



# 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 65)

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 61 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)

### 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)

### ANT 102 • Cultural Anthropology

3 credits

Introduction to culture and language. Includes variations in subsistence strategies, social organization, religion, and disease theory systems. Patterns of culture change and the modern world system. **Prerequisite:** Satisfactory placement. Three lecture. Fall semester. Both fall and spring semesters.

### 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 • Native American Cultures of the Southwest

3 credits

A survey of the cultures of Native Americans of the Southwestern United States and Northern Mexico. **Prerequisite:** Satisfactory placement. Three lecture. DBN.

### ANT 210 • Southwestern Archaeology

3 credits

Past societies of the Greater Southwest and their relation to present societies. **Prerequisite:** Satisfactory placement or instructor permission. Three lecture. DBN.

## Art (ART)

### 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 semesters.

### 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. Both fall and spring semesters.

### 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. Both fall and spring semesters.

### 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. Both fall and spring semesters.

**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. 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. Both fall and spring semesters.

**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. Both fall and spring semesters.

**ART 185 • Handbuilding 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. Both fall and spring semesters.

**ART 186 • Clay Sculpture**

3 credits

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

**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. Both fall and spring semesters.

**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. Both fall and spring semesters.

**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. Both fall and spring semesters.

**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. Both fall and spring semesters.



**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. Both fall and spring semesters.

**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. Both fall and spring semesters.

**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 251 • Photography as an Art Medium**

3 credits

Survey of significant trends, philosophies and experimentation in photography from 1839 to the present. Non-technical in nature and is designed for the photography or non-photography student. Three lecture. 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. Both fall and spring semesters.

**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. Both fall and spring semesters.

**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)****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 semesters.

**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 semesters.

**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 semesters.

**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 semesters.

**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 semesters.

**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 semesters.

**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 semesters.

**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 semesters.

**ATO 114 • Brake Systems I**

3 credits

The repair and maintenance of the vehicle hydraulic braking systems, power brake systems and wheel bearings will be examined in a hands-on setting. Two lecture; two lab. Both fall and spring semesters.

**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 semesters.

**ATO 116 • Introduction to Auto and Safety**

2 credits

Covers various aspects of the automotive industry from safety regulations, procedures for a safe work environment, automotive-related tools, Globally Harmonized System for Hazardous Materials, and vehicle checklists for maintenance. One lecture; two lab. Both fall and spring semesters; summer.

**ATO 118 • Electrical I**

3 credits

Generally covers the automotive electronics and electrical systems used in modern vehicles. Diagnostics, basic electrical theories, and troubleshooting of malfunctioning electrical systems are additionally explored. Introductory electrical tools and equipment are used for training purposes. **Prerequisite:** ATO 116 or instructor permission. Two lecture; two lab. Both fall and spring semesters; summer.

**ATO 120 • Electrical II**

3 credits

Covers automotive batteries, starting, and charging systems. Students perform diagnosis, repair and replacement of the components and subsystems related to batteries, starters, and chargers. **Prerequisite:** ATO 118 or instructor permission. One lecture; four lab. Both fall and spring semesters; summer.

**ATO 122 • Electrical III**

3 credits

Explores the diagnosis and repair of lighting, instrument cluster, driver information, and body electrical systems encompassed in automobiles. **Prerequisite:** ATO 120 or instructor permission. One lecture; four lab. Both fall and spring semesters; summer.

**ATO 124 • Engine Repair I**

3 credits

Encompasses the basics of testing and diagnosis for engine components using a variety of techniques. Explores conditions of systems from the general engine, cylinders, valve trains, cooling systems, and lubrication. **Prerequisite:** ATO 116 or instructor permission. One lecture; four lab. Both fall and spring semesters; summer.

**ATO 126 • Engine Repair II**

3 credits

Expands upon the basics of testing and diagnosis for engine components. Revisits topics from ATO 124 including: conditions of systems from the general engine, cylinders, valve trains, cooling systems, and lubrication. **Prerequisite:** ATO 124 or instructor permission. Two lecture; two lab. Both fall and spring semesters; summer.

