and HQO 111 or instructor permission. Three lecture.

### **HQO 233 • Cranes and Rigging**

2 credits

Daily inspections, safety, application, attachments, operating controls, maintenance requirements, transporting procedures, and operating methods for cranes; emphasizing safe operations of the equipment. Also, diverse types of rigging and their uses. **Co-requisites:** HQO 108, HQO 109 and HQO 111 or instructor permission. One lecture; two lab.

### **HQO 240 • Advanced Loader Operation**

2 credits

Focuses on performance and skill improvement using a loader. **Prerequisite:** instructor permission. One lecture; two lab.

### **HQO 241 • Advanced Dump Truck Operation**

2 credits

Focuses on performance and skill improvement using a dump truck. **Prerequisite:** instructor permission. One lecture; two lab.

### **HQO 242 • Advanced Scraper Operation**

2 credits

Focuses on performance and skill improvement using a scraper. **Prerequisite:** instructor permission. One lecture; two lab.

### **HQO 243 • Advanced Backhoe Operation**

2 credits

Focuses on performance and skill improvement using a backhoe. **Prerequisite:** instructor permission. One lecture; two lab.

### **HQO 244 • Advanced Excavator Operation**

2 credits

Focuses on performance and skill improvement using an excavator. **Prerequisite:** instructor permission. One lecture; two lab.

### **HQO 245 • Advanced Forklift Operation**

2 credits

Focuses on performance and skill improvement using a forklift. **Prerequisite:** instructor permission. One lecture; two lab.

### **HQO 246 • Advanced Dozer Operation**

2 credits

Focuses on performance and skill improvement using a dozer. **Prerequisite:** instructor permission. One lecture; two lab.

### **HQO 247 • Advanced Motor Grader Operation**

2 credits

Focuses on performance and skill improvement using a motor grader. **Prerequisite:** instructor permission. One lecture; four lab.

### **HQO 248 • General Maintenance**

2 credits

Focuses on basic maintenance of heavy equipment. **Prerequisite:** instructor permission. One lecture; two lab.

## **History (HIS)**

### **HIS 105 • U.S. History to 1877**

3 credits

Survey of the history of the United States from its beginning through the Civil War and Reconstruction. **Prerequisite:** Satisfactory placement. Three lecture.

### **HIS 106 • U.S. History since 1877**

3 credits

Survey of the history of the United States from the post-Civil War Reconstruction period to the present. **Prerequisite:** Satisfactory placement. Three lecture.

### **HIS 110 • Southwestern History**

3 credits

In-depth look at the history of the Southwest region of the United States from its prehistory to the present. **Prerequisite:** Satisfactory placement. Three lecture.

### **HIS 115 • Navajo History**

3 credits

Examines Diné history beginning with anthropological theories about prehistoric migrations to and acculturation in the Southwest, later European contact, and ending with current events. Includes an overview of legal, judicial, and governmental issues and interrelationships. Three lecture.

### **HIS 155 • Western Civilization to 1700**

3 credits

Traces origin and development of Western man and his institutions from the Ancient World through the Age of Enlightenment. **Prerequisite:** Satisfactory placement. Three lecture.

## HIS 156 • Western Civilization since 1700

3 credits

Traces the origin and development of Western man and his institutions and ideas from the French Revolution to the present.

**Prerequisite:** Satisfactory placement. Three lecture.

## Home Crafts and Technology (HCT)

### HCT 096A • Stained Glass

1.5 credits

Copper foil technique used to create colorful pieces of art. Advanced students are exposed to creative techniques with glass, pattern-making, working with lead came, or mosaic making, according to their interest. Three lab.

### HCT 097A • Navajo Rug Weaving

1 credit

Introduction to materials and techniques of Navajo rug weaving; emphasis on the individuality of creating and designing a Navajo rug. Yarn will be substituted for wool. Two lab.

### HCT 097B • Beginning Weaving

0.5 credit

Operating principles of a four-harness loom, the warping process and a variety of weave structures. Students weave a sampler, illustrating a few of the many possible weave structures. One lab.

### HCT 098A • Beginning Strip Quilting

1.5 credits

Students learn the basics of strip piecing by completing eight projects designed to teach quick and easy piecing methods including half-square triangles, right and left three-part squares, four-part squares, Flying Geese, simple appliqué and Y-seams, and many other short cuts, formulas, and techniques. Three lab.

### HCT 098B • Intermediate Strip Quilting

1.5 credits

Students review basics of strip piecing and are introduced to curved piecing as well as learning to select a traditional pattern and develop an alternative design from the pattern to share with class. Students also learn foundation piecing, interfacing appliqué, and how to do machine binding with mitered corner. Three lab.

### HCT 098C • Advanced Strip Quilting

1.5 credits

Students learn to draft and design their own patterns, make templates and complete intricate designs, including how to mathematically adjust pattern size. Students do a class presentation of a pattern they have designed. Three lab.

### HCT 098D • Advanced Quilt Studio

1.5 credits

Students work on projects of their choice; receive ideas for projects, planning assistance, and help with problems related to quilting. Students are encouraged to bring projects they are working on to class. Three lab.

## Honors Colloquia (HON)

### HON 101 • Honors Colloquium I

### HON 102 • Honors Colloquium II

### HON 201 • Honors Colloquium III

### HON 202 • Honors Colloquium IV

1 credit each

The NPC President's Scholars Program is designed to provide advancement in scholarship by fostering in-depth reading, writing and discussion of ideas representative of various disciplines. The program also provides enrichment activities tailored to enhance the learning process. Additionally, the scholars program offers a series of specially designed courses for transfer and two-year students. (Enrollment restricted to NPC President's Scholars.)

## Human Development (HDE)

### HDE 100 • Career Awareness and Exploration

3 credits

Students are introduced to Northland Pioneer College academic requirements, develop career and educational plans, and participate in a variety of individual activities, which will involve decision-making, value clarification, and career information research. Standardized tests are administered to help students determine occupational interests, aptitudes and personalities. Résumé development, interviewing and job seeking skills are emphasized. Three lecture.

### HDE 103 • Workforce Skills

2 credits

Enhances soft skills and provides instruction and practice with workforce skills in three key subject areas: Reading for Information, Applied Mathematics, and Locating Information, plus soft skills in Work Discipline, Teamwork, Managerial Potential, and Customer Service Orientation. Includes National Center Readiness Certificate Plus preparation and WorkKeys Assessment. One lecture; two lab.

### HDE 104 • Workforce Skills II

2 credits

Advanced workforce skills in three key subject areas: Reading for Information, Applied Mathematics, and Locating Information plus skills in Customer Service, Problem Solving and Critical Thinking. Emphasis will be placed on developing a functional Résumé and refining interview skills. **Prerequisite:** Satisfactory placement. One lecture, two lab.

### HDE 105 • Success Strategies for College

3 credits

Structured, yet highly individualized class geared toward meeting the needs of each student. Students learn to access a multitude of resources; gain guidance and support from faculty members and peers to fully develop academic and life skills; and to promote the development of learning, understanding, perseverance and critical thinking skills that lead to college success. Three lecture.

## Human Services (HUS)

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### HUS 110 • Introduction to Social Work

3 credits

Social work as a profession and social welfare as an institution. Emphasize historical development of the field, fundamental social work principles and philosophy. Provides students with a beginning understanding of social work practice methods for delivery of services to people with various problems in living. Introduces the client intake and interview process. Three lecture.

### HUS 111 • Foundations of Chemical Dependency

3 credits

Introduction to the foundations of the alcohol and drug-abuse rehabilitation field. Emphasis on the roles and responsibilities of the addiction paraprofessional counselor, ethical issues, pharmacology, family dynamics, dual diagnosis, intervention techniques, self-help groups, levels of care, symptom identification, and conducting alcohol/drug histories. Interactive work is stressed. Three lecture.

### HUS 112 • Biosystems/Pharmacology of Chemical Dependency

3 credits

Exploration of the physiological effects of chemical use on human biological systems and human development. Emphasizes human anatomy and physiology, and the identification and management of chemically induced crisis situations. Three lecture.

### HUS 140 • Group Dynamics

3 credits

Examination of small group and group dynamics in theory and practice through group discussion, role-play and socio-drama. Three lecture.

### HUS 160 • Drug Abuse in Our Society

3 credits

History, pharmacology, and the psychological and social effects of the common chemical substances being abused in the United States. Three lecture.

### HUS 180 • Cross Cultural Helping Skills

2 credits

Introduction to social values of cultures emphasizing cross-cultural communication. Includes understanding of and skills to work with persons from other cultures. Two lecture.

### HUS 210 • Family Dynamics and Chemical Dependency

3 credits

Analysis of the impact of addictions on all members of a family. Interviewing assessment and therapeutic approaches particularly useful for these family members are presented. Three lecture.

### HUS 251 • Developing a Culture of Care

2 credits

Introduction to the development of a residential child and youth care professional based upon characteristics of shared history, common language, general knowledge of the field and competency in the field. Two lecture.

### HUS 252 • Building Relationships

2 credits

Study of relationships on two levels: assisting the residential assistant in establishing positive relationships with children and the role of the residential assistant as teacher to children. Two lecture.

### HUS 253 • Teaching Discipline

2 credits

The exploration of the relationship between unmet needs of children's behavior and the issues related to teaching discipline in residential care. Two lecture.

### HUS 256 • Understanding Child Development

2 credits

An overview of children's process of development in four aspects: physical, personality, social and cognitive. Includes problems of older children functioning at a developmental level below their age. Two lecture.

## Humanities (HUM)

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### HUM 150 • Humanities in the Western World I

3 credits

A critical reading/writing/thinking-centered, integrated humanities course, emphasizing landmarks in the cultural heritage of Western civilization from classical Greece to the Renaissance. **Prerequisite:** Satisfactory placement. Three lecture.

### HUM 151 • Humanities in the Western World II

3 credits

A critical reading/writing/thinking-centered, integrated humanities course, emphasizing landmarks in the cultural heritage of Western civilization from the Renaissance to the present. **Prerequisite:** Satisfactory placement. Three lecture.

## Industrial Arts (INA)

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### INA 103 • Furniture Making I

3 credits

Design, fabrication and finishing of basic types of wood furniture explored. Includes: shop safety, materials, tools, project design and planning. Furniture components, dimensioning, joinery, assembly and surface preparation demonstrated. Two lecture; two lab.

