



# 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. (See *Definitions*, page 63)

NPC courses that transfer directly to other Arizona public community colleges and three state universities 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 59 in this catalog.

To assist students with sequencing to satisfy degree requirements, the semester a course is normally offered is now shown on the description. The course may be offered during other semesters based on student demand. Students should work with their NPC academic adviser to most efficiently reach their educational goals. Course offerings are based on availability of qualified faculty.

**DBN = Determined by Need** – Your academic adviser can help convey your need for the course to the appropriate dean.

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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. Thirty-two lecture; 12 lab. Both fall and spring semesters; DBN.

## 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. Fall semester. DBN.

### ANT 104 • Biological Anthropology and Human Origins

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. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.

## 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. Both fall and spring semester.

### ART 103 • Basic Design

3 credits

 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. DBN.

### ART 105 • Beginning Drawing I

3 credits

 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. DBN.

### 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. DBN.

### ART 115 • Art History I

3 credits

 ART 1101

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

### ART 116 • Art History II

3 credits

 ART 1102

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

### ART 121 • Digital Photography I

3 credits

An introduction to digital black and white photography. Emphasizes basic manual functions of a digital camera. Focuses on proper exposure, composition and understanding digital workflow. Encourages students to develop a personal artistic style through classroom critique. Two lecture; two lab. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**ART 186 • Clay Sculpture**

3 credits

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

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. Spring semester.

**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. DBN.

**ART 221 • Digital Photography II**

3 credits

An introduction to digital color photography. Focuses on correcting and manipulating digital color images. Emphasizes creative use of color to achieve emotional impact. Continued development of personal artistic style through class critique. **Prerequisite:** ART 121 or instructor permission. Two lecture; two lab. DBN.



### **ART 222 • Digital Photography Practicum**

2 credits

Enhancement of photographic skills through the creation of a portfolio of artworks. Development of personalized, self-directed goals and photographic projects. Digital camera is required.

**Prerequisite:** ART 221 or instructor permission. One lecture; two lab. DBN.

### **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. DBN.

### **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. DBN.

### **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. DBN.

### **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. DBN.

### **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. DBN.

### **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. DBN.

### **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. DBN.

### **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. DBN.

## **Automotive Technology (ATO)**

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### **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. Both fall and spring semester; summer.

### **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. Both fall and spring semester; summer.

### **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. Both fall and spring semester; summer.

### **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. Both fall and spring semester; summer.

### **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. Both fall and spring semester; summer.

**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. Both fall and spring semester; summer.

**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. Both fall and spring semester; summer.

**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. Both fall and spring semester; summer.

**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. Both fall and spring semester; summer.

**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. Both fall and spring semester; summer.

**ATO 134 • Fundamentals of Plastic Welding**

3 credits

Fundamentals of plastic welding introduces theories pertaining to: thermoplastics welding techniques, plastic identification processes, fusion welding, chemical welding processes, and thermoset plastics. **Prerequisite:** WLD 100 or CON 100 or CON 107 or ATO 103 or instructor permission. Three lecture. Both fall and spring semester; summer.

**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. Both fall and spring semester; summer.

**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. Both fall and spring semester; summer.

**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. Both fall and spring semester; summer.

**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, antitheft systems and CAN/BUS systems. **Prerequisite:** ATO 208. Two lecture; three lab. Both fall and spring semester; summer.

**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. Both fall and spring semester; summer.

**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. Both fall and spring semester; summer.

## Biology (BIO)

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### 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. Fall semester; DBN.

### 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. Spring semester.

### 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. Spring semester.

### BIO 181 • General Biology I

4 credits

 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. Both fall and spring semester; summer.

### BIO 182 • General Biology II


4 credits

 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. Spring semester.

### BIO 201 • Human Anatomy and Physiology I

4 credits

 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 CHM 152. Three lecture; three lab. DBN.

### BIO 202 • Human Anatomy and Physiology II

4 credits

 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. DBN.

### BIO 205 • Microbiology

4 credits

 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. DBN.

### BIO 241 • Human Genetics

3 credits

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. DBN.

## Business (BUS)

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### 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. Both fall and spring semester.

### 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. Both fall and spring semester; summer.

### 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. Both fall and spring semester.

**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. Both fall and spring semester.

**BUS 104 • Developing Your Professionalism**

1 credit

This course will provide the student with a knowledge and awareness of professionalism in the workplace. The student is also provided with methods and approaches to improving and developing his or her professional presence. One lecture. Both fall and spring semester; summer.

**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. Spring semester.

**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. Fall semester; summer.

**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. Summer.

**BUS 108 • Basic Keyboarding and 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. Fall semester. *Requires Windows-based operating system.*

**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. Spring semester.

**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. Fall semester.

**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. Spring semester.

**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. Fall semester.

**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 payments, completing insurance forms and maintaining financial records.

**Prerequisite:** BUS 108 or instructor permission. Three lecture. Spring semester; summer.

**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 217. Three lecture. Spring semester.

**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. Spring semester.

**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. Fall semester.

**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. Spring semester.



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

3 credits

Explores spreadsheet software to design electronic spreadsheets for business, financial analysis and forecasting. Three lecture. Both fall and spring semester.

**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 HES 170 or instructor permission. Two lecture; two lab. Both fall and spring semester.

**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. DBN.

**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. Both fall and spring semester; summer session.

**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. Both fall and spring semester.

**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. DBN.

**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. DBN.

**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. DBN.

**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. Both fall and spring semester; summer.

**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. Fall semester.

**BUS 182 • Records Management**

3 credits

Covers types of records management systems and approaches to filing including developments in digital data storage. Three lecture. Both fall and spring semester.

**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:** HES 170 or instructor permission. Three lecture. Spring semester.

**BUS 184 • Medical Scribe**

3 credits

Students practice real-time clinical documentation and workflow efficiencies by collecting information gathered at a simulated point-of-care encounter with a patient and a provider and will input data to create and maintain comprehensive and accurate electronic health records. **Prerequisite:** Keyboarding skill of at least 25 wpm; BUS 183 or instructor permission. Three lecture. Spring semester.

**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. Spring semester.

**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 112. Three lecture. Spring semester.

**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. Fall semester; summer.

**BUS 203 • Introduction to Business Communication**

3 credits

Facilitates critical analysis of communication in a variety of social and cultural contexts. Examines communication products/processes and the various ways we negotiate their importance. Includes theory and practice of communication skills in public, small group, and interpersonal settings, and the study of the speech communication process. Three lecture. Fall semester.

**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. Both fall and spring semester.

**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. Fall semester.

**BUS 215 • Principles of Retail Management**

3 credits

Provides a strategic, decision-making approach that illustrates 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. Summer.

**BUS 217 • Principles of Financial Accounting**

3 credits

An introduction to the study of formal financial accounting concepts, procedures and practices. Learn the environment of accounting to include journalizing entries, management of assets and liabilities, and accounting for cash and receivables. Additional topics of study will include internal control systems, and financial statement analysis. Three lecture. Both fall and spring semester.

**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. Fall semester.

**BUS 225 • Human Resources Management**

3 credits

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

**BUS 227 • Medical Coding**

4 credits

Medical coding is the transformation of narrative descriptions of diseases, injuries and healthcare 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 is briefly covered. **Prerequisite:** HES 170 or instructor permission. Four lecture. Both fall and spring semester.

**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. Three lecture. Spring semester.

**BUS 231 • Microsoft Office Level I**

3 credits

Level I Microsoft Office Applications. Includes coverage of Windows, 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 this course helps prepare the student for the core Microsoft Office Specialist (MOS) certification examination. **Prerequisite:** Keyboarding skills of 20 words per minute. Two lecture; two lab. Both fall and spring semester; summer.

**BUS 234 • Microsoft Office Level II**

3 credits

Advanced course covers applications in Microsoft Office Suite including Word, Excel, Access, and PowerPoint. Students apply advanced problem-solving techniques to complete professional-looking documents and projects. Combined with BUS 231 this course helps prepare the student for the core Microsoft Office Specialist (MOS) Certification examination. **Prerequisite:** BUS 231 Two lecture; two lab. DBN.

**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. **Prerequisite:** BUS 110. Three lecture. Spring semester.

## 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.

**Prerequisite:** BUS 155 or instructor permission. Two lecture; two lab. DBN.

## Chemistry (CHM)

### CHM 130 • Fundamental Chemistry

4 credits

 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. Both fall and spring semester; summer.

### CHM 151 • General Chemistry I

4 credits

 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. Fall semester.

### CHM 152 • General Chemistry II

4 credits

 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. Spring semester.

## 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. Both fall and spring semester; summer.

### 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. One lecture; two lab. Both fall and spring semester; summer.

### 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. One lecture; two lab. Both fall and spring semester; summer.

### 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. Both fall and spring semester; summer.

### CCP 55X • Opportunities Through Education

0 credit

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. Both fall and spring semester; summer.

### CCP 058 • Mathematical Applications I

3 credits

Instruction, practice and practical applications in mathematical basics including whole numbers, place value, money, addition, subtraction, data, patterns, geometric shapes, measurement and digital literacy. Level one numeracy skills contextualized in college and career applications. **Prerequisite:** Satisfactory placement - ABE 1. Three lecture. Both fall and spring semester; summer.

### 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. Both fall and spring semester; summer.

### 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. Both fall and spring semester; summer.

### 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. Both fall and spring semester; summer.

### 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. Both fall and spring semester; summer.

**CCP 077 • High School Equivalency Prep I**

3 credits

Introduction to Arizona's high school equivalency content, study and test skill strategies. Instruction designed to improve student's basic skills while building confidence. **Prerequisite:** Satisfactory placement - ABEIII. Three lecture. Both fall and spring semester.

**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. Both fall and spring semester; summer.

**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. Both fall and spring semester; summer.

**CCP 084 • High School Equivalency Prep: Civics**

1 credit

Introduction to Arizona's high school equivalency civics content. Instruction is designed to increase student's content knowledge and improve basic skills while building confidence in the test-taking process. **Prerequisite:** Satisfactory placement on TABE ABE III level. One lecture. Both fall and spring semester; summer.