**ATO 128 • Engine Performance I**

3 credits

Explore general topics related to engine performance and computerized controls related to the drivability and performance of a vehicle. **Prerequisite:** ATO 116 or instructor permission. Two lecture; two lab. Both fall and spring semesters; summer.

**ATO 130 • Engine Performance II**

3 credits

Explores automotive topics related to fuel, air induction, exhaust and emission control systems related to safe operation and performance of a motorized vehicle. **Prerequisite:** ATO 128 or instructor permission. Two lecture; two lab. Both fall and spring semesters; 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. DBN.

**ATO 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. Both fall and spring semesters; summer.

**ATO 201 • Automotive Fundamentals & Basic Service**

3 credits

Overview of major vehicle components and basic automobile maintenance techniques for a novice technician. Intended as an introduction to those seeking basic vehicle maintenance skills in automotive applications. Two lecture; two lab. Both fall and spring semesters; summer.

**ATO 203 • Exploring Employment Opportunities**

1 credit

Prepares students for career opportunities within the automotive industry by focusing on career skills development, job placements, site visits and guest speakers. **Prerequisite:** Instructor permission. Half lecture; one lab. Both fall and spring semesters; 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 semesters.

**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 semesters.

**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 semesters.

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

3 credits

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

**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 semesters.

**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 semesters; summer.

**ATO 216 • Suspension and Steering**

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:** ATO 116 or instructor permission. Three lecture; two lab. Both fall and spring semesters; summer.

**ATO 218 • Automatic Transmissions**

4 credits

Covers general automatic transmission, introduces continuously variable transmissions and trans-axle diagnosis in vehicle repair and maintenance. **Prerequisite:** ATO 116 or instructor permission. Two lecture; four lab. Both fall and spring semesters; summer.

**ATO 220 • Manual Transmissions and Drive Trains**

4 credits

Covers manual transmissions and drive trains as pertinent to automotive repair and service on related systems. **Prerequisite:** ATO 116 or instructor permission. Two lecture; four lab. Both fall and spring semesters; summer.

**ATO 222 • Brake Systems**

4 credits

Covers operation, inspection, repair and maintenance of the brake hydraulic systems, power brake systems and wheel bearings. **Prerequisite:** ATO 116 or instructor permission. Three lecture; two lab. Both fall and spring semesters; summer.

**ATO 224 • HVAC Systems**

4 credits

Covers operation, diagnosis, service and repair of automotive heating and air conditioning systems. **Prerequisite:** ATO 116 or instructor permission. Three lecture; two lab. Both fall and spring semesters; summer.

**ATO 226 • Automotive Diesel**

4 credits

Introduces diesel engines and the related concepts of maintenance and repair. **Prerequisite:** ATO 116 or instructor permission. Three lecture; two lab. Both fall and spring semesters; summer.

**ATO 230 • Hybrid Vehicles**

3 credits

Explores different mechanical layouts of hybrid powertrains and the energy management systems that control the hybrid powertrain modes and battery charging and discharging. The inter-relationship of performance and complexity in the powertrain is explored along with the sizing of powertrains from micro, mild, full hybrids, and plug-in hybrids. **Prerequisite:** ATO 116 or instructor permission. Two lecture; two lab. Both fall and spring semesters; summer.

**ATO 234 • High Performance Engines**

3 credits

Advanced applications of skills related to assembling performance engines using advanced components. Immersive examples in comprehensive engine building processes; applicability to various engine configurations from V8 to horizontally opposed. **Prerequisite:** ATO 130 or instructor permission. Two lecture; two lab. DBN; Summer.

**Biology (BIO)****BIO 100 • Biology Concepts**

4 credits

Survey of biological principles: scientific inquiry, matter, energy, cell structure and function, reproduction, genetics, evolution, diversity of life, and ecology. *Does not satisfy requirements for enrollment in advanced biology courses.* **Prerequisite:** Satisfactory placement. Three lecture; three lab. Fall semester.

**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

Structure and function of the human body examined from interactions that take place at the chemical level up through the level of the whole organism. **Prerequisite:** Satisfactory placement. Three lecture; three lab. Spring semester.