### INA 104 • Furniture Making II

3 credits

Advanced course in design, fabrication/production, preparation and finishing of custom wood furniture. **Prerequisite:** INA 103. Two lecture; two lab.

### INA 105 • Woodworking I

3 credits

Basic materials, tools and techniques to produce wood projects. Topics include shop safety, tool certification, use and care of hand tools/portable power tools/woodworking machinery, designing and drawing wood projects, common wood identification and selection, surfacing/jointing/cross cutting/ripping lumber, dado and rabbet techniques, fasteners, clamping, gluing, joinery, assembly, surface preparation, and finishing. Two lecture; two lab.

### INA 106 • Woodworking II

3 credits

Intermediate course in materials, tools and techniques used to produce wood projects. Topics include shop safety for specialized tools, use and care of specialty woodworking hand tools/specialty portable power tools and specialty woodworking machinery, multi-view project designs and drawings, hardwood lumber grades and identification, intermediate complex joinery, special joining and shaping methods, setups, surface pre-finishing, and finishing. **Prerequisite:** INA 105. Two lecture; two lab.

**INA 150 • Wood Antique Restoration I**

3 credits

The restoration of wood antiques. Topics include shop and personal safety, toxic/caustic substance precautions, project selection, wood and materials identification, hand tools, portable power tools, basic woodworking machinery, finish identification, finish removal, disassembly techniques, minor parts duplication, reassembly, finish matching, and applying new finishes. Two lecture; two lab.

**INA 180 • Introduction to Upholstery**

3 credits

Basic levels of upholstery shop safety, preparation of work areas, project review, frame assembly, materials, pre-planning of projects, and pro/cons of particular materials and methods. Two lecture; two lab.

**INA 181 • Upholstery Tools and Safety**

3 credits

Introduction to the machinery, hand tools, safety equipment, and shop practices and procedures used in the upholstery trade. Two lecture; two lab.

**INA 182 • Measurements and Calculations for Upholsterers**

3 credits

Basic concepts of mathematics as they apply to the upholstery trade. Two lecture; two lab.

**INA 183 • Upholstery Materials**

3 credits

Introduction to the materials used in furniture construction, including the integral parts of the framework, types of springs, various padding materials, different fabric types, etc. Two lecture; two lab.

**INA 184 • Upholstery Sewing**

3 credits

Introduction to the basic sewing methods and equipment used in the upholstery trade. Two lecture; two lab.

**INA 185 • Upholstery**

3 credits

The fundamentals of upholstering. Topics include basic tools, safety, basic materials, fabric selection, removal of old coverings, repairs, installing springs and webbing, padding and sub-covering, cutting and sewing fitted fabric, fabric installation and slip covers. Two lecture; two lab.

**INA 186 • Upholstery Projects**

3 credits

Upholstery projects of varying degrees of difficulty so students gain experience in stripping and repairing frames, removing old wood finishes and applying new ones, installing new webbing, springs and padding, as well as creating coverings and cushions. Two lecture; two lab.

**INA 205 • Woodworking III**

3 credits

Forming and joining processes for wood projects. Topics include lathe safety, center to center turned pieces, faceplate turnings, advanced router applications, shaper safety, piecework production, custom moldings and trim production, parquetry and inlays, exotic wood identification and utilization, and alternate methods of finishing. **Prerequisite:** INA 106. Two lecture; two lab.

**INA 206 • Woodworking IV**

3 credits

Production woodworking. Topics include project selection, production planning, replication methods for radial arm saw/table saw/band saw/lathe/shaper/portable power tools, jig design and manufacture, fixture design and manufacture, service of woodworking portable power tools and machinery, alignment techniques, shop layout for production, and finish matching and control. **Prerequisite:** INA 205. Two lecture; two lab.

**INA 250 • Wood Antique Restoration II**

3 credits

The restoration of wood antiques. Topics include project selection, sequence of work, wood and materials identification and matching or alternatives, finish -removal by chemical and manual methods, antique hardware, traditional joinery, traditional and modern finish selection, disassembly techniques, minor and major parts duplication, reassembly/pre-finishing techniques, and reassembly, refinishing. **Prerequisite:** INA 150. Two lecture; two lab.

**INA 285 • Upholstery II**

3 credits

Upholstery techniques. Topics include safety, specialty tool use and care, standard and unusual fabrication materials, fabric selection, removal of old coverings, structural disassembly, structural repairs, fabricating replacement components, structural reassembly, modifying upholstered items, spring installation, webbing replacement, installing padding, sub-coverings, trade tricks for cutting and sewing, fabric installation, slip covers, and fine finishing details. **Prerequisite:** INA 185. Two lecture; two lab.

**INA 286 • Auto and Marine Upholstery**

3 credits

Specialized course in reupholstering automotive and marine fixtures. Topics include safety, specialty tools, weather resistant materials, mechanism maintenance/repair/modifications, disassembly, removal of coverings, parts replacement and repair, spring and webbing repair and installation, padding, sub-coverings, patterns, cutting/sewing/installation of fabric, and slip cover installation. **Prerequisite:** INA 185. Two lecture; two lab.

**Industrial Maintenance & Operations (IMO)****IMO 130 • Water Supply and Treatment I**

6 credits

To prepare for both Water Distribution and Water Treatment classes I and II of the state's Operator Certification License Exam. Topics include certification and legal issues, water sciences, hydraulic and mathematics, safety, maintenance, management, processes, and a specific list of other topics prioritized from recent examinations for these classes of certification. Six lecture.

**IMO 131 • Water Supply and Treatment II**

6 credits

To prepare for both Water Treatment and Water Distribution class III of the state's Operator Certification License Exams. Topics of study are prioritized from recent state examinations. Six lecture.

**IMO 132 • Water Supply and Treatment III**

6 credits

To prepare for both Water Treatment and Water Distribution class IV of the state's Operator Certification License Examinations. Topics of study are prioritized from recent state examinations. Six lecture.

**IMO 140 • Wastewater Collection and Treatment I**

6 credits

To prepare for both Wastewater Treatment and Water Collection Systems class I and II of the state's Operator Certification License Examinations. Topics of study are prioritized from recent state examinations. Six lecture.

**IMO 141 • Wastewater Collection and Treatment II**

6 credits

To prepare for both Wastewater Treatment and Water Collection Systems class III of the state's Operator Certification License Examinations. Topics are prioritized from recent state examinations. Six lecture.

**IMO 142 • Wastewater Collection and Treatment III**

6 credits

To prepare for both Wastewater Treatment and Water Collection Systems class IV of the state's Operator Certification License Examinations. Topics are prioritized from recent state examinations. Six lecture.

**IMO 151 • Electrical Level I**

6 credits

First course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Electricians (NCCER level one). Covers orientation of the electrical trade, electrical safety, circuits, electrical theory, introduction to the national electrical code, device boxes, hand bending, construction drawings and electrical test equipment. **Prerequisite:** IMO 201 or instructor permission. Six lecture; three lab.

**IMO 152 • Electrical Level II**

6 credits

Second course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Electricians. Modules include the following: alternating current, motors, electric lighting, conduit bending, pull and junction boxes, conductor installations, cable tray, conductor terminations and splices, grounding and bonding, circuit breakers and fuses, control systems and fundamental concepts. **Prerequisite:** IMO 151. Six lecture; three lab.

**IMO 153 • Electrical Level III**

6 credits

Third course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Electricians. Course covers load calculation, conductor selection and calculations, practical applications of lighting, hazardous locations, overcurrent protection, distribution equipment, transformers, commercial electrical service, motor calculations, voice, data, video and motor controls. **Prerequisite:** IMO 152 or instructor permission. Six lecture; three lab.

**IMO 154 • Electrical Level IV**

6 credits

Last course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Electricians. Course covers load calculations, health care facilities, standby and emergency systems, basic electronic theory, fire alarm systems, specialty transformers, advance controls, HVAC controls, heat tracing and freeze protection, motor operation and maintenance, medium-voltage terminations/splices, special locations and introductory skills for the crew leader. **Prerequisite:** IMO 153 or instructor permission. Five lecture; four lab.

**IMO 155 • Instrumentation Level I**

7 credits

First in a sequence of four courses developing a knowledge base of fundamental skills required of certified Industrial Instrumentation Technician. Covers hand tools for instrumentation, electrical safety, power tools for instrumentation, electrical systems for instrumentation, metallurgy for instrumentation, fasteners, instrumentation drawings and documents, gaskets and packing, lubricants, sealants, and cleaners, flow, pressure, level, and temperature, tubing, piping-2a and under, hoses. **Prerequisite:** IMO 201 or instructor permission. Six lecture; three lab.

**IMO 156 • Instrumentation Level II**

7 credits

Second course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Instrumentation Technician. Covers: craft related mathematics; instrumentation drawings, part two; principles of welding for instrumentation; process control theory; detectors; secondary elements; transducers and transmitters; controllers; recorders and indicators; control valves; actuators and positioners; relays and timers; switches and photoelectric devices; filters; regulators and dryers; analyzers and monitors; panel-mounted instruments; installing field-mounted instruments and raceways for instrumentations. **Prerequisite:** IMO 155 or instructor permission. Seven lecture; four lab.

**IMO 157 • Instrumentation Level III**

7 credits

Third course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Instrumentation Technician. Covers: instrument fitter's math; layout and installation of tubing and piping systems; receiving, inspecting, handling, and storing instruments; instrumentation electrical circuitry; grounding and shielding of instrumentation wiring; terminating conductors and preventive measures for instrumentations. **Prerequisite:** IMO 156 or instructor permission. Seven lecture; three lab.

**IMO 158 • Instrumentation Level IV**

7 credits

Last course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Instrumentation Technician. Covers digital logic circuits, instrument calibration and configuration, performing loop checks, troubleshooting and commissioning a loop, tuning loops, programmable logic controllers, distributed control systems and analyzers. **Prerequisite:** IMO 157 or instructor permission. Seven lecture; three lab.

**IMO 160 • Robotics**

3 credits

Introductory course in the basic programming and operation of industrial robots. Topics include robotics vocabulary, pick and place operations, positioning by written program, writing advanced multi-position programs, incorporating sensor-relative positions, multi-positioning teaching procedures, repetitive cycle program operation, and sorting programs. Two lecture; two lab.