**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. Both fall and spring semester.

**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. Both fall and spring semester; summer.

**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. Both fall and spring semester; summer.

**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. Fall semester.

**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 résumé and refining interview skills. **Prerequisite:** Satisfactory placement. One lecture; two lab. Spring semester.

**Computer Information Systems (CIS)**

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

**CIS 103 • Introduction to Windows**

1 credit

Introduction to Windows operating environment that takes a critical-thinking approach to teaching Windows concepts and skills. In addition to in-depth coverage of essential topics such as: hardware, software, terminology, file management, Internet and email, and additional Windows tools. One lecture. DBN.

**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. Both fall and spring semester.

**CIS 111 • Introduction to Programming**

3 credits

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

**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. DBN.



**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**CIS 119 • Page Layout and Design**

3 credits

Students learn page layout and design concepts hands-on 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. **Prerequisite:** CIS 115 or instructor permission. Two lecture; two lab. DBN.

**CIS 125 • Digital Media**

3 credits

An introduction to the technical and conceptual tools to understand the basic concepts of digital media. Students learn to create graphics, images, audio, animations, video, presentations and basic websites to convey effective messages to an audience. **Prerequisite:** CIS 105 or instructor permission. Two lecture; two lab. Fall semester.

**CIS 130 • Information Security Fundamentals**

3 credits

Students learn the basic concepts and principles of information security along with current risks and threats to an organization's data and the fundamental approaches to secure computers and networks. **Prerequisite:** CIS 105 or instructor permission. Three lecture. Spring semester.

**CIS 135 • IT Assessment, Audit, and Controls**

3 credits

Students develop a thorough understanding of how to identify and mitigate risk related to information systems and learn how to develop plans and processes for a holistic approach to information security for an organization. **Prerequisite:** CIS 130 or instructor permission. Three lecture. Fall semester.

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

3 credits

Comprehensive practical instruction on theory and skills relating to PC hardware, networking, mobile devices, and hardware and network troubleshooting. Course includes about 50 percent of the competencies required for A+ certification. **Prerequisite:** CIS 105 or instructor permission. Two lecture; two lab. Spring semester.

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

3 credits

Comprehensive practical instruction on theory and skills relating to Windows Operating Systems, other Operating Systems and technology, Security, Software Troubleshooting, and Operational Procedures. Course includes about 50 percent of the competencies required for A+ certification. **Prerequisite:** CIS 141 or instructor permission. Two lecture; two lab. Fall semester.

**CIS 145 • Network+ Certification Preparation**

3 credits

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

**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 or instructor permission. Three lecture. Spring semester.

**CIS 147 • PC Help Desk/Soft Skills**

3 credits

Introduces students to the Help Desk environment, as well as other essential IT soft skills, teamwork, collaboration, time and project management skills. **Prerequisite:** CIS 105 or instructor permission. Two lecture; two lab. DBN.

**CIS 148 • Applied Networking**

3 credits

Hands-on application configuring switches, routers, VLANs, VPNs, ACLs, as well as troubleshooting. Through application students will develop a more thorough understanding of LANs, TCP/IP, IPv6, security, device hardening, as well as VoIP and network administration. **Prerequisite:** CIS 145 or instructor permission. Two lecture, two lab. DBN.

**CIS 149 • Wireless Networking**

3 credits

Student will be exposed to an overview of wireless networking. Concepts covered include fundamentals of RF behavior, the features and functions of WLAN components, installation, configuring, and troubleshooting WLAN hardware peripherals and protocols. This course will prepare students for the CWNA exam. **Prerequisite:** CIS 145 or instructor permission. Three lecture. DBN.

**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. Fall semester.

**CIS 161 • Microsoft Operating Systems**

3 credits

Covers in-depth uses of current Microsoft Operating Systems and takes a critical-thinking approach to teaching concepts and skills such as configuring hardware, software, interfaces, security, and practical skills. **Prerequisite:** CIS 105 or instructor permission. Two lecture; two lab. Fall semester.

**CIS 171 • Linux Operating System**

3 credits

An overview of the Linux Operating System. Students learn to install, configure, maintain and troubleshoot Linux systems. Introduces the command line and graphical user interfaces for workstation users and systems administration purposes. **Prerequisite:** CIS 105 or instructor permission. Two lecture; two lab. Spring semester.

**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 which maintain high standards of usability regardless of client computing platform, connection speed or browser choice. **Prerequisite:** CIS 105 or instructor permission. Two lecture; two lab. Fall semester.

**CIS 190 • Introduction to JavaScript**

3 credits

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

**CIS 217 • JAVA Programming, Introductory**

3 credits

An introduction to the JAVA Programming Language. Students write programs in JAVA compiled with NetBeans IDE with an emphasis on problem analysis, structure and design. **Prerequisite:** CIS 111 or instructor permission. Two lecture; two lab. Fall semester.

**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. DBN.

**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. DBN.

**CIS 230 • Operating System Security**

3 credits

Students learn to install, configure, and administer common desktop and server operating systems and their associated applications and services with a focus on securing these systems against risks, vulnerabilities, and threats. **Prerequisite:** CIS 130, and CIS 161, and CIS 171 or instructor permission. Two lecture; two lab. Fall semester.

**CIS 231 • Digital Forensics and Investigations**

3 credits

Students will learn about the legal and technical aspects of Digital Forensics, including general forensic processes, imaging, hashing, file recovery, file system basics, identifying mismatched file types, reporting, and laws regarding computer evidence. **Prerequisite:** CIS 130 and CIS 171 or instructor permission. Two lecture; two lab. Spring semester.

**CIS 232 • Network Security**

3 credits

Students learn how to design, implement, and administer secure computer networks while exploring security incidents and intrusions, identifying and categorizing incidents, responding to incidents, log analysis, network traffic analysis, and utilizing various network security tools. **Prerequisite:** CIS 130 and CIS 145 or instructor permission. Two lecture; two lab. Spring semester.

**CIS 233 • Ethical Hacking**

3 credits

Students will learn about the ethical hacking methodology with a hands-on application of security tools to test and better secure information systems. Introduces common countermeasures that effectively reduce and/or mitigate attacks. **Prerequisite:** CIS 230 or instructor permission; **Co-requisite:** CIS 232 or instructor permission. Two lecture; two lab. Spring semester.

**CIS 243 • Database-Driven Websites**

3 credits

An in-depth study of creating dynamic database-driven websites using PHP and MySQL. Students learn how to design and create a database, PHP and MySQL programming concepts, and advanced web programming skills. **Prerequisite:** CIS 187 or instructor permission. Two lecture; two lab. Fall semester.

**CIS 245 • Database Management Concepts**

3 credits

An introductory overview of database management systems (DBMS). Structured Query Language (SQL) and other management tools are used to define, manipulate, and retrieve data from a DBMS. Students also learn common administrative tasks related to user management, authentication, stored procedures, and backup/restore strategies. **Prerequisite:** CIS 105 or instructor permission. Two lecture; two lab. Spring semester.

**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. DBN.

**CIS 260 • Web Design Technologies**

3 credits

Overview of current technologies used by web professionals to create visually engaging and interactive pages, sites, and applications at an intermediate to advanced level. **Prerequisite:** CIS 187 or instructor permission. Two lecture; two lab. DBN.

**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. Spring semester.

**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. DBN.

**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. Fall semester.

**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. DBN.

**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 toward an area of specialization in CIS and instructor permission. Two lecture; two lab. DBN.

**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. DBN.

**CON 101 • Jobsite Layout**

3 credits

Lecture of contextualized applied math topics for accurately measuring and laying out different types of construction projects, shapes, and structures. Focusing on applications of geometry and trigonometry as it applies to building layout, quality control, and site surveying. Three lecture. Both fall and spring semester.

**CON 102 • Introduction to Construction Methods**

3 credits

Introduction to principles and procedures to work safely in construction industry; construction terminology, hand tools, and power tools applications. OSHA 10 Hour construction safety topics are explored. Three lecture. Both fall and spring semester.

**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. DBN.

**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. DBN.

**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. DBN.

**CON 111 • Plan Reading and Employment**

3 credits

Introduction to basic skills of reading plans, specifications, contractual documents, communication fundamentals, and employ-ability skills as they pertain to the construction industry. Three lecture. Both fall and spring semester.

**CON 120 • Concrete and Masonry Systems**

3 credits

The theory and practice of construction work performed with mortar, brick, block (concrete masonry units), reinforced brick, reinforced concrete masonry, forming of structural concrete, and concrete placement. Additionally, explores the chemical characteristics of Portland cement-based products, common tools used, terminology, and methodologies used to work with aforementioned materials. **Co-requisite:** CON 100 or CON 107 or CON 102. Two lecture, two lab. Both fall and spring semester.

**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. **Prerequisite:** CON 100. Two lecture; two lab. DBN.

**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. Both fall and spring semester.

**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. Both fall and spring semester.

**CON 126 • Framing Systems**

4 credits

Hands-on identification of different types of framing systems commonly used in the construction industry. Topics include: the components of walls, floor systems, stair layout and ceiling layout. Lecture on appropriate building codes and interpretation of construction documents as they pertain to carpentry.

**Prerequisite:** CON 102 or CON 107 or CON 100. Two lecture; four lab. Both fall and spring semester.

**CON 134 • Fundamentals of Plastic Welding**

3 credits

Fundamentals of plastic welding introduces theories pertaining to: thermoplastics welding techniques, plastic identification processes, fusion welding, chemical welding processes, and thermoset plastics. **Prerequisite:** WLD 100 or CON 100 or CON 107 or ATO 103 or instructor permission. Three lecture. DBN.

**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. Fall semester.

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

3 credits

Hands-on roofing materials from low-slope to steep-slope roofing systems will be explored. Varying types of exterior finishes, weatherization and waterproofing systems will be constructed. Lecture of thermal properties of materials, thermal resistance and heat transfer. **Prerequisites:** CON 102, CON 107, CON 100 or instructor permission. Two lecture; two lab. Both fall and spring semester.