**BIO 181 • General Biology I**4 credits  BIO 1181

Principles of biological science at the molecular and cellular level: the chemistry of life, cell structure and function, genetics and evolution. *Requirement for all advanced biology courses.* **Prerequisite:** Satisfactory placement. Three lecture; three lab. Both fall and spring semesters; summer.

**BIO 182 • General Biology II**4 credits  BIO 1182

Structure and function of living things at the organismic and higher levels of the biological hierarchy. Includes exploration of: mechanisms of evolution, biological diversity, and principles of ecology. **Prerequisite:** BIO 181. Three lecture; three lab. Spring semester.

**BIO 183 • Marine Biology**

3 credits

Students use the scientific method to learn about marine biology and oceanography, including the unifying principles of evolution, ecology, and plate tectonics. Emphasizes the natural history and phylogenetics of marine life. Discusses diverse habitats including estuaries, reef systems, deep sea, and open ocean. **Prerequisite:** Satisfactory placement. Two lecture; three lab. DBN.

**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. Both fall and spring semesters.

**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. Both fall and spring semesters.

**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. Both fall and spring semesters.

**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)

### **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. Online fall semester and summer.

### **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. Spring semester and online 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 and online summer.

### **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. Online spring semester.

### **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. Both fall and spring semesters; online summer. *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. Online 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. Online fall 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. Online 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. Online fall 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. Online spring semester and summer.

### **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. Online 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. Online 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. Fall semester; online spring semester and summer.

### **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. Online spring semester.

### **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 semesters; 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. Online fall 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. Both fall and spring semesters.

**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. Both fall and spring semesters.

**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. Both fall and spring semesters.

**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 semesters.

**BUS 182 • Records Management**

3 credits

Covers types of records management systems and approaches to filing including developments in digital data storage. Three lecture. Online fall 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. Online 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 input data to create and maintain comprehensive and accurate electronic health records. Three lecture. Online 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. Online fall 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. Fall semester; online 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. Online fall and spring semester; online 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. Online 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. Fall semester; online 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. Online 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. Online 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. Fall semester; online spring semester.

### **BUS 218 • Principles of Managerial Accounting**

3 credits

Covers accounting equity issues, statements of change in financial position, analysis of financial statements and cost accounting. **Prerequisite:** BUS 217. Three lecture. Spring semester; online fall 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. Online spring 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. Online 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. Online 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. Online fall 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. Spring semester; online fall semester.

### **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. Both fall and spring semesters.

### **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. Online 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 semesters; 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.

**Child and Family Studies (CFS)****CFS 100 • Infant-Toddler Social and Emotional Development**

3 credits

Study of the social and emotional development of infants and toddlers. Examines the infant-toddler and caregiver relationship as the foundation for social and emotional development. Addresses strategies for supporting social and emotional development including children's autonomy, positive self-concept and social competence. **Prerequisite:** ECD 250 or ECD 147, 148 and 149 combined or department permission. One and a half lecture; three practicum. DBN.

**CFS 101 • Infant-Toddler Cognitive Development**

3 credits

Examines the development of the cognitive domain in infants and toddlers. Explores influences on development and assessment of typical and atypical cognitive development. Addresses appropriate planning and implementation of a variety of strategies that support cognitive and sensory learning in infants and toddlers. **Prerequisite:** ECD 250 or ECD 147, 148 and 149 combined or department permission. One and a half lecture; three practicum. DBN.

**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 semesters; 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 semesters; 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 semesters; 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 semesters; 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 semesters; 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 semesters; 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 semesters; 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 semesters; 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 semesters; 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 semesters; 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 semesters.

**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 semesters; 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 semesters; 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 semesters; 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 semesters.

**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 semesters; 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 semesters; 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. DBN.

**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. DBN.

**CCP 106 • Workforce Skills I**

3 credits

Enhances soft skills necessary for success in the workplace. Instruction and practice are provided in the areas of Reading for Information, Applied Mathematics, and Locating Information, as they are applied directly in the workplace. Two lecture; two lab. Fall semester; DBN.