**IMO 161 • Introduction to Computer-Aided Manufacturing**

3 credits

Introductory course in computer-aided manufacturing. Topics include Cartesian coordinate system, grid sheet drawings, CNC program authoring, Spectrum milling program, lathe grid sheet usage, G and M codes, lathe control programs, AutoSketch, Spectrum software, CNC lathe projects, CNC milling projects and CNC engraving projects. Two lecture; two lab.

**IMO 200 • Systems Critical Thinking and Control**

3 credits

Integrate technology control principles from all major industrial systems in the major areas of manufacturing, construction, communications, transportation and health care. Emphasis is on system critical thinking and programmable controllers. Three lecture.

**IMO 201 • Introduction to Industrial Maintenance**

4 credits

Preparatory course required for students wanting to take NCCER Industrial Maintenance Mechanic Levels 1-4. Students are exposed to basic building foundation skills in construction. 32 lecture hours; 64 lab hours.

**IMO 208 • Introduction to Energy Generation and Distribution**

6 credits

Introduction to various types of energy and their conversion to useable energy such as electrical power. Includes how generated electrical is transmitted and distributed to the point of use.

**Co-requisite:** HDE 103. Six lecture, three lab.

**IMO 210 • Power Principles I**

6 credits

First course in a series of four developing knowledge of the fundamental skills of a certified power plant operator. Topics include basic skills, industrial mathematics, plant safety, minor maintenance, reading diagrams and process sampling. Weekly labs emphasize course material. Six lecture; three lab.

**IMO 211 • Power Principles II**

6 credits

Second course in a series of four developing knowledge of the fundamental skills of a certified power plant operator. Topics include valves, piping and auxiliaries, pumps, compressors, coal handling, and heat exchangers. Weekly labs emphasize course materials. **Prerequisite:** IMO 210 or instructor permission. Six lecture; three lab.

**IMO 212 • Power Principles III**

6 credits

Third course in a series of four developing knowledge of the fundamental skills of a certified power plant operator. Topics include statistical process control, chemistry, electrical systems, instrumentation and control measurement, automatic process, refrigeration, water treatment, and wastewater treatment. Weekly labs emphasize course material. **Prerequisite:** IMO 211 or instructor permission. Six lecture; three lab.

**IMO 213 • Power Principles IV**

6 credits

Final course in a series of four developing knowledge of the fundamental skills of a certified power plant operator. Topics include furnaces, plant boilers, power plant basics, steam cycle and turbines, power plant protection systems, air and water pollution control, and trouble-shooting. Weekly labs emphasize course materials. **Prerequisite:** IMO 212 or instructor permission. Six lecture; three lab.

**IMO 214 • Advanced Power Plant Specific Training**

5 credits

Orients student to power plant specific topics including clearance and confined space procedures, energy conversions, steam and pressure measurements, steam generators, plant layout, pumps, condensate and feedwater systems, fuel delivery and circulating water systems. Weekly labs emphasize course materials.

**Prerequisite:** IMO 212 or instructor permission; co-requisite: IMO 213 or instructor permission. Four lecture; two lab.

**IMO 215 • Introduction to Steam Systems**

3 credits

Introduction to steam systems, thermodynamics, and boiler operation. Includes steam as an energy source, steam system operation, and boilers. Also includes pressure and temperature control. Two lecture, two lab.

**IMO 230 • Mechanical Maintenance I**

6 credits

First course in a series of four developing a knowledge base of fundamental skills required of certified industrial maintenance mechanics. Modules include orientation of the trade, tools of the trade, fasteners and anchors, oxyfuel cutting, gaskets and packets, mathematics, construction drawing, pumps and valves, test instruments, rigging, mobile and support equipment, and lubrication. Weekly labs emphasize and anchor the course material.

**Co-requisite:** IMO 201 or instructor permission. 70 lecture hours; 52 lab hours.

**IMO 231 • Mechanical Maintenance II**

6 credits

Second course in a series of four developing a knowledge base of fundamental skills required of certified industrial maintenance mechanics. Modules include basic layouts, introduction to piping components, copper and plastic practices, introduction to ferrous metal piping practices, how to identify /install and maintain valves, hydrostatic and pneumatic testing, introduction to bearings, low-pressure steam systems, high-pressure steam systems and auxiliaries, distillation towers and vessels, heaters, furnaces, heat exchangers, cooling towers, fin fans, and introduction to tube work. **Prerequisite:** IMO 230 or NCCER certification in level one Industrial Maintenance Mechanic. 15 hours lecture; 150 hours lab.

**IMO 232 • Mechanical Maintenance III**

6 credits

Third course in a series of four developing a knowledge base of the fundamental skills required of industrial maintenance mechanics. Modules include advanced towers and vessels, trade mathematics, precision tools, installing bearings, installing couplings, conventional alignment, setting baseplates, installing mechanical seals, and installing belts and chains. **Prerequisite:** IMO 231 or NCCER level two Industrial Maintenance Mechanic certification. 50 lecture hours; 105 lab hours.

**IMO 233 • Mechanical Maintenance IV**

6 credits

Last course in a series of four developing a knowledge base of fundamental skills required of certified Industrial Maintenance Mechanics. Modules will include preventive and predictive maintenance, advanced blueprint reading, compressors and pneumatic systems, reverse alignment, laser alignment, introductory skills for the crew leader, troubleshooting and repairing pumps, troubleshooting and repairing gearboxes, troubleshooting and repairing conveyors, and advance towers and vessels. **Prerequisite:** IMO 232 or certification in NCCER level three Industrial Maintenance Mechanic. 45 lecture hours; 95 lab hours.

## IMO 234 • Power Generation Maintenance Mechanic

6 credits

Course that provides knowledge and skills necessary to be a certified Power Generations Maintenance Mechanic. **Prerequisite:** IMO 201, IMO 230, IMO 232. **Co-requisite:** IMO 233 Five lecture, four lab.

## IMO 268 • Programmable Logic Controllers

6 credits

Training unit designed to familiarize students with basic operation and components of programmable logic controllers (PLCs). Topics include programmable controllers 1-4. Weekly labs emphasize course material. **Prerequisites:** IMO 210-213 or instructor permission. Six lecture; three lab.

## IMO 270 • DC Analysis and Laboratory/Industrial Computational Skills Part I

4 credits

Designed to familiarize trainees with the origin of electricity through direct current theory and application. Includes atomic structure, Ohm's Law, series circuits, parallel circuits, DC meters, power sources and use of common lab instrumentation. Provides mathematical tools for subsequent study of direct current and semiconductor theory. Three lecture; two lab.

## IMO 271 • AC Analysis and Laboratory/Industrial Computational Skills Part II

4 credits

Covers alternating current generation and waveforms, inductive and capacitive reactance, time constants, transformers, resonance, complex circuits, and filters. Provides mathematical tools for subsequent study of alternate current and semiconductor theory. **Prerequisite:** IMO 270. Three lecture; two lab.

## IMO 272 • Control Systems I Core

4 credits

Course covers control systems, basic principles of automatic control, calibration procedures, human machine interfacing, basic electrical test equipment, digital and analog oscilloscopes, and pneumatic controls. 45 lecture hours; 30 lab.

## IMO 273 • Control Systems II Continuous Process Controls

6 credits

Course covers field devices such as temperature, pressure, weight, level, flow, analytics, analog configuration, digital configuration with a DCS, using field devices, configuring with a laptop, smart controllers, single loop controllers, multiple loop controllers and tuning loops. Also covers troubleshooting loops and troubleshooting DCS loops procedures and practices. **Prerequisite:** IMO 272. 45 lecture hours; 90 lab.

## IMO 274 • Control Systems III Networks and Variable Speed Drives

4 credits

Introduction to control networks, setting up and troubleshooting networks, and fiber optic network systems. Also introduces variable speed drives, applications of variable speed drives, system integration of variable speed drives, programming variable speed drive controllers, troubleshooting variable speed drive controllers, and troubleshooting variable speed drive systems. **Prerequisite:** IMO 273. 45 lecture hours; 30 lab.

## Information and Communication Technology (ICT)

### ICT 095 • Skills for Online Learning

0.5 credit

Examination and practice of basic skills necessary to successful online learning.

### ICT 096 • Teaching Online Learning

1 credit

Prepares students to teach ICT 095; covers rudimentary skills necessary to successful online learning and teaching.

## Languages (LAN)

### LAN 120 • Conversational Navajo I

3 credits

Simple conversation in Navajo. Three lecture.

### LAN 121 • Conversational Navajo II

3 credits

Review of grammar and phonetics. Development of speaking, reading and writing skills. **Prerequisite:** LAN 120. Three lecture.

### LAN 125 • Conversational Apache I

3 credits

Introduction to Phonetic Alphabet. Learn the phonetic sounds of the Apache language, alphabet and vowels; and reproducing the sounds from the written language. Some basic vocabulary and expressions. Three lecture.

### LAN 126 • Conversational Apache II

3 credits

Beginning language drills and skills continued. Includes sentence structure and unusual vowel usage. **Prerequisite:** LAN 125. Three lecture.

### LAN 130 • Conversational Hopi I

3 credits

Simple conversational Hopi. Three lecture.

### LAN 131 • Conversational Hopi II

3 credits

Continues to emphasize conversational Hopi. Further development of Hopi phonetics, grammar and writing skills. Course is designed to meet the needs of students wishing to converse and write in Hopi. **Prerequisite:** LAN 130. Three lecture.

### LAN 160 • Beginning American Sign Language

3 credits

Emphasis on learning of the language of signs and cultural information about the people who use American Sign Language (ASL). Three lecture.

### LAN 161 • Intermediate American Sign Language

3 credits

Continuation of emphasis on the learning of the language of signs and cultural information about the people who use American Sign Language (ASL). **Prerequisite:** LAN 160. Three lecture.

### LAN 171 • Navajo I

4 credits

Introduction to the Navajo language, with emphasis on developing the skills of listening, speaking, reading and writing. Stress on basic grammar, pronunciation, vocabulary and culture. Four lecture.

**LAN 172 • Navajo II**

4 credits

Continuation of Navajo I. Emphasis on the vocabulary, verbs and sentence structures commonly used in the Navajo language. **Prerequisite:** LAN 171. Four lecture.