**CON 150 • Interior Finish Systems and Weatherization**

3 credits

Explores interior finish systems: drywall, insulation, soundproofing, firestopping, textures, trims, and painting in a hands-on environment. **Co-requisite:** CON 100 or CON 107 or CON 102 or instructor permission. Two lecture; two lab. DBN.

**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. Fall semester.

**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. DBN.



**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. Fall semester.

**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. **Prerequisite:** CON 121. Two lecture; two lab. DBN.

**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. **Prerequisite:** CON 221. Two lecture; two lab. DBN.

**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. DBN.

**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. Spring semester.

**CON 228 • Electrical Systems**

3 credits

Introduction to electrical systems, wiring, the National Electrical Codes, and basic electrical theories as they relate to building trades. **Co-requisites:** CON 100 or CON 102 or CON 107 or instructor permission. Two lecture; two lab. Spring semester.

**CON 229 • Plumbing and Mechanical Systems**

3 credits

A hands-on approach is taken for plumbing systems used in residential construction. Lecture-based approach to mechanical systems; their applications and basic theories as they relate to buildings in which they are used. **Prerequisite:** CON 100 or CON 102 or CON 107 or instructor permission. Two lecture; two lab. Spring semester.

**CON 230 • Sustainable Construction**

3 credits

Lecture of roles of constructors in the green environment. Impacts of land development, materials, and manufacturing processes will be explored. LEED Green Building Council Criteria, green building technology, and structure orientation. **Co-requisite:** CON 105 or instructor permission. Three lecture. Fall semester.

**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. DBN.

**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. DBN.

**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. Spring semester.

**CON 265 • Construction Capstone Portfolio**

2 credits

Integration of construction processes including: operations, trades (masonry, concrete, carpentry, finishes, and electrical), and management processes. **Prerequisites:** CON 101, 102, 111, 120, 126, 145, 228, 229 or instructor permission. One and a half lecture; one lab. Spring semester.

## Cosmetology (COS)

### **COS 107 • Business Skills I**

3 credits

Offers basic business skills relating to the beauty industry. Topics will include: customer service, work ethics and professionalism in the work place. Five and six-tenths lab. Both fall and spring semester.

### **COS 108 • Business Skills II**

3 credits

Offers basic business skills relating to the beauty industry. Topics will include: customer service, work ethics and professionalism in the work place. **Prerequisite:** COS 107. Five and six-tenths lab. Both fall and spring semester.

### **COS 142 • Introduction to Hair Care**

6 credits

Introduces students to basic hair care through live demonstrations and hands-on training in a realistic salon setting. Training will include beautification of the hair involving cutting, styling, coloring, chemical texture alteration and related theory. With completion of this course students will continue to practice on clients under instructor supervision. **Prerequisites:** The minimum of 16 years of age with official high school transcript with 10th grade equivalency; two English courses, one math, one science and a minimum of 10 credits, or; proof the prospective student is at least 18 years old with satisfactory proof of age is shown by government-issued driver's license or identification card, birth certificate, or; a transfer application. Eleven lab. Both fall and spring semester.

### **COS 143 • Introduction to Basic Skin Care**

2 credits

Introduces students to basic skin care through live demonstrations and hands-on training in a realistic salon setting. Training will include the fundamentals in cleansing, massaging, moisturizing, skin analysis, hair removal and related theory. With completion of this course students will continue to practice on clients under instructor supervision. Three and eight-tenths lab. Both fall and spring semester.

### **COS 144 • Introduction to Basic Nail Care**

2 credits

Introduces students to basic nail care through live demonstration and hands-on training in a realistic salon setting. Training will include beautification of nails, massaging and moisturizing of the hands and related theory. With completion of this course students will continue to practice on clients under instructor supervision. Three and eight-tenths lab. Both fall and spring semester.

### **COS 145 • Law and Ethics for a Beauty Professional**

3 credits

Overview of laws and ethics relevant to the beauty professional including Arizona State Board of Cosmetology Laws and Rules, communication skills, professional image, life skills, career opportunities and related theory. Five and six-tenths lab. Both fall and spring semester.

### **COS 146 • Scientific Concepts I**

3 credits

Overview of scientific concepts relevant to the beauty professional including infection control, general anatomy, chemistry, electricity and related theory. Five and six-tenths lab. Both fall and spring semester.

### **COS 147 • Scientific Concepts II**

3 credits

Continuation of COS 146. Emphasis continues on further training in infection control, general anatomy, chemistry, electricity and related theory. **Prerequisite:** COS 146. Five and six-tenths lab. Both fall and spring semester.

### **COS 231 • Advanced Hair Care I**

3 credits

Students learn the science of healthy hair including hands-on training in shampooing, hair cutting, haircolor, chemical alternation and related theory. Students explore beauty enhancement techniques and acquire knowledge to help people look and feel more beautiful. **Prerequisite:** COS 142. Five and six-tenths lab. Both fall and spring semester.

### **COS 232 • Advanced Hair Care II**

3 credits

Continuation of COS 231. Emphasis continues on further training in hair care with advanced techniques including conditioning treatments, highlights, wig designs, braids and related theory. **Prerequisite:** COS 231. Five and six-tenths lab. Both fall and spring semester.

### **COS 233 • Advanced Hair Care III**

3 credits

Continuation of COS 232 concentrating on skills to offer satisfactory client services, proper communication skills and up-to-date techniques. **Prerequisite:** COS 232. Five and six-tenths lab. Both fall and spring semester.

### **COS 234 • Advanced Skin Care I**

3 credits

Students learn the science of healthy skin including hands-on training in skin analysis, facials, masks, waxing, makeup applications and related theory. Students explore beauty enhancement techniques and acquire knowledge to help people look and feel beautiful. **Prerequisite:** COS 143. Five and six-tenths lab. Both fall and spring semester.

**COS 235 • Advanced Skin Care II**

3 credits

Continuation of COS 234. Emphasis continues on further training in skin care with advanced techniques including spa facials, masks, moulage makeup, false eyelash application and related theory. **Prerequisite:** COS 234. Five and six-tenths lab. Both fall and spring semester.

**COS 236 • Advanced Skin Care III**

3 credits

Continuation of COS 235 concentrating on skills to offer satisfactory client services, proper communication skills and up-to-date techniques. **Prerequisite:** COS 235. Five and six-tenths lab. Both fall and spring semester.

**COS 237 • Advanced Nail Care I**

3 credits

Students learn the science of healthy nails including hands-on training in manicures, pedicures, artificial nail enhancements and related theory. Students explore beauty enhancement techniques and acquire knowledge to help people look and feel more beautiful. **Prerequisite:** COS 144. Five and six-tenths lab. Both fall and spring semester.

**COS 238 • Advanced Nail Care II**

3 credits

Continuation of COS 237. Emphasis continues on further training in nail care with advanced techniques including spa manicures, spa pedicures, nail wraps, paraffin wax treatments and related theory. **Prerequisite:** COS 237. Five and six-tenths lab. Both fall and spring semester.

**COS 239 • Advanced Nail Care III**

3 credits

Continuation of COS 238. Concentrating on advanced nail care skills to offer satisfactory client services and up-to-date techniques. **Prerequisite:** COS 238. Five and six-tenths lab. Both fall and spring semester.

**COS 240 • Prepare for Licensure**

2 credits

Summarizes the fundamental knowledge of a beauty professional including self-assessments and practice exams in core domains of Cosmetology and Hairstyling. Three and eight-tenths lab. Both fall and spring semester.

**COS 241 • Cosmetology Special Topics I**

3 credits

A course designed to meet the needs of an individual Cosmetology Program completer who has an interest in a specific topic. This course is especially applicable to the occupational student who wants to specialize in training or transfer hours to another state. **Prerequisite:** Student must have completed 1600 hours of State Board documented cosmetology training. Five and six-tenths lab. DBN.

**COS 242 • Cosmetology Special Topics II**

3 credits

A continuation of COS 241. Students will continue to practice in self-directed study or an advanced project that relates to a Cosmetologist. **Prerequisite:** COS 241. Five and six-tenths lab. DBN.

**COS 243 • Law and Ethics for a Cosmetology Instructor**

1 credit

Overview of legal and ethical topics relevant to the Cosmetology Instructor including topics from the Arizona State Board of Cosmetology regulations, professionalism in the work place and related theory. **Prerequisite:** Licensed as a Cosmetologist with one year work experience form from the Arizona State Board of Cosmetology. One and nine-tenths lab. Spring semester.

**COS 244 • Safety Concepts for a Cosmetology Instructor**

2 credits

Introduces students to safety concepts to be used as a potential Cosmetology Instructor including infection control principles, industry safety practices and related theory. **Prerequisite:** COS 243. Three and eight-tenths lab. Spring semester.

**COS 245 • Basic Teaching Skills  
for a Cosmetology Educator**

3 credits

Designed for Cosmetology Instructors focusing on classroom management including self-motivated instructors, developing organized work habits, creating a motivated classroom environment, foster learning and study skills and related theory. Five and six-tenths lab. Spring semester.

**COS 246 • Beauty and Wellness Disciplines  
for a Cosmetology Educator**

3 credits

Presents cosmetologists with teaching concepts relevant to becoming a Cosmetology Instructor including management of a student training environment, preparing students for employment, providing an energized education environment and related theory. Five and six-tenths lab. Spring semester.

**COS 247 • Professional Development  
for a Cosmetology Educator**

3 credits

Covers enhanced levels of a Cosmetology Instructor's work performance including educator-to-educator relationships, educator-to-supervisor relationships, effective human relationships and related theory. Five and six-tenths lab. Spring semester.

## 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. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.



## Early Childhood Development (ECD)

### **ECD 100 • Providing a Healthy Environment**

1 credit

Provides an overview of policies, regulations, and strategies that support young children's health and well-being. Covers concepts of nutrition, environmental influences, and physical activity in a variety of early childhood settings serving children birth through age eight. Addresses strategies for working with families to support children's health and well-being. Co-requisite: ECD 102. One-half lecture; one clinical. DBN.

### **ECD 102 • Ensuring a Safe Environment**

1 credit

Overview of strategies for implementing safe practices and ensuring the safety of children ages birth through age eight in a variety of early childhood settings such as preschools, playgrounds, and homes. Includes ways to engage families in understanding practices for keeping children safe. Co-requisites: ECD 100. One-half lecture; one clinical. DBN.

### **ECD 105 • Understanding Behavior and Encouraging Self-Discipline**

1 credit

Strategies and methods for understanding children's behavior. Explores instructional techniques to promote self-regulation and support children's positive social-emotional development. Co-requisite: Concurrent enrollment in ECD 120. One-half lecture; one clinical. DBN.

### **ECD 108 • Observation and Assessment in Early Childhood**

1 credit

Foundations in observing and assessing learning for the purpose of understanding development and guiding instruction for young children, birth through age eight. Covers a variety of techniques and strategies for effectively documenting learning and interpreting results. Co-requisites: ECD 250 or ECD 147, ECD 148 and ECD 149. One-half lecture; one clinical. DBN.

### **ECD 110 • Building Relationships with Families**

1 credit

Overview of the importance of the family and early childhood professional relationship. Strategies for engaging with families and building strong relationships as a means to support children's positive growth and development. One-half lecture; one clinical. DBN.

### **ECD 112 • Enhancing Family Involvement**

1 credit

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

### **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. DBN.

### **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. DBN.

### **ECD 116 • Science and Discovery**

1 credit

Methods and materials for supporting children's scientific thinking and inquiry skills. One-half lecture; one clinical. DBN.

### **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. DBN.

### **ECD 120 • Guidance and Development of Social-Emotional Development**

1 credit

Overview of children's social-emotional development. Explores instructional strategies and techniques to build young children's social-emotional awareness and promote positive self-concepts. Co-requisite: Concurrent enrollment in ECD 105. One-half lecture; one clinical. DBN.

### **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. DBN.

### **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. DBN.

### **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. DBN.

### **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. DBN.

### **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. DBN.

**ECD 128 • Culture, Language and Community**

1 credit

Explores how culture, language and community impact child development and learning. Reviews methods and materials that promote culturally and linguistically responsive environments and instruction in a variety of early childhood settings. One-half lecture; one clinical. DBN.

**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. DBN.

**ECD 136 • Understanding How Children Learn**

1 credit

Overview of brain development and learning theories and principles in early childhood. Strategies for applying theory to practice and using knowledge of learning to support children's comprehensive growth and development for birth through age five. **Prerequisite:** ECD 250 or ECD 147, 148 AND 149. One-half lecture; one clinical. DBN.

**ECD 139 • Curriculum and Environments for Infants and Toddlers**

2 credits

Overview of developmentally appropriate curriculum and planning to support comprehensive growth and development of children birth to three. Explores the roles that daily routines and responsive caregiving play in supporting young children's learning experiences. Addresses influences of environments on development and learning. **Prerequisite:** ECD 250 or equivalent (ECD 147, 148 AND 149). One lecture; two clinical. DBN.

**ECD 142 Designing Developmentally Effective Learning Environments**

2 credits

Exploration of the foundations of constructivist, whole child learning approaches with particular focus on developmentally appropriate and effective practices in early childhood. Includes overview of specific curricula used in a variety of early childhood settings. **Co-requisites:** ECD 136 – may be taken concurrently. One lecture; two clinical. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**ECD 151 • Math 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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**ECD 163 • Supporting Infant/Toddler Cognitive Development**

1 credit

Review of theories and principles of cognitive development in the first three years of life. Explores how infants and toddlers develop the skills of reasoning, symbolic representation, concept development, and problem-solving. Co-requisites: ECD 164 and ECD 169. One-half lecture; one clinical. DBN.

**ECD 164 • Practical Applications for Infant-Toddler Cognitive Development**

1 credit

Overview of strategies and concepts for providing infants and toddlers with the environments and supports that enhance cognitive development. Emphasizes the role of effective interactions in the promotion of cognitive skills, including reasoning, problem-solving, symbolic representation, and concept development. Co-requisite: Concurrent enrollment in ECD 163 and ECD 169. One-half lecture; one clinical. DBN.

**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. DBN.

**ECD 166 • Infant-Toddler Social and Emotional Development**

1 credit

Overview of social and emotional development in children birth to age three. Addresses the importance of consistent and responsive caregiving practices in supporting children's social and emotional competence, including autonomy, self-concept, identity and belonging. Co-requisite: Concurrent enrollment in ECD 167 and ECD 168. One-half lecture; one clinical. DBN.

**ECD 167 • Guiding Behavior: Infants and Toddlers**

1 credit

Overview of developmentally appropriate behavioral expectations for children birth to three. Addresses strategies and techniques for guiding and supporting positive behavior development in infants and toddlers. Co-requisite: Concurrent enrollment in ECD 166 and ECD 168. One-half lecture; one clinical. DBN.

**ECD 168 • Supporting Social and Emotional Competence: Infants and Toddlers**

1 credit

Review of supports and interactions that promote social-emotional competence in young children birth to age three. Emphasizes development of children's emotional expression and self-regulation through responsive, warm, and nurturing relationships with caregivers. Co-requisite: Concurrent enrollment in ECD 166 and ECD 167. One-half lecture; one clinical. DBN.

**ECD 169 • Sensory Learning and Cognitive Development**

1 credit

Examines the specific relationship between sensory experiences and cognitive development in infants and toddlers. Addresses strategies for encouraging sensory exploration as well as developing adjustments for children with varying needs and abilities. Co-requisite: Concurrent enrollment in ECD 163 and ECD 164. One-half lecture; one clinical. DBN.

**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. DBN.

**ECD 175 • Professionalism**

1 credit

Overview of professional ethics and behavior within the field of early childhood including, professional development, understanding of the core knowledge and competencies of the field, and the importance of ongoing professional growth. One-half lecture; one clinical. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**ECD 186 Effective Interactions for Learning**

1 credit

Students will gain an understanding of the important role of adult-child interactions in the development of young children. Course will explore the topics of attachment, building warm relationships, and effective scaffolding using questioning and language strategies to promote self-regulation and learning in children ages birth – five years. One-half lecture; one clinical. DBN.

**ECD 187 Supporting STEM in Early Childhood**

1 credit

Overview of integrated learning approaches to teaching young children science, technology, engineering and math (STEM) concepts. Reviews strategies and techniques for planning, developing, and implementing developmentally appropriate and effective STEM curriculum for young children birth to age five. **Co-requisites:** ECD 142 or ECD 136. One-half lecture; one clinical. DBN.

**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. DBN.

**ECD 217 • Early Childhood Language and Literacy**

1 credit

Methods and materials to support young children's emerging language and literacy skills from birth using whole child, integrated approaches to learning. Includes topics in communication, early reading and early writing. **Co-requisite:** ECD 136 and ECD 142 or ECD 200. One-half lecture; one clinical. DBN.

**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. DBN.

**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. DBN.

**ECD 222 • Introduction to Early Childhood Special Education**

3 credits

Overview of legislation, policies, issues, philosophies and trends in special education with an emphasis on provisions for children birth through age eight. Includes an examination of the student's own beliefs and assumptions regarding learners with exceptionalities. Three lecture. DBN.

**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. DBN.

**ECD 232 • Play and Learning Environments**

2 credits

Examines the role of play in children's development birth through age eight. Focuses on the importance of play and how play benefits children in both indoor and outdoor environments. Emphasizes developmentally appropriate strategies adults use to create indoor and outdoor environments that enhance and support play in early childhood settings. Two lecture. DBN.

**ECD 233 • Policies and Procedures in Early Childhood Programs**

2 credits

Overview of early childhood systems, policies and procedures. Discussions of childcare licensure, quality early childhood programs, and other early childhood regulatory entities. One lecture; two clinical. DBN.



**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. DBN.

**ECD 235 • Budgeting 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. DBN.

**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. DBN.

**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. DBN.

**ECD 250 • Survey of Child Development**

3 credits

Study of the theories of child development from the prenatal through middle childhood periods. Includes an emphasis on the interactions between biology and the environment and the influences of culture and social issues on children's health and development. **Prerequisite:** Satisfactory placement. Three lecture. DBN.

**ECD 251 • Child Development II**

2 credits

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

**Economics (ECN)****ECN 211 • Principles of Macroeconomics**3 credits  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:** CCP 088 or satisfactory placement. Three lecture. Fall semester.

**ECN 212 • Principles of Microeconomics**3 credits  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:** CCP 088 or satisfactory placement. Three lecture. Spring semester.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

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

1 credit

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

**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. DBN.

**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. Both fall and spring semester.

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

3 credits

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

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. Spring semester.

**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. Fall semester.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. Fall semester.

**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. Both fall and spring semester.

**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. DBN.

**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/adaption 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. Both fall and spring semester.

**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. Both fall and spring semester.

**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. **Prerequisite:** ENL 101 or instructor permission. Three lecture. Spring semester.

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

0.5 credit

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. Both fall and spring semester. DBN.

**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. DBN.

**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. DBN.

**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. Both fall and spring semester.

**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. Both fall and spring semester.

**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. Both fall and spring semester.

**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. DBN.

**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. DBN.



### 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. DBN.

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

0.5 credit

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. DBN.

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

0.5 credit

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. DBN.

### 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. Spring semester.

### 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. Both fall and spring semester.

### 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. Fall semester.

### 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. Spring semester.

### 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. DBN.

### EMT 251 • Instructor Strategy Renewal Course

0.5 credit

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. DBN.

## Energy and Industrial Technician (EIT)

### EIT 100 • Introduction to Advanced Manufacturing

4 credits

Introduction to advanced manufacturing production systems and concepts. Covers basic skills and knowledge that any technical employee needs to be successful in a variety of manufacturing and other industrial settings. Three lecture; 2 lab. Fall and spring semester; DBN.

### EIT 120 • Industrial Mechanics I

6 credits

Principles and applications of the most commonly found mechanical drive and fluid power components in an industrial power plant and manufacturing environment. **Prerequisite:** Satisfactory placement. Two lecture; eight lab. Fall and spring semester; DBN.