**LAN 260 • Advanced American Sign Language**

3 credits

Advanced emphasis on learning the language of signs and cultural information about the people who use American Sign Language (ASL). **Prerequisite:** LAN 161. Three lecture.

**LAN 261 • American Sign Language Grammar/Culture**

3 credits

A comprehensive evaluation of syntax, grammar and culture related to American Sign Language. Includes an emphasis on linguistic, social, educational and political issues in Deaf culture. Special emphasis on the cultural and philosophical attitudes shared with other minority groups. **Prerequisite:** LAN 161. Three lecture.

**LAN 262 • Conversational American Sign Language**

3 credits

Strengthens student's ability to communicate using American Sign Language. Helps build vocabulary. All work is given without verbal instruction. **Prerequisite:** LAN 260. Three lecture.

**Mathematics (MAT)****MAT 101 • Basic Technical Mathematics**

3 credits

Practical mathematical skills needed in a wide variety of trade and technical areas. Course includes a review of fractions, decimals, percents, measurement, basic algebra, and a brief overview of geometry and trigonometry. **Prerequisite:** CCP 088 or satisfactory placement. Three lecture.

**MAT 103 • Business Mathematics**

3 credits

An introduction to the practice in mathematics of fundamental business operations and applications including payroll, finance, interest, loans, and investments. **Prerequisite:** CCP 088 or satisfactory placement. Three lecture.

**MAT 109 • Algebra I: Introductory**

3 credits

A review of the fundamental skills of arithmetic and algebra, using techniques for handling algebraic expressions and solving linear equations/inequalities, with an emphasis on developing problem-solving strategies when solving applications. **Prerequisite:** CCP 082 or satisfactory Reading placement score and CCP 088 or satisfactory Mathematics placement score. Three lecture.

**MAT 112 • Algebra II: Intermediate**

3 credits

Extends the understanding of basic algebraic concepts and skills with an emphasis on factoring, exponents, complex numbers, operations of rational and radical expressions, and solving techniques for applications on quadratic, rational, exponential, and logarithmic equations. **Prerequisite:** MAT 109 or satisfactory placement. Three lecture.

**MAT 125 • Introduction to Statistics**

3 credits

Statistical methods used in collecting, tabulating, analyzing, and presenting data; frequency distributions; measures of central tendency; elementary probability; statistical inference. **Prerequisite:** MAT 112 or satisfactory placement. Three lecture.

**MAT 142 • College Mathematics with Contemporary Applications**

3 credits

SUN# MAT 1142

Primary topics covered are management science, statistics, social choice, and size/shape with an emphasis on developing quantitative skills and reasoning ability. **Prerequisite:** MAT 112 or satisfactory placement. Three lecture.

**MAT 152 • Advanced Algebra**

3 credits

SUN# MAT 1151

Algebraic concepts with an emphasis on solving real-life applications that includes a review of basic algebra, equations, inequalities, functions, polynomials, rational, radical, exponential, and logarithmic functions as well as sequences, series, and combinatorics. **Prerequisites:** MAT 112 or satisfactory placement. Three lecture.

**MAT 161 • Algebra-based Mathematics for Elementary Teachers I**

3 credits

Topics include teaching critical thinking skills, problem solving, mathematical algorithms, number theory and proportional reasoning. **Prerequisites:** MAT 142 or MAT 152. Three lecture.

**MAT 162 • Algebra-based Mathematics for Elementary Teachers II**

3 credits

Topics include teaching measurement, analyzing data, algebra, plane and coordinate geometry, probability, and statistics. **Prerequisite:** MAT 161. Three lecture.

**MAT 189 • Pre-Calculus Algebra/Trigonometry**

3 credits

Algebraic and trigonometric concepts with an emphasis on solving real-life applications that includes trigonometric functions, analytic trigonometry, vectors, systems of equations and inequalities, matrices, and analytic geometry. **Prerequisites:** MAT 152. Three lecture.

**MAT 211 • Technical Calculus**

4 credits

SUN# MAT 2212

Foundations of differential and integral calculus that includes applications in business, management, economics, life science, and social science. Topics include applications of functions, derivatives, exponential and logarithmic functions, integration, and multivariate calculus. **Prerequisite:** MAT 152. Four lecture.

**MAT 221 • Calculus I**

4 credits

SUN# MAT 2220

An introduction to limits, continuity, differential and integral calculus of single variable functions and related applications. **Prerequisite:** MAT 189. Four lecture.

**MAT 231 • Calculus II**

4 credits

SUN# MAT 2230

Topics include integration of proper and improper integrals with applications in geometry, science, and engineering, mathematical modeling with differential equations, infinite series, and analytic geometry. **Prerequisite:** MAT 221. Four lecture.

**MAT 241 • Calculus III**

4 credits

SUN# MAT 2241

Topics include three-dimensional space, vector-valued functions, partial derivatives, multiple integrals, and topics in vector calculus. **Prerequisite:** MAT 231. Four lecture.



# Mechatronics Engineering Technology (MET)

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## MET 100 • Introduction to Mechatronics

4 credits

Introduction to mechatronic production systems as well as basic manufacturing concepts. Introduces the energy industry and covers basic skills and knowledge that any technical employee needs to be successful in a variety of manufacturing and other industrial settings. **Co-requisite:** HDE 103. Three lecture, three lab.

## MET 110 • Manufacturing Fundamentals

3 credits

Overview of various types of manufacturing and jobs performed in the discrete, hybrid and continuous sectors within manufacturing and energy production. Provides basic skills and knowledge that any technical employee in manufacturing needs to be successful in the workplace. **Prerequisites:** Satisfactory placement. Two lecture; three lab.

## MET 120 • Industrial Mechanics I

5 credits

Principles and applications of the most commonly found mechanical drive and fluid power components in industrial power plant and manufacturing environments. **Prerequisites:** Satisfactory placement scores in reading, writing and mathematics. Four lecture; three lab.

## MET 130 • Industrial Electrical Systems

4 credits

Principles and applications of alternating (AC) and direct (DC) current electricity, industrial sequential control and electrical controls construction found in typical energy and manufacturing environments. **Prerequisites:** Satisfactory placement and MAT 112 or MAT 121 or any MAT course for which MAT 112 or MAT 121 is a prerequisite. Three lecture; three lab.

## MET 140 • Introduction to Programmable Logic Controllers

4 credits

Principles and applications of programmable logic controllers (PLCs) found in typical energy and manufacturing environments. **Prerequisite:** MET 130. Three lecture; three lab.

## MET 150 • Industrial Mechanics II

6 credits

Builds and expands upon Industrial Mechanics I covering principles and applications of additional mechanical drive and fluid power components, troubleshooting and looking at predictive and preventative maintenance techniques. **Prerequisite:** MET 120. Four lecture; six lab.

## MET 160 • Rotating Electrical Machines

4 credits

Principles, applications, troubleshooting and maintenance of rotating electrical motors and electronic motor drives used in industry. **Prerequisite:** MET 130. Three lecture; three lab.

## MET 200 • Robotics and Motion Control

4 credits

Provides background in programming and application of industrial robots and general purpose synchronized multi-axis motion control. Expands these concepts by combining multiple axes of motion to perform useful functions such as creating a flexible manufacturing system utilizing robots. **Prerequisite:** MET 140 and MET 160. Three lecture; three lab.

## MET 210 • Process Control and Instrumentation

3 credits

Fundamentals of industrial processes and instrumentation controlling level, flow, temperature and pressure. Provides the maintenance technician with fundamentals for many applications in discrete and hybrid industries such as machining, assembly, food processing and packaging. **Prerequisite:** MET 130. Two lecture; three lab.

## Met 220 • Advanced Programmable Logic Controllers

4 credits

Advanced principles and applications of programmable logic controllers (PLCs) in more advanced PLC families than covered in MET 140. Student has option to work with Rockwell/Allen-Bradley ControlLogix or Siemens S7 systems. **Prerequisites:** MET 140; **Co-requisite** MET 200 and MET 210. Three lecture; three lab.

## MET 230 • Integrated Manufacturing Systems

3 credits

This course guides the student through the processes of interfacing and integrating manufacturing components and unit operations into useful systems. **Prerequisites:** MET 200, CIS 141; **Co-requisite:** MET 220. Two lecture; three lab.

## MET 238 • Mechatronics Capstone Project

3 credits

This course provides a capstone experience for the Mechatronics Area of Specialization by requiring that the student, together with a teammate(s), apply skills and knowledge from each of the program areas to an independent mechatronics project related to consumer goods packaging. **Prerequisite:** MET 150, MET 200, MET 210. **Co-requisite:** MET 220. Two lecture, three lab.

## MET 240 • Mechatronics Application Project

4 credits

Capstone experience requiring the student, together with teammate(s), to apply skills and knowledge from each Mechatronics program area to an independent project related to consumer goods packaging. **Prerequisites:** MET 150, MET 200, MET 210 and MET 220. Two lecture, six lab.

## MET 241 • Hydraulic Troubleshooting

3 credits

Teaches the physical principles of force, pressure, fluid flows, and troubleshooting. Two lecture, two lab.

## Medical Assistant (MDA)

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### MDA 123 • Clinical Procedures

4 credits

Theory and skill development of clinical procedures such as vital signs, dosage calculation, medication administration, assisting medical asepsis, patient history, physical exam, positioning and draping, and sterilization and disinfection, electrocardiogram, and minor surgery. **Prerequisites:** Evidence of TB clearance within one year; Hepatitis B series or proof of immunity; and proof of MMR series and Varicella immunization or titer; **Co-requisites:** HES 170, EMT 104 or equivalent. Two lecture; two lab.

### MDA 124 • Clinical Procedures I

5 credits

Theory and skill development of clinical procedures. Includes infection control, vital signs, patient history, physical exam, positioning and draping, patient education and assisting in various medical specialties. **Co-requisites:** HES 170 and either BIO 160 or BIO 201 AND 202. Three lecture; six lab.

**MDA 125 • Clinical Procedures II**

5 credits

Theory and skill development of clinical procedures. Dosage calculation, medication administration, medical asepsis, sterilization and disinfection, electrocardiograms, minor surgery, office lab testing and career skills and development. **Prerequisites:** MDA 124; any MAT class 100 or above; satisfactory placement; EMT 104 (or equivalent); current American Red Cross First Aid card or equivalent in-person class. **Co-requisites:** BUS 119, HES 180. Three lecture; six lab.

**MDA 126 • Medical Assistant Externship**

4 credits

160-hour paid or unpaid externship in an ambulatory health care setting performing administrative/clinical procedures. Includes comprehensive review for RMA certification exam. Minimum grade C to pass. Failing students may not repeat this course. Students withdrawing with instructor's permission may retake only once with instructor's permission. **Prerequisites:** Must have completed MDA 124 and MDA 125, with grades of 'C' or better, no earlier than the previous academic year and instructor permission; **Co-requisites:** HES 109. One lecture; six lab.

**Music (MUS)****MUS 100 • Northland Master Chorale**

1 credit

Mixed-voice choral ensemble focused on the learning and performance of traditional choral repertoire. Requires diligence in learning music and in collaborating with fellow choir members. Course develops healthy vocal production and utilizes auditory and music reading skills. For first-year choral students. Instructor permission required. May be repeated for credit. **Prerequisite:** Instructor permission. Two lab.

**MUS 118 • Vocal Performance Techniques**

2 credits

Focus on the performance of vocal jazz repertoire in mixed ensembles. Emphasis on learning music, minor research of pieces and public performance. Enrollment requires small audition and instructor permission. May be repeated for credit. **Prerequisite:** Instructor permission; concurrent enrollment with MUS 100. One lecture, two lab.

**MUS 121 • Soundcheck**

1 credit

Vocal jazz and a cappella ensemble focused on learning and performance of contemporary, jazz and pop music. Participation requires a flexible schedule, travel as part of performance tours, diligence in learning music and cooperative collaboration. May be repeated for credit. **Prerequisite:** Audition and instructor permission required. Two lab.

**MUS 123 • Musical Theatre Ensemble**

2 credits

Ensemble that performs smaller contemporary musical theatre productions, revues and song cycles. Features individual vocal coaching and increased solo opportunities. Requires diligence in learning music, developing vocal capabilities and working together with fellow ensemble members. May be repeated for credit. **Prerequisite:** Audition and instructor permission required. One lecture; two lab.

**MUS 129 • Vocal Ensembles**

1 credit

Opportunities for vocalists to form duets, trios, sextets, octets and other mixed vocal ensembles. Provides opportunities for performances and personal enjoyment. May be repeated for credit. **Prerequisite:** Instructor permission. Two lab.

**MUS 130 • Instrumental Ensembles**

1 credit

Opportunities for instrumentalists to form string, brass and woodwind combinations. May be repeated for credit. **Prerequisite:** Audition required. Two lab.

**MUS 135 • Music Theory I**

3 credits

Beginning intensive study of fundamentals of music and materials. Includes written exercises, original writing and the analysis of musical examples. Also covers beginning writing in four-part choral texture, structure of tonality, doubling and spacing of triads in root position and inversions and cadences. Three lecture.

**MUS 136 • Music Theory II**

3 credits

Continuation of MUS 135 including intermediate writing in four-part choral textures: non-harmonic tones, melodic harmonization, instrumental styles, seventh chords, borrowed chords and secondary dominants. **Prerequisite:** MUS 135. Must be taken concurrently with MUS 138. Three lecture.

**MUS 137 • Ear Training I**

1 credit

Includes sight-singing, dictation, keyboard exercises and related skills, all designed to develop the student's musical ear to the highest degree possible. Coincides with Music Theory I. Two lab.

**MUS 138 • Ear Training II**

1 credit

Continuing sight-singing, dictation, keyboard exercises and related skills designed to develop the student's musical ear to the highest possible degree. Course coincides with Music Theory II. **Prerequisite:** MUS 137. Two lab.

**MUS 150 • Music Appreciation**

3 credits

A nontechnical introduction to elements of music and music composers of the Medieval, Renaissance, Baroque and Classical eras. **Prerequisite:** Satisfactory placement. Three lecture.

**MUS 155A • Music Applied – Voice**

1 to 2 credits

One-on-one instruction to improve the vocalist's fundamentals of singing, and apply them to vocal performance. Weekly master-class required. **Prerequisite:** Audition and instructor permission. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit.

**MUS 155B • Music Applied – Piano**

1 to 2 credits

Private piano lessons, depending on the student's playing ability. **Prerequisite:** Instructor permission. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit.

**MUS 155C • Music Applied – Guitar**

1 to 2 credits

Private lessons on the guitar, depending on the student's abilities. **Prerequisite:** Instructor permission. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit.

### **MUS 155D • Music Applied – French Horn**

1 to 2 credits

Focus on the fundamentals of French horn performance as applied to solo, chamber and large ensemble playing. Weekly master-class required. **Prerequisite:** Audition and instructor permission. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit.

### **MUS 155E • Music Applied – Trumpet**

1 to 2 credits

Focus on the fundamentals of trumpet performance as applied to solo, chamber and large ensemble playing. Weekly master-class required. **Prerequisite:** Audition and instructor permission. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit.

### **MUS 155F • Music Applied – Violin**

1 to 2 credits

Focuses on the fundamentals of violin performance as applied to solo, chamber and large ensemble playing. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit. **Prerequisite:** Audition and instructor's consent.

### **MUS 155G • Music Applied – Flute**

1 to 2 credits

Focuses on the fundamentals of flute performance as applied to solo, chamber and large ensemble playing. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit. **Prerequisite:** Audition and instructor's consent.

### **MUS 160 • Introduction to Conducting**

2 credits

A study of fundamental gesture technique, score-reading and interpretation. **Prerequisite:** MUS 135 or instructor permission. One lecture; two lab.

### **MUS 200 • Advanced Northland Master Chorale**

1 credit

Requires Northland Master Chorale singers in their second year to exhibit further leadership skills, increased vocal production and increased music learning and performance capabilities. May be repeated for credit. **Prerequisite:** MUS 100 and instructor permission. Two lab.

### **MUS 221 • Soundcheck II**

1 credit

Advanced vocal jazz and a cappella ensemble focused on learning and performance of contemporary, jazz and pop music. Emphasizes leadership skills, increased vocal production and increased music learning and performance capabilities. May be repeated for credit. **Prerequisite:** MUS 121, audition and instructor permission. Two lab.

### **MUS 235 • Music Theory III**

3 credits

A continuation of Music Theory II. Includes introductory studies of formal organization, 18th-Century counterpoint and score analysis. Begins exploration of chromaticism. **Prerequisite:** MUS 136; must be taken concurrently with MUS 237. Three lecture.

### **MUS 236 • Music Theory IV**

3 credits

A continuation of Music Theory III covering advanced harmonic materials such as chromaticism, modulation and 20th-Century techniques. **Prerequisite:** MUS 235; must be taken concurrently with MUS 238. Three lecture.

### **MUS 237 • Ear Training III**

1 credit

Sight-singing, dictation, keyboard exercises and related skills designed to develop the student's musical ear to the highest degree possible. Coincides with Music Theory III. **Prerequisite:** MUS 138. Two lab.

### **MUS 238 • Ear Training IV**

1 credit

Sight-singing, dictation, keyboard exercises and related skills designed to develop the student's musical ear to the highest degree possible. Coincides with Music Theory IV. **Prerequisite:** MUS 237. Two lab.

### **MUS 250 • World Music**

3 credits

Introduces students to global wealth of vernacular musics; explores interaction between music and other aspects of cultural expression from areas around the world. Through studying historical and contemporary musical heritages, students come to know, relate to and understand a broad range of cultural and artistic perspectives. **Prerequisite:** Satisfactory placement. Three lecture

### **MUS 261 • Advanced Choral Conducting**

2 credits

A detailed study of rehearsal techniques, musical components and baton expressiveness as related to choral conducting. Topics include score reading, accompaniment and performance practice. **Prerequisite:** MUS 160. One lecture; two lab.

### **MUS 262 • Advanced Instrumental Conducting**

2 credits

A detailed study of rehearsal techniques, musical components and baton expressiveness as related to instrumental conducting. Topics include score reading, accompaniment and performance practice. **Prerequisite:** MUS 160. One lecture; two lab.

### **MUS 275 • Music Composition I**

3 credits

Focus on composition of various exercises and original music. Additional topics include study of 20th-Century compositions and performance of new works. Students wishing to take this course should contact instructor. Three lecture.

### **MUS 276 • Music Composition II**

3 credits

Continuation of MUS 275. Students wishing to take this course should contact instructor. **Prerequisite:** MUS 275. Three lecture.

### **MUS 285 • Band**

1 credit

Focus on performance of the concert band repertoire, requiring diligence in learning music and study of fundamentals, includes minor research of pieces and public performance. May be repeated for credit. Two lab. **Prerequisite:** Audition required.

### **MUS 287 • Jazz Band**

1 credit

Study and performance of jazz band literature and appropriate jazz techniques. Requires diligence in learning music, minor research of pieces and public performance. May be repeated for credit. Two lab. **Prerequisite:** Audition required.

## Nursing Assistant Training (NAT)

### NAT 101 • Nursing Assistant Training

5 credits

Designed to comply with federal and state guidelines (OBRA). All nursing assistant students will receive appropriate training and experience in providing basic nursing care. At the completion of the course with 75% accuracy, the student is eligible to test for state certification. **Prerequisite:** Satisfactory placement. **Pre/co-requisite:** Healthcare Provider CPR certification (EMT 104, or equivalent).

Three lecture, six lab. *Additional costs and requirements may apply.*

## Nursing (NUR)

### NUR 116 • LPN to RN Transition

3 credits

Provides students licensed as practical nurses opportunity to learn the role of the professional nurse. Allows the student to start the RN program in the third semester. **Prerequisite:** Admittance to the LPN-RN program. Three lecture.

### NUR 117 • Pharmacology I

2 credits

Introduces student to use of pharmacological agents during health-illness transitions and provides theoretical development of clinical and cultural competencies in the administration of medications. Special emphasis on the importance of caring behaviors and communication as they relate to patient teaching, as well as safe and accurate medication administration. **Prerequisite:** Enrollment in Nursing Program or instructor permission. Two lecture.