### EIT 130 • Industrial Electrical Systems

4 credits

Principles and application of alternating (AC) and direct (DC) current electricity, industrial sequential control and electrical controls construction as found in a typical energy and manufacturing environment. **Prerequisite:** Satisfactory placement. Two lecture; four lab. Fall and spring semester; DBN.

### EIT 140 • Introduction to Programmable Logic Controllers

4 credits

Principles and application of programmable logic controllers (PLCs) as found in a typical energy and manufacturing environment. **Prerequisite:** EIT 130. Two lecture; four lab. Fall and spring semester; DBN.

### EIT 150 • Industrial Mechanics II

6 credits

Builds and expands upon Industrial Mechanics I. Principles and applications of additional mechanical drive and fluid power components, expanding upon troubleshooting and looking at predictive and preventative maintenance techniques. **Prerequisite:** EIT 120. Two lecture; eight lab. Fall and spring semester; DBN.

### EIT 151 • Electrical Level I

6 credits

First course in a sequence of four that develops knowledge and skills required of Certified Industrial Electricians. Covers alternating current, motors: theory and applications, and conductor installation. **Co-requisites:** EIT 201 or instructor approval. Two lecture; eight lab. Fall and spring semester.

### EIT 152 • Electrical Level II

6 credits

Second course in a sequence of four that develops a knowledge and skills required of Certified Industrial Electricians. Covers alternating current, motors: theory and applications, and conductor installation. **Prerequisite:** EIT 151 or instructor approval. Two lecture; eight lab. Fall and spring semester.

### EIT 153 • Electrical Level III

6 credits

Third course in a sequence of four that develops knowledge and skills required of Certified Industrial Electricians. Covers alternating current, motors: theory and applications, and conductor installation. **Prerequisite:** EIT 152 or instructor approval. Two lecture; eight lab. Fall and spring semester.

### EIT 154 • Electrical Level IV

6 credits

Fourth course in a sequence of four that develops knowledge and fundamental skills required of Certified Industrial Electricians. Topics include load calculations, feeders and services, health care facilities, standby emergency equipment, HVAC controls, and introductory skills for crew leader. **Prerequisite:** EIT 153 or instructor approval. Two lecture; eight lab. Fall and spring semester.

### EIT 155 • Instrumentation Level I

6 credits

First course in a sequence of four that develops knowledge and skills required of Certified Industrial Instrumentation Technician. Topics include hand and power tools for instrumentation, instrument drawings and documents, piping and hoses, and flow pressures, level and temperature. **Co-requisite:** EIT 201 or instructor approval. Two lecture; eight lab. Fall and spring semester.

### EIT 156 • Instrumentation Level II

6 credits

Second course in a sequence of four that develops knowledge and skills required of a Certified Industrial Instrumentation Technician. Topics include craft-related mathematics, principles of welding for instrumentation, process control theory and installing field-mounted instruments. **Prerequisite:** EIT 155 or instructor approval. Two lecture; eight lab. Fall and spring semester.

### EIT 157 • Instrumentation Level III

6 credits

Third course in a sequence of four that develops knowledge and skills required of Certified Industrial Instrumentation Technician. Topics include instrument fitters math, instrumentation theory and protective measures for instrumentation. **Prerequisite:** EIT 156 or instructor approval. Two lecture; eight lab. Fall and spring semester.

### EIT 158 • Instrumentation Level IV

6 credits

Fourth course in a sequence of four that develops knowledge and fundamental skills required of Certified Industrial Instrumentation Technician. Topics include digital logic circuits, performing, troubleshooting and commissioning a loop, and programmable logic controllers. **Prerequisite:** EIT 157 or instructor approval. Two lecture; eight lab. Fall and spring semester.

**EIT 160 • Rotating Electrical Machines**

4 credits

Principles, application, troubleshooting and maintenance of rotating electrical motors and electronic motor drives as used in industry. **Prerequisite:** EIT 130. Two lecture; four lab. Fall and spring semester; DBN.

**EIT 200 • Robotics and Motion Control**

4 credits

Provides the student with a background in the programming and application of industrial robots and general purpose synchronized multi-axis motion control. Expands upon those concepts by combining multiple axes of motion to perform useful functions such as creating a flexible manufacturing system utilizing robots. **Prerequisite:** EIT 140 and EIT 160. Two lecture; four lab. Fall and spring semester; DBN.

**EIT 201 • Introduction to an Industrial Environment**

4 credits

The preparatory course and requirement for students wanting to be NCCER certified for all NCCER Level industry disciplines. The students are exposed to the basic foundation skills in Industry. Two lecture; four lab. Fall and spring semester; DBN.

**EIT 205 • Process Control and Instrumentation**

4 credits

Fundamentals of process control and instrumentation as applied in industry for the control of level, flow, temperature and pressure. **Prerequisite:** EIT 130. Two lecture; four lab. Fall and spring semester; DBN.

**EIT 208 • Energy Generation and Distribution I**

6 credits

First course in a series of four that prepares students for entry-level positions as operators of power generation, mining, water treatment, natural gas, refinery, semiconductor, petrochemical and pharmaceutical processes. Includes how electricity is generated, transmitted and distributed to the point of use. Four lecture; four lab. Fall and spring semester; DBN.

**EIT 211 • Energy Generation and Distribution II**

6 credits

Second course in a series of four that prepares students for entry-level positions as operators of power generation, mining, water treatment, natural gas, refinery, semiconductor, petrochemical and pharmaceutical processes. Includes the following topics: valves, piping and auxiliaries, pumps, compressors, coal handling and heat exchange. **Prerequisite:** EIT 208 or instructor approval. Four lecture; four lab. Fall and spring semester; DBN.

**EIT 212 • Energy Generation and Distribution III**

6 credits

Third course in a series of four that prepares students for entry-level positions as operators of power generation, mining, water treatment, natural gas, refinery, semiconductor, petrochemical and pharmaceutical processes. Includes the following topics: statistical process control, chemistry, electrical systems, instrumentation and control measurement, automatic process control, refrigeration, water and wastewater treatment. **Prerequisite:** EIT 211 or instructor permission. Four lecture; four lab. Fall and spring semester; DBN.

**EIT 213 • Energy Generation and Distribution IV**

6 credits

Fourth course in a series of four that prepares students for entry-level positions as operators of power generation, mining, water treatment, natural gas, refinery, semiconductor, petrochemical and pharmaceutical processes. Includes the following topics: furnaces, boilers, steam cycles and turbines, protection systems, air and water pollution controls and troubleshooting. **Prerequisite:** EIT 212 or instructor permission. Four lecture; four lab. Fall and spring semester; DBN.

**EIT 214 • Advanced Power Plant Specific Training Course**

6 credits

Orientation for students in power plant specific concepts. 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. **Prerequisite:** EIT 212 or instructor approval. **Co-requisite:** EIT 213 or instructor approval. Four lecture; four lab. Fall and spring semester.

**EIT 215 • Introduction to Steam Systems**

3 credits

Introduction to science of steam systems, thermodynamics and boiler operation. Two lecture; two lab. Fall and spring semester; DBN.

**EIT 220 • Advanced Programmable Logic Controllers**

4 credits

Advanced principles and applications of programmable logic controllers (PLCs) including PLC real-time considerations, levels of PLC networking, alternate programming languages for PLCs, international standards applied to PLCs, and integration of logic and motion control in PLCs. **Prerequisite:** EIT 140. **Co-requisites:** EIT 200 and EIT 205. Two lecture; four lab. Fall and spring semester; DBN.

**EIT 230 • Mechanical Maintenance I**

6 credits

First course in a sequence of four that develops knowledge and skills required of a Certified Industrial Maintenance Mechanics. Topics include orientation to the trade, tools of the trade, pumps, valves and drivers and rigging. **Co-requisite:** EIT 201 or instructor approval. Two lecture; eight lab. Fall and spring semester.

**EIT 231 • Mechanical Maintenance II**

6 credits

Second course in a sequence of four that develops knowledge and skills required of a Certified Industrial Maintenance Mechanics. Topics include basic layouts, introduction to ferrous metal piping practices, valves, introduction to bearings, and low- and high-pressure systems and auxiliaries. **Prerequisites:** EIT 230 or Certified in NCCER Industrial Maintenance Mechanic Level ONE. Two lecture; eight lab. Fall and spring semester.

**EIT 232 • Mechanical Maintenance III**

6 credits

Third course in a sequence of four that develops knowledge and fundamental skills required of Certified Industrial Maintenance Mechanics. Topics include advanced trade math, precision measuring tools, installing bearings and couplings, conventional alignment, and installing belts, chains and mechanical seals. **Prerequisite:** EIT 231 or certified in NCCER Industrial Maintenance Mechanic Level TWO. Two lecture; eight lab. Fall and spring semester.

**EIT 233 • Mechanical Maintenance IV**

6 credits

Fourth course in a sequence of four that develops knowledge and fundamental skills required of Certified Industrial Maintenance Mechanics. Topics include preventive maintenance, advanced blueprint reading, pneumatic systems, reverse and laser alignment, and introduction to supervision. **Prerequisite:** EIT 232 or certified in NCCER Industrial Maintenance Mechanic Level THREE. Two lecture; eight lab. Fall and spring semester.

**EIT 235 • Integrated Manufacturing Systems**

4 credits

Interfacing and integrating manufacturing components and unit operations. **Prerequisite:** EIT 200; Co-requisite: EIT 220. Two lecture; four lab. Fall and spring semester.

**EIT 241 • Hydraulic Troubleshooting**

4 credits

Physical principles of force, pressure, fluid flows and troubleshooting. Two lecture; four lab. Fall and spring semester.

**EIT 242 • Industrial Maintenance Electrical and Instrumentation Technician Level I**

6 credits

First course in a sequence of four that develops knowledge and skills required of Certified Electrical and Instrumentation Technician. Covers orientation and tools of the trade, craft-related mathematics, and pumps, valves, drivers and lubrication. **Co-requisite:** EIT 201 or instructor permission. Two lecture; eight lab. Fall and spring semester.

**EIT 243 • Industrial Maintenance Electrical and Instrumentation Technician Level II**

6 credits

Second course in a sequence of four that develops knowledge and skills required of Certified Electrical and Instrumentation Technician. Covers industrial safety for E&I technician, electrical theory, hand bending, tubing, conductors and cables. **Prerequisite:** EIT 242 or instructor approval. Two lecture; eight lab. Fall and spring semester.

**EIT 244 • Industrial Maintenance Electrical and Instrumentation Technician Level III**

6 credits

Third course in a sequence of four that develops knowledge and skills required of Certified Electrical and Instrumentation Technician. Covers hazardous locations, electronic components, controls, E&I drawings and layouts and machine bending. **Prerequisite:** EIT 243 or instructor approval. Two lecture; eight lab. Fall and spring semester.

**EIT 245 • Industrial Maintenance Electrical and Instrumentation Technician Level IV**

6 credits

Fourth course in a sequence of four that develops knowledge and skills required of Certified Electrical and Instrumentation Technician. Covers standby emergency equipment, basic process, control elements, transducers, transmitters, PLC's, tuning and troubleshooting. **Prerequisite:** EIT 244 or instructor approval. Two lecture; eight lab. Fall and spring semester.

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

3 credits

 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. Both fall and spring semester; summer.

**ENL 102 • College Composition II**

3 credits

 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. Both fall and spring semester; summer.

**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. Spring semester.

**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. DBN.



**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. Summer.

**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. Summer.

**ENL 238 • Women's Literature**

3 credits

Explores the changing roles of women in terms of culture, rhetoric, religion, education, and relationships through their writing and also examines biases and stereotypes that have defined women's roles in the past and in the present.

**Prerequisite:** Satisfactory reading and writing placement. Three lecture. DBN.

**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. **Prerequisite:** ENL 101 or instructor permission. Three lecture. Spring semester.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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-requisites: FDV 222 and 232 or instructor permission. One lecture; three lab. DBN.

**FDV 260 • Digital Video Production Projects**

3 credits

Production of the student's own short video project. Builds and expands upon production skills learned in FDV 130 and FDV 210. Skill development in scriptwriting, camera, design, lighting, sound and the myriad skills involved in producing and directing one's own work. **Prerequisite:** Instructor permission. One and a half lecture; four and a half lab. DBN.

**FDV 270 • Digital Video Post-Production Projects**

3 credits

Post-production of student's own short video project initiated in FDV 260. Builds and expands upon post-production skills learned in FDV 140 and FDV 160. Topics include advanced non-linear video editing, advanced digital audio editing and preparing finished work for screening and distribution. **Prerequisite:** Instructor permission. One and a half lecture; four and a half lab. DBN.

## Fire Science (FRS)

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### FRS 101 • Principles of Fire and Emergency Services Administration

3 credits

Overview into the organization and management of fire and emergency services departments. Emphasis is placed on fire and emergency service, ethics and leadership from the perspective of the company officer. Three lecture. Both fall and spring semester; DBN.

### FRS 104 • Firefighter I and II

10 credits

Covers basic 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. **Co-requisite:** FRS 110. Seven lecture; three lab. Both fall and spring semester; DBN.

### 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. Both fall and spring semester; DBN.

### FRS 126 • Rope Rescue I

1 credit

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

### 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. Fall semester.

### 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. Fall semester.

### 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. Both fall and spring semester; DBN.

### 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. Both fall and spring semester; DBN.

### 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. **Prerequisite:** Demonstration of a competency in high school-level algebra or the equivalent is recommended. Two lecture; one lab. Both fall and spring semester; DBN.

### FRS 137 • Strategies and Tactics

3 credits

Principles of fire ground control through utilization of personnel, equipment and extinguishing agents. Three lecture. Both fall and spring semester; DBN.

### FRS 138 • Legal Aspects of Emergency Services

3 credits

An overview of federal, state and local laws that regulate emergency services, including a review of national standards, regulations and consensus standards. Three lecture. Both fall and spring semester; DBN.

### FRS 139 • Confined Space Operations

3 credits

Overview of various types of confined space situations that a student may respond to during the course of their duties. Provides basic skills in recognizing and operating at a confined space emergency event. Two lecture; one lab. Both fall and spring semester; DBN.

### 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. Both fall and spring semester; DBN.

### 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. Both fall and spring semester; DBN.

**FRS 200 • Fire Behavior and Combustion**

3 credits

An overview of the theories and fundamentals of how and why fires start, spread and are controlled. Three lecture. Both fall and spring semester; DBN.

**FRS 201 • Fire Protection Systems**

3 credits

Focuses on information relating to the features of design and operation of fire alarm systems. Three lecture. Both fall and spring semester; DBN.

**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. Both fall and spring semester; DBN.

**FRS 203 • Fire Prevention**

3 credits

Summarizes the fundamental knowledge relating to the field of fire prevention. Students learn the 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. Three lecture. Both fall and spring semester; DBN.

**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. Three lecture. Both fall and spring semester; DBN.

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

3 credits

Summarizes the basic principles and history related to the national firefighter life safety initiatives, focusing on the need for cultural and behavioral changes throughout the emergency services. Three lecture. Both fall and spring semester; DBN.

**French (FRE)****FRE 100 • Beginning French Conversation**

3 credits

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

**FRE 101 • Elementary French I**

4 credits

 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. DBN.

**FRE 102 • Elementary French II**

4 credits

 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. DBN.

**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. Fall semester.

**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. Spring semester.

**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. Spring semester.

**Geology (GLG)****GLG 101 • Introduction to Geology I Physical Geology**

4 credits

 GLG 1101

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

**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. Both fall and spring semester.



## GLG 202 • Dinosaurs

3 credits

A review of dinosaur evolution, their taxonomy, ecology and physiology. Presents basic scientific techniques used to understand dinosaurs. **Prerequisite:** Satisfactory placement. Two lecture; three lab. DBN.

## 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. DBN.

### GER 101 • Elementary German I

4 credits

 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. DBN.

### GER 102 • Elementary German II

4 credits

 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. DBN.

## 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. DBN.

### 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. DBN.

### HPE 097A • Beginning Hula Dance

0.5 credit

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

### 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. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.

### HPE 097G • Western Line Dance

0.5 credit

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

### 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. DBN.

### 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. DBN.

### 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. DBN.

**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. Fall and spring semester; summer.

**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. Fall and spring semester; summer.

**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. Fall and spring semester; summer.

**HPE 106 • Aerobics**

1 credit

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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**HPE 192 • Square Dance**

1 credit

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

**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. DBN.

**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. DBN.

**Health Sciences (HES)****HES 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. Both fall and spring semester; summer.

**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. DBN.

**HES 103 • Direct Care Worker**

4 credits

Prepares the direct care worker (DCW) to provide assistance in a home setting with the focus on skills development in performing personal care tasks and home management. **Prerequisites:** Satisfactory Reading placement score and current CPR card. Three lecture; two lab. DBN.

**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. DBN.

**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. DBN.

**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; DPS Level 1 Fingerprint Clearance Card; 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. Two lecture; four lab. Both fall and spring semester; summer.

**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. Both fall and spring semester.

**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. Both fall and spring semester.

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

3 credits

Introduction to medical word roots, combining forms, prefixes, and suffixes needed to become familiar with medical terms used in healthcare settings. Three lecture. Both fall and spring semester.

**HES 180 • Basic Pharmacology**

3 credits

Body systems approach focusing on drug classifications. Includes basic math review, dosage calculations and medication administration methods. **Prerequisite:** HES 101 or MAT 101 or MAT 109 or higher. Three lecture. Spring semester.

**HES 190 • Human Body in Health and Disease**

4 credits

Basic concepts of human biology including anatomy, physiology, biochemistry, cytology, histology and pathology of body systems across the lifespan. *Does not meet Nursing Program prerequisites.*

**Prerequisite:** HES 170. Three lecture; three lab. Spring semester.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.



**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. DBN.

**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 CCP 088. Three lecture. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**HQO 240 • Advanced Loader Operation**

2 credits

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

**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. DBN.

**HQO 242 • Advanced Scraper Operation**

2 credits

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

**HQO 243 • Advanced Backhoe Operation**

2 credits

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

**HQO 244 • Advanced Excavator Operation**

2 credits

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

**HQO 245 • Advanced Forklift Operation**

2 credits

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

**HQO 246 • Advanced Dozer Operation**

2 credits

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

**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. DBN.

**HQO 248 • General Maintenance**

2 credits

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

**History (HIS)****HIS 101 • World History: Prehistory to 1450 CE**

3 credits

Survey of the rise of complex societies, the formation of classical civilizations worldwide, cross-cultural exchange, technological and environmental change, oceanic exploration and the origins of the modern world. **Prerequisite:** Satisfactory placement. Three lecture. Fall semester.

**HIS 102 • World History: 1450 CE to Present**

3 credits

Survey of world history from 1450 CE to the present including such topics as: empires, globalization, colonization, nationalism, slavery, exploration, global economic changes, industry, revolution and world wars. **Prerequisite:** Satisfactory placement. Three lecture. Spring semester.

**HIS 105 • U.S. History to 1877**3 credits  HIS 1131

Survey of the history of the United States from its beginning through the Civil War and Reconstruction. **Prerequisite:** Satisfactory placement. Three lecture. Both fall and spring semester; summer.

**HIS 106 • U.S. History since 1877**3 credits  HIS 1132

Survey of the history of the United States from the post-Civil War Reconstruction period to the present. **Prerequisite:** Satisfactory placement. Three lecture. Both fall and spring semester; summer.

**HIS 110 • Southwestern History**

3 credits

History of the U.S. Southwest with an emphasis on the history of Arizona, moving from prehistory to Puebloan and other Native American cultures, the arrival of the Spanish, Americans and 20th century developments. **Prerequisite:** Satisfactory placement. Three lecture. DBN.

**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. DBN.

**HIS 155 • Western Civilization to 1700**

3 credits

Traces origin and development of Western Europeans and their institutions from prehistory to the Enlightenment. **Prerequisite:** Satisfactory placement. Three lecture. DBN.