### NUR 118 • Pharmacology II

2 credits

Extends student knowledge in the use of pharmacological agents during health-illness transitions. Theoretical development of clinical and cultural competencies, including the safe and accurate administration of intravenous, pediatric, psychotropic and obstetric medications, as well as parenteral nutrition. **Prerequisite:** NUR 117; enrollment in Nursing Program or instructor permission. Two lecture.

### NUR 121 • Nursing I

8 credits

Within the framework of transitions, the focus is on individuals in well-defined practice settings. Covers situational transitions of the individual to the nursing student role and the client's admission to and movement within the health care system. Emphasis is on the student's development as a caring, competent nurse within the legal/ethical framework of the profession, using critical thinking and communication skills. **Prerequisite:** Admission into nursing program. Four lecture, eight clinical, four skills lab.

### NUR 122 • Nursing II

8 credits

Focus on nursing care to promote healthy transitions for individuals and families with chronic health conditions in well-defined practice settings. Emphasis on basic management concepts and continued development of critical thinking, clinical judgment and skills. **Prerequisites:** NUR 117 and NUR 121. Four lecture, eight clinical, four skills lab.

### NUR 123 • Paramedic to Nurse Bridge Course

11 credits

This intensive course introduces the experienced paramedic to nursing process, critical reasoning, concept mapping, basic CNA and advanced nursing skills, medication calculations and administration, nutrition, a review of acute disease processes, theoretical development of clinical and cultural competencies, and safe and accurate nursing practice. **Prerequisites:** Current paramedic certification and minimum of one year of active paramedic experience; Nursing Program prerequisites; admission to the Nursing Program; **Co-requisites:** NUR 117 and NUR 118. Eight lecture; nine clinical lab.

### NUR 125 • Practical Nurse Completion

2 credits

Within the framework of transitions, the focus is on preparing students to provide nursing care at the practical nurse level and to successfully complete the NCLEX-PN examination. Emphasis is on the student's development as a caring, competent nurse within the legal/ethical framework of practical nurse licensure in the state of Arizona. **Prerequisite:** Co-enrollment or completion of NUR 122. Two lecture.

### NUR 219 • NCLEX Review Seminar

2 credits

Preparation for the NCLEX-RN examination through lecture, analysis of practice questions, development of a study plan and taking practice exams. **Prerequisite:** Co-enrollment or completion of NUR 222. Two lecture.

### NUR 221 • Nursing III

8 credits

Focus on nursing care to promote healthy transitions for individuals and families experiencing developmental milestones. The student's transition to nurse includes group theory and nursing therapeutics related to parenteral therapy and assisting the client through acute health care issues. Includes concepts in critical thinking, organizational skills and psychosocial nursing. **Prerequisites:** Successful completion with a 'C' or better in NUR 122, BIO 205; and PSY 240. Four lecture, eight clinical, four skills lab.

### NUR 222 • Nursing IV

8 credits

Focus on the impact of acute health/illness transitions on individuals, families and groups. Emphasis is on synthesis and application of nursing therapeutics in the transition of students to their role in the profession of nursing with an introduction to organizational transitions. **Prerequisite:** NUR 221. Four lecture, eight clinical, four skills lab.

### NUR 290 • RN Refresher Course

8 credits

Designed for the RN whose license has lapsed. Reviews theory and updates clinical practice skills related to the nursing process, medical-surgical nursing, IV therapy and medication administration. Successful completion allows candidate to apply to the Arizona State Board of Nursing for RN licensing. Also, the student will be responsible for negotiating placement with a health care agency for 160 hours of approved clinical experience during the class. **Prerequisite:** Students must obtain an Arizona Temporary Refresher License and DPS fingerprint clearance prior to the start of the course.

## Pharmacy Technician (PHT)

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### PHT 102 • Pharmacy Technician Training

8 credits

Prepares student for entry-level pharmacy technician positions. Includes medical and pharmaceutical terminology, basic anatomy and pharmaceutical calculations. Requires a 120-hour paid or unpaid externship. Provides instruction required to pass the national examination of the Pharmacy Technician Certification Board (PTCB). Students must have basic keyboarding skills (approximately 25 words per minute). **Prerequisite:** Satisfactory placement; must be at least 18 years of age and have a high school diploma or equivalent; **Co-requisite:** EMT 104 or equivalent. **Externship Requirement:** DPS Level 1 Fingerprint Clearance Card required prior to starting clinical externship. Six lecture, seven-and-a-half lab.

## Philosophy (PHL)

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### PHL 101 • Introduction to Philosophy

3 credits

 PHI 1101

Introduction, exploration and analysis of topics of selected basic philosophical issues and problems, including the origins of ideas which have shaped Western thought and thinking today - knowledge, belief and truth, causality, reality, the world and God, morality, the nature of persons, obligation, action and free will, the good life, the ideal community, and the nature of the ultimate reality. Reading and critical discussion of both classical and contemporary texts. **Prerequisite:** Satisfactory placement. Three lecture.

### PHL 103 • Introduction to Logic and Critical Thinking

3 credits

 PHI 1103

A candid approach to informal logic and critical thought, designed to place in perspective the rational and emotive elements involved in creative problem-solving as well as a systematic study and critical analysis of arguments. Students participate in plenary and small group discussions. **Prerequisite:** Satisfactory placement. Three lecture.

### PHL 105 • Introduction to Ethics

3 credits

 PHI 1105

Introduction to moral and political theory and problems of practical ethics; philosophical analysis of the idea of the ethical life (problems of ethics and social/political philosophy, e.g., virtue and integrity, rights vs. social utility, nature of law and state). Reading and critical discussion from sources representative of moral and social philosophers of both the classical (historic) and contemporary periods. **Prerequisite:** Satisfactory placement. Three lecture.

### PHL 150 • Comparative World Religions

3 credits

Introduction to the historic concepts and philosophies of religion including the nature and justification of religious belief; arguments for the existence and nature of God or gods; mysticism; religion and meaning; values and knowledge of religion; theistic and pantheistic conceptions of God and creation in the world from animism to the modern religions; traditions including Buddhism, Hinduism, Islam, Judaism, Christianity and others. **Prerequisite:** Satisfactory placement. Three lecture.

## Photography (PHO)

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### PHO 100 • Beginning Photography

3 credits

Principles and process of photography -includes techniques of black and white photography and processing. 35 mm camera is necessary. Two lecture; two lab.

### PHO 101 • Digital Photography

3 credits

The latest information on digital cameras and technologies, as well as the most recent updates to software and hardware needed to edit and print digital images. Two lecture; two lab.

### PHO 115 • Pictorial Journalism

3 credits

Application of basic photography techniques to mass media. Students learn to pictorially create a story using photographs, layouts and captions. **Prerequisite:** PHO 100 or instructor permission. Two lecture; two lab.

### PHO 200 • Intermediate Photography

3 credits

Techniques and processes in creating fine photographic images. **Prerequisite:** PHO 100 or instructor permission. Two lecture; two lab.

### PHO 201 • Intermediate Digital Photography

3 credits

Students learn digital retouching, compositing and image manipulation using industry standard software and hardware to produce quality output for print and Web. **Prerequisites:** CIS 105 and PHO 101, or instructor approval. Two lecture; two lab.

### PHO 212 • Color Photography I

3 credits

Beginning color photography. Designed for students with photography experience. The process and technique involved in creating the color photographic image using the negative color process. **Prerequisite:** PHO 100 or 200 or instructor permission. Two lecture; two lab.

### PHO 213 • Color Photography II

3 credits

Designed for students with color negative printing experience. Topics include the process and techniques involved with printing from color transparencies. Also includes the relationship to commercial photography. **Prerequisite:** PHO 212 or instructor permission. Two lecture; two lab.

### PHO 220 • Advanced Photography

3 credits

Continuation of black and white photography and introduction to the black and white photography book layout and construction. **Prerequisite:** PHO 200 or instructor permission. Two lecture; two lab.

### PHO 230 • View Camera Photography

3 credits

Practical use of the large format view camera. **Prerequisite:** PHO 200 or 220. Two lecture; two lab.

### PHO 240 • Photography Portfolio

3 credits

Application of techniques in preparing the photographic portfolio, construction, archival processing, negative filing systems, identification of equipment and supplies necessary in portfolio construction. **Prerequisite:** PHO 200 or 220. Two lecture; two lab.

### PHO 245 • Photography Desktop Publishing

3 credits

Designed for the student with previous photography experience as an add-on to design and presentation of his or her continuing portfolio. Students learn computer digital programs that will enhance their existing photography and help them in understanding the unique technical qualities found in the existing world of computer-aided photography. **Prerequisites:** PHO 220 and PHO 240 or instructor permission. Two lecture; two lab.

**PHO 250 • Photography as an Art Medium**

3 credits

Survey of significant trends, philosophies and experimentation in photography from 1839 to the present. Course is nontechnical in nature and designed for the photography or non-photography student. Three lecture.

**PHO 270 • Freelance and Stock Photography**

3 credits

Application of techniques with regard to marketing and selling your photography. Course defines freelance photography/marketing and illustrates how to market a stock file of images from your own home. Approaches to stock agencies from initial inquiry to final sales, as well as pricing, are discussed. **Prerequisites:** PHO 220, PHO 240 and PHO 245 or instructor permission. Two lecture; two lab.

**PHO 280 • Photography Practicum**

2 credits

For students wishing to enhance their photographic skills. Course may be repeated. **Prerequisite:** PHO 220 or instructor permission. One lecture; two lab.

**Physics (PHY)****PHY 113 • General Physics I**

4 credits

**SUN#** PHY 1111

An algebra-based course that includes the fundamentals of Newtonian mechanics (Part I) and the elementary physics of fluids (Part II). Use of elements of trigonometry and technical calculus are employed to encourage students to explore and expand knowledge of the use of mathematics in the study of physics. **Prerequisite:** MAT 152. MAT 189 suggested. Three lecture; three lab.

**PHY 114 • General Physics II**

4 credits

**SUN#** PHY 1112

A continuation of PHY 113 concentrating on thermodynamics, vibrations and wave motion, electricity and magnetism, light and optics, and modern physics. **Prerequisite:** PHY 113. Three lecture; three lab.

**Political Science (POS)****POS 110 • American Government**

3 credits

**SUN#** POS 1110

Introduction of various aspects of the national government: constitutional framework, structures, courts, Congress, presidency, interest groups and political parties. Satisfies teacher certification requirements for U.S. Constitution. **Prerequisite:** Satisfactory placement. Three lecture.

**POS 112 • Navajo Government**

3 credits

Focuses on the development of the Navajo government, its evolution, legal and political bases, structure and functions, fiscal changes, and administrative growth. Three lecture.

**POS 221 • Arizona Constitution and Government**

1 credit

Surveys the Arizona Constitution, with special attention to operation of state and local government. Requirement for teacher certification. One lecture.

**POS 222 • U.S. Constitution**

1 credit

Surveys the U.S. Constitution from its philosophical and historical roots to its modern day structure. Course is intended to satisfy Arizona's requirement for teacher certification. One lecture.

**Psychology (PSY)****PSY 101 • Introduction to Psychology**

3 credits

**SUN#** PSY 1101

Survey of the science of psychology including history and systems, physiology, development, sensation and perception, learning theory, abnormal psychology, personality, and memory and cognition. **Prerequisite:** Satisfactory placement. Three lecture.

**PSY 200 • Psychology of Adjustment**

3 credits

Examines selected topics on the principles of mental health, adjustment, conflict, stress, and coping processes derived from clinical and experimental research on the personal and social adjustment of the normal person. **Prerequisite:** Satisfactory placement. Three lecture.

**PSY 201 • Introduction to Research and Statistics**

4 credits

Introduction to basic concepts of experimental design and statistical analysis in psychological research. **Prerequisite:** Satisfactory placement. Four lecture.

**PSY 231 • Principles of Learning**

3 credits

Methods, principles, applications and theoretical issues of learning. **Prerequisite:** Satisfactory placement. Three lecture.

**PSY 240 • Developmental Psychology**

3 credits

A survey of the issues and concepts dealing with age-related behavior and developmental changes during each different period of our life span from conception through old age and death. Current research in human development includes the physical, cognitive, and psychosocial development of each period of the life span. **Prerequisite:** Satisfactory placement. Three lecture.

**PSY 250 • Social Psychology**

3 credits

Introduction to major theories and research findings of social psychology. Including theoretical perspectives of social psychology, understanding self and others, social cognition, attitudes and persuasion, social influence, interpersonal relations, aggression, prejudice, and group processes. **Prerequisite:** Satisfactory placement. Three lecture.

**PSY 270 • Abnormal Psychology**

3 credits

To acquaint the student with the different areas of mental illness, including causes, symptoms and treatments. PSY 101 recommended. **Prerequisite:** Satisfactory placement. Three lecture.

**Real Estate (REA)****REA 101 • Real Estate for Buyers and Sellers**

3 credits

Basics of real estate transactions from the perspectives of both buyers and sellers. Information enables students to better manage his or her own transaction with a real estate professional. Course is not designed to train students to become real estate agents. Three lecture.

## Sociology (SOC)

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### SOC 120 • General Sociology

3 credits SUN# SOC 1101  
Covers fundamentals of sociology, organization of human groups and society and processes of interaction and social change.  
**Prerequisite:** Satisfactory placement. Three lecture.

### SOC 121 • Social Problems in America

3 credits  
Analysis of social problems in the United States with focus on their causes, structure, function and societal effects. Close attention is paid to the student's relationship to these identified social problems as well as proposed solutions. **Prerequisite:** Satisfactory placement. Three lecture.

### SOC 130 • Racial, Ethnic and Gender Relations in Modern Society

3 credits SUN# SOC 2215  
Explores the wide range of racial, ethnic and gender diversity issues in modern society. Specific theories are explored along with an in-depth analysis of various minority groups. **Prerequisite:** Satisfactory placement. Three lecture.

### SOC 140 • Analysis of Deviant Behavior

3 credits  
Survey of the sociological theories related to deviant behavior, issues of social control, and impact of deviance on individuals and social institutions. **Recommended:** SOC 120. Three lecture.

### SOC 225 • Sociology of the Family

3 credits  
The U.S. family in many of its aspects, including the history of the family, marriage, sex, family problems, money matters, future of the family and others. **Prerequisite:** Satisfactory placement. Three lecture.

## Spanish (SPA)

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### SPA 100 • Beginning Spanish Conversation

3 credits  
Emphasizes basic sentence structure, pronunciation, vocabulary and practical usage. Designed to develop speaking and listening abilities. Little emphasis on grammar. Three lecture.

### SPA 101 • Elementary Spanish I

4 credits SUN# SPA 1101  
Introduction to the Spanish language, with emphasis on developing the skills of listening, speaking, reading and writing. Emphasizes basic grammar, pronunciation, vocabulary and culture. **Prerequisite:** Satisfactory placement. Four lecture.

### SPA 102 • Elementary Spanish II

4 credits SUN# SPA 1102  
Continuation of the study of fundamental patterns in SPA 101. Emphasis continues on the comprehension, speaking, reading and writing aspects. **Prerequisite:** SPA 101. Four lecture.

### SPA 201 • Intermediate Spanish I

4 credits SUN# 2201  
Consolidate and augment dexterity in the four basic skills: comprehension, speaking, reading and writing. Further development of vocabulary and cultural awareness. **Prerequisite:** SPA 102. Four lecture.

### SPA 202 • Intermediate Spanish II

4 credits SUN# 2202  
Systematic expansion to strengthen the communicative skills of listening, speaking, reading and writing. A continued emphasis on vocabulary and cultural enrichment. **Prerequisite:** SPA 201. Four lecture.

### SPA 218 • Advanced Spanish Practicum

3 credits  
Increase proficiency in Spanish for advanced students. The area of concentration ~ be it grammar, conversation, reading, composition or intense review ~ depends on the need of each individual student. **Prerequisite:** SPA 202. Three lecture.

## Speech, Theatre and Film (SPT)

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### SPT 110 • Fundamentals of Oral Communications

3 credits SUN# COM 1100  
Theory and practice in the organization, preparation and delivery of communication. Special attention to elements of interpersonal communication, constructive criticism, conflict management and small group process. Three lecture.

### SPT 115 • Interpreter's Theatre

3 credits  
Theory and performance in interpreter's theatre. An effective vehicle for understanding literature, developing skills in oral interpretation and bringing enjoyment and enrichment to both the interpreters and the audience. Performance portion of the course is a touring group available to perform for area schools and organizations. Three lecture.

### SPT 120 • Public Speaking

3 credits  
Development of skill in speaking in a variety of formal public communication situations. Application of the principles of logic and critical thinking as well as the behavioral theories of audience psychology. **Prerequisite:** Satisfactory placement. Three lecture.

### SPT 130 • Introduction to Theatre

3 credits  
An introductory survey course of theatre from its earliest known beginning(s) to the present day. Students are exposed to drama from a variety of historical and ethnic backgrounds. The course focuses on the aesthetic and humanistic aspects of theatre within historical and contemporary contexts. **Prerequisite:** Satisfactory placement. Three lecture.

### SPT 140 • Principles of Drama

3 credits SUN# THE 2220  
Focuses on the analysis of structural elements of major dramatic forms and styles and how they inform interpretive decisions related to theatrical production. Emphasis on studying representative plays, ranging from the classical to contemporary eras. Three lecture.

### SPT 150 • Introduction to Film

3 credits  
Introduction to the history, ideology and aesthetics of film, film theory and film criticism. **Prerequisite:** Satisfactory placement. Three lecture.

**SPT 155 • History of Television**

3 credits

Historic evolution of American television programming from the late 1940s to the present. Examines the economic, political, social and cultural influence of television in American society.

**Prerequisite:** Satisfactory placement. Three lecture.

**SPT 170 • Introduction to Acting**

3 credits

Background in the theatre, and a variety of approaches to acting. Identification and preparation of a role. How to begin a characterization and how to act with other characters on stage. Basic work done with voice and movement. Two lecture; two lab.

**SPT 171 • Intermediate Acting**

3 credits

Continuation of acting training, utilizing performances in scenes and full-length plays. Stresses character development and acting styles. **Prerequisite:** SPT 170 or instructor permission. Two lecture; two lab.

**SPT 175 • Theatre Dance**

1 credit

Basic movement styles and dance terminology for students wishing to participate in musical theatre or dance productions. Includes anatomy study and some dance history. Two lab.

**SPT 178 • Stage Makeup**

3 credits

Focuses on the essentials of stage makeup, including straight, character and special types of makeup. The effects of stage lighting on makeup are also examined. Possible opportunities for production experience, where students apply the techniques learned in the course on actors cast in NPC drama or musical productions. Two lecture; two lab.

**SPT 180 • Introduction to Stage Lighting**

3 credits

Emphasizes play script analysis in association with lighting color and angle theory. Course includes basic design communication tools such as drafting. Lab is based on developing color, intensity, texture, and beam angle in association with mood and place context of a play. Two lecture; two lab.

**SPT 185 • Introduction to Scene Design**

3 credits

Emphasizes analysis of a play script subject to the development of stage scenery, developing drafting and drawing skills necessary to effectively communicate as a designer, and skills necessary to construct a working model for a play script. Two lecture; two lab.

**SPT 190 Introduction to Costume Design**

3 credits

Basic principles of costume design and construction and a survey of selected historical periods. Students develop drawing skills necessary to effectively communicate as a designer and complete a costume design project as part of a production experience. Two lecture; two lab.

**SPT 200 • Play Production I**

3 credits

Techniques and materials used in theatrical production. Directing, acting, lighting, stagecraft, makeup, costume and management. Emphasis placed on performance of a play for an audience. Six lab.

**SPT 201 • Play Production II**

3 credits

Continuation of Play Production I, students are assigned roles and/or positions on technical committees. Additional focus placed on the function of directing, character analysis and technical theatre. Emphasis on performance of a play or musical for an audience.

**Prerequisite:** SPT 200 or instructor permission. Six lab.

**SPT 210 • Intermediate Public Speaking**

3 credits

Emphasis on in-depth study of communication theory, introduction to argumentation and debate, and the organization, preparation and delivery of a variety of speech types. **Prerequisite:** SPT 120 or instructor permission. Three lecture.

**SPT 220 • Technical Theatre**

3 credits

The study and utilization of design and construction techniques for theatre. Includes the areas of lighting design and wiring, scenery design and construction, costume design and construction, and stage management. Two lecture; two lab.

**SPT 230 • Video Production**

3 credits

Study and practice of basic principles and techniques of video production: audio, lighting, camera, video recording, graphics and sets, producing, directing, and field production. Two lecture; two lab.