**HIS 156 • Western Civilization since 1700**

3 credits

Traces the origin and development of Western Europeans and their institutions and ideas from the Enlightenment to the present. **Prerequisite:** Satisfactory placement. Three lecture. DBN.

**HIS 201 • History of Women in America**

3 credits

Thematic survey of women's lives in North America with an emphasis on the impact of gender across lines of race, ethnicity, religion and nationality. **Prerequisite:** Satisfactory placement. Three lecture. DBN.

**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. DBN.

**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. DBN.

## 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. DBN.

## 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. DBN.

## 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. DBN.

## 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. DBN.

## 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. DBN.

## Honors Colloquia (HON)

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### 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. Each course is one lecture. HON 101 & 201 are fall semester; HON 102 & 202 are spring semester. (Enrollment restricted to NPC President's Scholars.)

## Human Development (HDE)

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### 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. DBN.

### 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. DBN.

### 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. DBN.

### HDE 105 • Success Strategies for College

3 credits

Introduces students to college life with a focus on general skills for success. Students learn to access a variety of resources that facilitate academic success, persistence and critical thinking skills. Three lecture. DBN.

## 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. DBN.

**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. DBN.

**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. DBN.

**HUS 140 • Group Dynamics**

3 credits SUN # COM 2271

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

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**Humanities (HUM)****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. Spring semester.

**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. Fall semester.

**Industrial Arts (INA)****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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**INA 182 • Measurements and Calculations for Upholsterers**

3 credits

Basic concepts of mathematics as they apply to the upholstery trade. Two lecture; two lab. DBN.

**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. DBN.

**INA 184 • Upholstery Sewing**

3 credits

Introduction to the basic sewing methods and equipment used in the upholstery trade. Two lecture; two lab. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.



**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. DBN.

## Information and Communication Technology (ICT)

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**ICT 095 • Skills for Online Learning**

0.5 credit

Examination and practice of basic skills necessary to successful online learning. One-quarter lecture; one-quarter lab. DBN.

**ICT 096 • Teaching Online Learning**

1 credit

Prepares students to teach ICT 095; covers rudimentary skills necessary to successful online learning and teaching. One-half lecture; one-half lab. DBN.

## Languages (LAN)

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**LAN 120 • Conversational Navajo I**

3 credits

Simple conversation in Navajo. Three lecture. DBN.

**LAN 121 • Conversational Navajo II**

3 credits

Review of grammar and phonetics. Development of speaking, reading and writing skills. **Prerequisite:** LAN 120. Three lecture. DBN.

**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. DBN.

**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. DBN.

**LAN 130 • Conversational Hopi I**

3 credits

Simple conversational Hopi. Three lecture. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

## 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. Both fall and spring semester; summer.

### 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. Both fall and spring semester; summer.

### 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. DBN.

### 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. DBN.

### 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. DBN.

### MAT 142 • College Mathematics with Contemporary Applications

3 credits  MAT 1142

An emphasis on developing quantitative skills and reasoning abilities covering management science, statistics, data analysis, probability, and social choice. **Prerequisite:** MAT 109 or satisfactory placement. Three lecture. Both fall and spring semester; summer.

### MAT 152 • Advanced Algebra

3 credits  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. Both fall and spring semester; summer.

### 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. Fall semester; summer.

### 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. Spring semester; summer.

### 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. Both fall and spring semester; summer.

### MAT 211 • Technical Calculus

4 credits  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. DBN.

### MAT 221 • Calculus I

4 credits  MAT 2220

An introduction to limits, continuity, differential and integral calculus of single variable functions and related applications. **Prerequisite:** MAT 189. Four lecture. Both fall and spring semester.

### MAT 231 • Calculus II

4 credits  MAT 2230

Topics include integration of proper and improper integrals with applications in geometry, science, engineering, mathematical modeling with differential equations, infinite series and analytic geometry. **Prerequisite:** MAT 221. Four lecture. Both fall and spring semester.

**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. Summer.

**Medical Assistant (MDA)****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. **Prerequisites:** BIO 160 or HES 190; HES 170. Three lecture; six lab. Fall semester.

**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; EMT 104 (or equivalent); HES 101 or MAT 101 or MAT 109 or higher. Co-requisites: BUS 119, HES 180. Three lecture; six lab. Spring semester.

**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 and NCMA certification exams. 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:** MDA 125 with grade of 'C' or better no earlier than the previous academic year or instructor permission; proof of required immunizations; and DPS Level 1 Fingerprint Clearance Card. One lecture; nine clinical. Spring semester; summer.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. Spring semester.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**MUS 235 • Music Theory III**3 credits  MUS 2222

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. DBN.

**MUS 236 • Music Theory IV**3 credits  MUS 2223

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. DBN.

**MUS 237 • Ear Training III**1 credit  MUS 2222

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. DBN.

**MUS 238 • Ear Training IV**1 credit  MUS 2223

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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**Nursing (NUR)****NUR 105 • Nursing Calculations**

1 credit

This course is designed to present mathematics necessary to convert between the American and metric systems of measurement, intake and output calculations, drug dosage calculations and determining IV flow rates in multiple formats, pediatric dosages. **Prerequisite:** Admission to Nursing Program. One lecture. DBN.

**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. Spring semester.

**NUR 117 • Pharmacology I**

2 credits

Introduces student to use of pharmacological agents and provides theoretical development of competence in the safe and accurate administration of medications. **Prerequisite:** Enrollment in Nursing Program or instructor permission. Two lecture. Fall semester.

**NUR 118 • Pharmacology II**

2 credits

Extends student knowledge in the use of pharmacological agents. Theoretical development of competences in 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. Spring semester.

**NUR 121 • Nursing I**

8 credits

Focus on practice in the nursing student role with emphasis on the client's admission to and movement within the health care system, the student's development as a caring, competent nurse within the legal/ethical framework of the profession, and development of critical thinking and communication skills. **Prerequisite:** Admission into nursing program. Four lecture; eight clinical; four lab. Fall semester.



## NUR 122 • Nursing II

8 credits

Focus on nursing care for individuals and families with chronic health conditions in well-defined practice settings. Emphasis on basic management concepts and continued development of critical thinking, nursing judgment and skills. **Prerequisites:** NUR 117 and NUR 121. Four lecture; eight clinical; four lab. Spring semester.

## 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. DBN.

## 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. Spring semester.

## 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. Spring semester.

## NUR 221 • Nursing III

8 credits

Focus on nursing care of individuals and families experiencing developmental milestones. Includes group theory and nursing therapeutics related to parenteral therapy, assisting the client through acute health care issues, 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 lab. Fall semester.

## NUR 222 • Nursing IV

8 credits

Focus on the impact of acute health care conditions on individuals, families and groups. Emphasis is on synthesis and application of nursing therapeutics as students continue to develop in the role of the professional nurse with an introduction to organizational transitions. **Prerequisite:** NUR 221. Four lecture; eight clinical; four lab. Spring semester.

## 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. Students must obtain an Arizona Temporary Refresher License and DPS fingerprint clearance prior to start of course. **Prerequisite:** Eligible for Arizona State Board of Nursing RN License. Both fall and spring semester.

## Nursing Assistant Training (NAT)

### NAT 101 • Nursing Assistant Training

5 credits

Prepares students to assume the role and responsibilities of a nursing assistant within community health settings with a focus on long-term care. Complies with federal (OBRA) guidelines and preparation for the Arizona State Board of Nursing certification examination. **Prerequisite:** Satisfactory reading and math placement. **Co-requisite:** Healthcare Provider CPR and First Aid certification (EMT 104, or equivalent). Three lecture; three lab; three clinical. Additional costs and requirements will apply. See page 100. Both fall and spring semester; summer.

## Pharmacy Technician (PHT)

### 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 128-hour paid or unpaid externship. Provides instruction required to pass the national examination of the Pharmacy Technician Certification Board (PTCB). **Prerequisites:** 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 Requirements:** Prior to starting the clinical externship, DPS Level 1 Fingerprint Clearance Card and Pharmacy Technician Trainee license from the Arizona State Board of Pharmacy must be obtained. **Proof of legal US residency is required to obtain trainee license.** Five lecture; two lab; 8 clinical. Both fall and spring semester.

## Philosophy (PHL)

### 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. Both fall and spring semester.

### PHL 103 • Introduction to Logic and Critical Thinking

3 credits  PHI 1103

An introduction to the basic concepts of deductive and inductive logic. Covers informal fallacies, validity and soundness. Students learn elementary symbolic logic, methods of inductive reasoning and basics of scientific method. **Prerequisite:** Satisfactory placement. Three lecture. Both fall and spring semester.

### 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. Both fall and spring semester.

### 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. DBN.

## Photography (PHO)

### 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. DBN.

### PHO 101 • Digital Photography

3 credits • See ART 121

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. DBN.

### 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. DBN.

### PHO 200 • Intermediate Photography

3 credits

Techniques and processes in creating fine photographic images. **Prerequisite:** PHO 100 or instructor permission. Two lecture; two lab. DBN.

### PHO 201 • Intermediate Digital Photography

3 credits • See ART 221

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. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.

### PHO 230 • View Camera Photography

3 credits

Practical use of the large format view camera. **Prerequisite:** PHO 200 or 220. Two lecture; two lab. DBN.

## 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. DBN.

## 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. DBN.

## 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. DBN.

## 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. DBN.

## 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. DBN.

## Physics (PHY)

### PHY 113 • General Physics I

4 credits  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. DBN.

### PHY 114 • General Physics II

4 credits  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. DBN.

## Political Science (POS)

### POS 110 • American Government

3 credits  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. Both fall and spring semester.

### 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. DBN.

### 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. Both fall and spring semester; summer.

### 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. Both fall and spring semester; summer.

## Psychology (PSY)

### PSY 101 • Introduction to Psychology

3 credits  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. Both fall and spring semester; summer.

### 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. DBN.

**PSY 230 • Introduction to Psychological Statistics**

3 credits

Basic concepts in descriptive and inferential statistics, emphasizing applications to psychology. **Prerequisites:** PSY 101 or PSY 240 and MAT 142 or MAT 152 or equivalent placement scores in mathematics. Three lecture. DBN.