**SPT 240 • Video Editing**

3 credits

Introduction to the theories, history and practices of editing. Students will work with nonlinear video editing stations to gain experience editing and learning the concepts, procedures and challenges of this art form. Two lecture; two lab.

**SPT 251 • Teaching Theatre for Youth**

3 credits

Provides students educational theory on learning styles, insight into theatrical games and activities designed for children to help them practice basic theatre performance and technical activities, including acting, singing, dancing, and technical theatre areas such as set building, makeup and costumes. Two lecture; two lab.

**SPT 252 • Playwriting**

3 credits

Introduction to playwriting. Emphasis placed on composition of action, plot development and character development. Students write a series of short scripts. Two lecture; two lab.

**SPT 265 • Directing**

3 credits

Basic principles and techniques of stage direction: play selection, play analysis, stage composition and design, casting, blocking and business, technical coordination, rehearsal, and final production. Direction of scenes or one-act required. **Prerequisites:** SPT 200, SPT 220 or instructor permission. Two lecture; two lab.



## Welding (WLD)

### WLD 100 • Safety and Math

2 credits

Introduces trainees to principles and procedures needed to work safely in the construction environment and includes common safety equipment with procedures for inspection and use. Two lecture.

### WLD 130 • Metal Art

3 credits

Introduction to various forms of metal artwork techniques including basic blacksmith forging, scrollwork, bending, forming of sheet metal into armour and other implements. Also features elements of armour and weapons history by touching on the styles found in different countries. One lecture; four lab.

### WLD 131 • Metal Armour Fabrication

3 credits

Skills enhancement in various forms of metal artwork techniques, specifically chasing, engraving, etching and beginning inlay work (soldering style inlay and puzzle style inlay). Skills are applied to brass, copper, steel or iron. Objective is the practice of shaping and forming of steel armour. Student will build a set of armour and enhance its surface with inlaying techniques. One lecture; four lab.

### WLD 150 • Symbols, Drawings/Metal Preparation

2 credits

Teaches welding trainees how to read and interpret AWS standard welding symbols and welding detail drawings, as well as how to prepare base metal joints for welding. **Co-requisite:** WLD 100. Two lecture.

### WLD 151 • Cutting Process and Welding Quality

3 credits

Introduces welding trainees to oxy-fuel cutting (OFC), plasma arc cutting (PAC) and carbon arc cutting (CAC). Teaches student to understand and apply weld quality principles. **Co-requisite:** WLD 100. One lecture; three lab.

### WLD 152 • SMAW Plate I

3 credits

Students are introduced to shielded metal arc welding and its equipment setup; shielded metal arc welding electrodes and considerations for electrode selection; shielded metal arc welding beads and fillet welds using only shielded metal arc welding technology. **Co-requisite:** WLD 100. One lecture; three lab.

### WLD 153 • SMAW Plate II

3 credits

Introduces welding trainees to shielded metal arc welding groove welds with backing and their manufacture using shielded metal arc welding equipment. **Prerequisite:** WLD 152; **Co-requisite:** WLD 100. One lecture; three lab.

### WLD 154 • GMAW Plate

3 credits

Introduces welding trainees to: gas metal arc welding (GMAW) equipment and filler metals; gas metal arc plate and the fabrication of quality GMAW fillet weld in plate in all positions; flux core arc welding (FCAW) equipment and filler metals; and the manufacture of quality FCAW fillet and groove welds using flux core arc welding. **Co-requisite:** WLD 100. One lecture; three lab.

### WLD 155 • GTAW Plate

3 credits

Introduces welding trainee to Gas Tungsten Arc Welding (GTAW) equipment and filler metals and the fabrication of quality groove welds in mild steel plates with the GTAW process. **Co-requisite:** WLD 100. One lecture; three lab.

### WLD 156 • AWS Level I Certification Preparation

2 credits

Prepares student to meet the American Welding Society (AWS) Level I Entry Level Welder requirements that are more comprehensive than the NPC general welding curriculum. When linked with WLD 157, prepares student to sit for the nine-part AWS national certification exam. **Prerequisites:** All Level I courses, or instructor permission; **co-requisite:** WLD 100. One-half lecture; three lab.

### WLD 157 • AWS Level I Certification (Entry Level Welder)

4 credits

Prepares student to test for final certification requirements as an American Welding Society Entry Level Welder (Level I) by performing the same nine-part series of workmanship qualification examinations required by the AWS EG2.0-95. **Prerequisites:** All Level I courses including WLD 156, or instructor permission; **Co-requisite:** WLD 100. One lecture, six lab.

### WLD 240 • Introduction to Plastics

2 credits

Introduces student to types and characteristics of common thermoplastics. One lecture; two lab.

### WLD 241 • Plastic Welding

2 credits

Covers construction and components of the hot air welder; techniques for plastic welding, use of welding tips, and air compressor and heat settings. **Co-requisite:** WLD 240. One lecture; two lab.

### WLD 242 • Fabrication of Plastics

2 credits

Instruction in how to construct products from sheet plastics; use of tools for cutting, shaping and finishing. **Co-requisites:** WLD 240, WLD 241. One lecture; two lab.

### WLD 243 • Pipe Fitting for Plastic

2 credits

Focus on coping pipe and flange welding. How to level pipe on pipe stands, find center and attach flanges using two-hole pins, square, level and hot air welder. Also instruction in use of math formulas to make cope templates, cut-outs with jig-saw and weld pieces to form usable fittings. **Co-requisites:** WLD 240, WLD 241, WLD 242. One lecture; two lab.

### WLD 260 • Weld Fit-Up/Inspection/Metallurgy

2 credits

Introduction to joint fit up and alignment using equipment associated with shielded metal arc welding; air carbon arc cutting and gouging; physical characteristics and mechanical properties of metal, especially as related to base metals and affect weld quality; and weld quality theory. **Co-requisite:** WLD 100. One lecture; one lab.

**WLD 261 • SMAW Open V-Butts/Plate I**

3 credits

Introduces welding trainees to shielded metal arc welding open V-butt welds using appropriate equipment. **Prerequisite:** WLD 152; **Co-requisite:** WLD 100. One lecture; three lab.

**WLD 262 • SMAW Open V-Butts/Plate II**

3 credits

Course offers welding trainees advanced training in the manufacture of acceptable open V-butt welds using shielded arc welding equipment. **Prerequisites:** WLD 152, WLD 153 and WLD 261; **Co-requisite:** WLD 100. One lecture; three lab.

**WLD 263 • SMAW Open Root/Pipe I**

3 credits

Instructs a welding trainee in the performance of open root pipe welds in the flat and horizontal positions using SMAW equipment. **Prerequisites:** WLD 152, WLD 153, WLD 261 and WLD 262; **Co-requisite:** WLD 100. One lecture; four lab.

**WLD 264 • SMAW Open Root/Pipe II**

3 credits

Advanced training for the welding trainee in the manufacture of open root pipe welds in the vertical and 45-degree inclined position using SMAW technology. **Prerequisites:** WLD 152, WLD 153, WLD 261, WLD 262 and WLD 264; **Co-requisite:** WLD 100. One lecture; four lab.

**WLD 265 • GMAW Pipe**

3 credits

Introduces the welding trainee to gas metal arc welding pipe and the installation of quality GMAW V-groove welds in pipe; GMAW equipment and filler metals; and flux cored arc welding of pipe and the manufacture of quality FCAW open root V-groove welds in pipe. **Prerequisite:** WLD 154; **Co-requisite:** WLD 100. One lecture; three lab.

**WLD 266 • FCAW Pipe**

3 credits

Introduces the welding trainee to GMAW equipment and filler metals and the manufacture of quality FCAW open root V-grooves. **Prerequisite:** WLD 154; **Co-requisite:** WLD 100. One lecture; three lab.

**WLD 267 • GTAW Pipe I**

3 credits

Introduces the welding trainee to the GTAW (gas tungsten arc welding) process of installing quality open root V-groove welds on stainless steel pipe; using GTAW equipment and filler metals; and manufacturing quality open root V-groove welds on low alloy steel pipe with the GTAW process. **Prerequisite:** WLD 155; **Co-requisite:** WLD 100. One lecture; three lab.

**WLD 268 • GTAW Pipe II**

3 credits

Advanced training in the use of GTAW technology and introduction of the process of installing quality open root V-groove welds in carbon steel pipe with the GTAW process. **Prerequisites:** WLD 155 and WLD 267; **Co-requisite:** WLD 100. One lecture; three lab.

**WLD 290 • Welding Fabrication**

3 credits

For advanced students to continue training in welding. Students complete a project from blueprint to final product. **Prerequisite:** Permission of instructor. One lecture; three lab.

**WLD 291 • Internship for Welding**

2 credits

Internship course designed to accompany any WLD course to learn the fundamentals of welding, fabrication and cutting through on-the-job-training as an intern with a local contractor. The course emphasizes techniques and use of basic tools in performing welding related work and includes physical demonstrations of safety requirement. Students must schedule job hours with a designated contractor for an average minimum of 10 hours per week. **Prerequisite:** Permission of instructor; **Co-requisite:** WLD 100.

**Workshops and Special Project Courses**

The following list of courses are available and applicable in every departmental area and may carry the departmental prefix. Such courses are not described in the preceding Course Description section since their descriptions (below) are the same for all similarly numbered courses.

**198 • Internship**

1 to 16 cr.

An on-the-job training program for students to earn college credit for learning achieved on the job. Learning is demonstrated through student completion of employer, student (employee) and NPC instructor-approved written learning objectives relating to the student's job, career goals and academic major.

**099/199 • Workshop**

0.5 to 6 cr.

Courses designed to meet the common interests and problems of a group of students. Course topics vary according to the needs of students involved.

**298 • Portfolio**

1 to 3 cr.

Supervised special project in field of study designed for application to professional/technical and academic studies. Students participate in an in-depth, critical evaluation of their own work as it relates to competencies developed during their program. Development of a portfolio of individual performance consisting of assessment and examples demonstrating success in communication, problem solving, decision making and technical competencies.

**299 • Special Topics**

0.5 to 4 cr.

A course designed to meet the needs of an individual student who has an interest in a specific topic. This course is especially applicable to the occupational student who wants specialized training.