**PSY 231 • Principles of Learning**

3 credits

Methods, principles, applications and theoretical issues of learning. **Prerequisite:** Satisfactory placement. Three lecture. DBN.

**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. Both fall and spring semester; summer.

**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. DBN.

**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. DBN.

**PSY 290 • Research Methods in Psychology**

4 credits

Basic concepts in research methodology, emphasizing applications to psychology. **Prerequisite:** PSY 230. Four lecture. DBN.

**Sociology (SOC)****SOC 101 • Introduction to Sociology**3 credits  SOC 1101

Fundamentals of sociology, organization of human groups and society and processes of interaction and social change. **Prerequisite:** Satisfactory reading and writing placement. Three lecture. Both fall and spring semester.

**SOC 121 • Social Problems in America**3 credits  SOC 2250

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. DBN.

**SOC 212 • Sex and Gender in Society**

3 credits

Social processes that shape the construction of gender in society. The role of major social institutions in these processes, including distinguishing sex and gender, gender identity, sexual orientation and gender inequality. **Prerequisite:** Satisfactory reading and writing placement. Three lecture. DBN.

**SOC 215 • Ethnicity and Race**3 credits  SOC 2215

Examines the social construction of race and patterns of ethnic relations with an emphasis on the social histories and contemporary diversity of ethnic groups in the United States. Analyzes concepts of prejudice and discrimination, segregation and assimilation. **Prerequisite:** Satisfactory reading and writing placement. Three lecture. DBN.

**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. DBN.

**Spanish (SPA)****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. DBN.

**SPA 101 • Elementary Spanish I**4 credits  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. DBN.

**SPA 102 • Elementary Spanish II**4 credits  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. DBN.

**SPA 201 • Intermediate Spanish I**4 credits  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. DBN.



## SPA 202 • Intermediate Spanish II

4 credits  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. DBN.

## 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. DBN.

## Speech, Theatre and Film (SPT)

### SPT 110 • Fundamentals of Oral Communications

3 credits  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. DBN.

### 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. DBN.

### 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. DBN.

### 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. Both fall and spring semester.

### SPT 140 • Principles of Drama

3 credits  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. DBN.

### 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. Spring semester.

### 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. Fall semester.

### 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. DBN.

### SPT 171 • Intermediate Acting

3 credits

A continuation of acting training with the use of Meisner techniques designed to develop self-awareness, rehearsal skills and application of action to a dramatic text. **Prerequisite:** SPT 170 or instructor permission. Two lecture; two lab. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.

### 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. DBN.



**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**SPT 275 • Acting for the Musical Theatre**

3 credits

Development of performance skills for the actor interested in musical theatre, with an emphasis on the singing voice, physical movement, and acting preparation for interpreting songs. Two lecture; two lab. DBN.

**Student Topics (STU)****STU 098x • College Success Strategies**

0 credit

Student learn to access various college resources, guidance and support from faculty, staff and peers to fully develop academic and life skills. Emphasis placed on increasing student success through personal growth, study skills development, and educational planning. Topics to promote learning, understanding, critical-thinking skills and perseverance in college. One lecture. DBN.

**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. Fall and spring semester; DBN.

**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. Fall and spring semester; DBN.

**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. **Prerequisite:** WLD 130. One lecture; four lab. Fall and spring semester; DBN.

**WLD 134 • Fundamentals of Plastic Welding**

3 credits

Fundamentals of plastic welding introduces theories pertaining to: thermoplastics welding techniques, plastic identification processes, fusion welding, chemical welding processes and thermoset plastics. **Prerequisite:** WLD 100 or CON 100 or CON 107 or ATO 103 or instructor permission. Three lecture. Fall and spring semester; DBN.

**WLD 170 • Metal Preparation, Quality and Alignment**

2 credits

The student will be exposed to welding quality control methods, metal preparation techniques and alignment. Additionally, fitting and welding base metal joints. **Co-requisite:** WLD 100 or instructor permission. Two lecture. Fall and spring semester; DBN.

**WLD 171 • Welding Cutting Processes**

2 credits

Students are introduced to oxy-fuel cutting (OFC), plasma arc cutting (PAC), and carbon arc cutting (CAC). **Co-requisite:** WLD 100 or instructor permission. Two lecture. Fall and spring semester; DBN.

**WLD 172 • SMAW ARC**

3 credits

The student is introduced to: shielded metal arc welding (SMAW) and its equipment setup; shielded metal arc welding beads and fillet welds using only shielded metal arc welding technology. **Co-requisite:** WLD 100 or instructor permission. Half lecture; five lab. Fall and spring semester; DBN.

**WLD 173 • SMAW Open Root Plate**

2 credits

Students are introduced to shielded metal arc welding, open V-Groove welds using appropriate equipment, advanced training in the fabrication of out of position welding (using shielded metal arc welding), and open V-Groove welds using appropriate equipment. **Co-requisite:** WLD 100 and WLD 172 or instructor permission. Half lecture; three lab. Fall and spring semester; DBN.

**WLD 174 • SMAW V-Groove with Backing**

2 credits

Shielded metal arc welding groove welds with backing and their manufacture uses and the use of shielded metal arc welding equipment. **Co-requisite:** WLD 100 and WLD 172 or instructor permission. One lecture; two lab. Fall and spring semester; DBN.

**WLD 175 • GMAW Plate**

3 credits

An introduction to: gas metal arc welding (GMAW) equipment and filler metals; gas metal arc plate and the fabrication of GMAW fillet welds on plate in all positions. **Co-requisite:** WLD 100 or instructor permission. Two lecture; two lab. Fall and spring semester; DBN.

**WLD 176 • FCAW Plate**

3 credits

An introduction to: flux cored arc welding (FCAW) equipment and filler metals and the fabrication of FCAW fillet welds and groove welds using the flux cored arc welding process. **Co-requisite:** WLD 100 or instructor permission. Two lecture; two lab. Fall and spring semester; DBN.

**WLD 177 • GTAW (TIG) Plate**

3 credits

A comprehensive study of gas tungsten arc welding (GTAW) equipment and filler metals and the fabrication of groove welds in mild steel plate with the GTAW process. **Co-requisite:** WLD 100. One lecture; four lab. Fall and spring semester; DBN.

**WLD 178 • Metallurgy, Drawing, and Symbols**

2 credits

The student is introduced to physical characteristics and mechanical properties of metal. Additionally, pre-heating and post-heating weld heat treatment requirements as related to specific base metal types are explored. Students are introduced to weld detail drawing and welding symbols. **Co-requisites:** WLD 100 and WLD 170 or instructor permission. Two lecture. Fall and spring semester; DBN.

**WLD 179 • AWS Prep**

2 credits

Prepares the student to meet the requirements of the AWS Level I Entry Level Welder, requirements more comprehensive than the NPC general welding curriculum. When linked with WLD 200, WLD 179 prepares the student to sit for the nine-part AWS national certification exam. **Prerequisite:** Level I & II Certificate of Proficiency or instructor permission. Half lecture; three lab. Fall and spring semester; DBN.

**WLD 200 • AWS Certification**

4 credits

This is the final certification requirement as an American Welding Society Entry Level Welder (Level I). Successful completion of this course earns the student the AWS Entry Level Welder certification as required by AWS EG2.0. **Prerequisite:** All welding 100-level courses in the Level I and II Certificates of Proficiency or instructor permission. Three lecture; two lab. Fall and spring semester; DBN.

**WLD 280 • GMAW (MIG) Pipe**

3 credits

Introduces the student to gas metal arc welding pipe along with GMAW equipment and filler metals appropriate for the fabrication of pipe welded joints. **Co-requisites:** WLD 100 and WLD 175 or instructor permission. Two lecture; two lab. Fall and spring semester; DBN.

**WLD 281 • FCAW Pipe**

3 credits

Introduces the student to flux cored arc welding pipe along with FCAW equipment and filler metals appropriate for the fabrication of pipe welded joints. **Co-requisites:** WLD 100 and WLD 176 or instructor permission. Two lecture; two lab. Fall and spring semester; DBN.

**WLD 282 • GTAW CS Pipe**

3 credits

Introduces the student to gas tungsten arc welding open root pipe along with GTAW equipment and filler metals appropriate for the fabrication of carbon steel pipe welded joints. **Co-requisites:** WLD 100 and WLD 177 or instructor permission. One lecture; four lab. Fall and spring semester; DBN.

**WLD 283 • GTAW LA and SS Pipe**

3 credits

Introduces the student to gas tungsten arc welding open root pipe along with GTAW equipment and filler metals appropriate for the fabrication of stainless steel and low alloy pipe welded joints. **Co-requisites:** WLD 100 and WLD 177 or instructor permission. One lecture; four lab. Fall and spring semester; DBN.

**WLD 284 • SMAW CS Pipe**

3 credits

The performance of open root pipe welds in the 1G, 2G, 5G, and 6G positions using shielding metal arc welding is explored. Specifically, fast freeze electrodes for the root pass and low hydrogen electrodes for the fill and cover passes will be covered. **Co-requisites:** WLD 100 and WLD 173 or instructor permission. One-Half lecture; five lab. Fall and spring semester; DBN.

**WLD 288 • Advanced Topics in Welding: Aluminum**

6 credits

Instruction in how to weld one of the most difficult alloys: Aluminum. Learning the set up of GMAW and GTAW equipment for welding aluminum plate and pipe. Trainees clean and prepare coupons for welding; avoiding problems often encountered in aluminum welding processes. **Prerequisite:** All courses in Welding Certificates of Proficiency Levels I, II, and III or instructor permission. Two lecture; eight lab. Fall and spring semester; DBN.

**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. Fall and spring semester; DBN.

**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:** WLD 100 and instructor permission. Ten lab. Fall and spring semester; DBN.

**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 credits

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. DBN.

**099/199 • Workshop**

0.5 to 6 credits

Courses designed to meet the common interests and problems of a group of students. Course topics vary according to the needs of students involved. DBN.

**298 • Portfolio**

1 to 3 credits

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. DBN.

**299 • Special Topics**

0.5 to 4 credits

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. DBN.