**CCP 107 • Workforce Skills II**

3 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:** Successful completion of CCP 106/HDE 106 or CCP 103/HDE 103 or instructor permission. Two lecture; two lab. Spring semester; DBN.

**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 semesters.

**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 112 • Introduction to Programming II**

3 credits

A continuing introduction to programming with an emphasis on problem-solving and the broader applicability of relevant data structures and programming concepts, as well as the implementation of those structures and concepts in software. **Prerequisite:** CIS 111 or instructor permission. Two lecture; two lab. Fall semester.

**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. Spring 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 mobile devices; networking; hardware; virtualization and cloud computing; and network and hardware 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 operating systems; 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

Prepares students for the CompTIA Security+ Certification examination. Topics include threats, attacks and vulnerabilities; technologies and tools; architecture and design; identity and access management; risk management; cryptography and public key infrastructure. **Prerequisite:** CIS 130 or instructor permission. Three lecture. Spring semester.

**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. Spring 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. Fall 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. Spring semester.

**CIS 190 • JavaScript Programming**

3 credits

Provides students with the necessary knowledge and skills to design and develop JavaScript programs in order to build dynamic websites and applications. **Prerequisite:** CIS 111 and CIS 187 or instructor permission. Two lecture; two lab. Fall 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. Fall semester.

**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. Fall semester.

**CIS 227 • C# Programming**

3 credits

An introduction to the C# programming 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. Spring semester.

**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. Spring 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 265 • Web Programming**

3 credits

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

**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. Spring 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.

## 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 semesters.

### 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 semesters.

### 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 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 semesters.

### 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. **Prerequisite:** CON 107 or CON 102 or instructor permission. Two lecture; two lab. Both fall and spring semesters.

### CON 121 • Cabinetmaking I

3 credits

Covers the design and fabrication of wood and composition cabinets. Topics include: shop safety, cabinet style, materials, face frame construction, casework construction, basic cabinet joints, gluing techniques, finish preparation, and installation methods. **Prerequisite:** CON 102 or CON 107 or instructor permission. Two lecture; two lab. DBN.

### 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 semesters.

### 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 semesters.

### 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. Spring semester.



**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 140 or instructor permission. Two lecture; two lab. Fall semester.

**CON 205 • Masonry Fundamentals**

3 credits

Explores masonry topics ranging from basic terminology, tools used in the industry, products used for installation, construction document interpretation, and mortar mixing. **Prerequisite:** CON 102 or instructor permission. Two lecture; two lab. (Limited to ADOC students)

**CON 206 • Masonry Installation**

3 credits

Introduces masonry units (concrete masonry units and modular units), cutting techniques, layout techniques, and reinforcing materials will be examined as they pertain to the building process. **Prerequisite:** CON 102 or instructor permission. Two lecture; two lab. (Limited to ADOC students)

**CON 207 • Residential Masonry**

4 credits

Explores concepts of residential masonry products as they pertain to foundations, patios, steps, and decks. Additionally, covers topics in clay brick, stonework, and mortar. **Prerequisite:** CON 120 or instructor permission. Two lecture; four lab. (Limited to ADOC students)

**CON 208 • Structural Masonry**

4 credits

Expands upon ideas covered in CON 206; masonry units (concrete masonry units and modular units), cutting techniques, layout techniques, and reinforcing materials will be revisited as they pertain to the building process. **Prerequisite:** CON 206 or instructor permission. One lecture; six lab. (Limited to ADOC students)

**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 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

Examines the role of professionals in the construction process to promote sustainability. Explores the impact construction activities have on: land development, material usage, energy consumption, environmental design considerations, and manufacturing processes are explored. **Prerequisite:** CON 102 or instructor permission. Three lecture. Fall semester.

**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 semesters.

### **COS 108 • Business Skills II**

3 credits

Continuation of COS 107. Emphasis continues in further training in customer service, work ethics, and professionalism in the work place. **Prerequisite:** COS 107. Five and six-tenths lab. Both fall and spring semesters.

### **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 semesters.

### **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 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 semesters.

### **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 semesters.

### **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 semesters.

### **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 semesters.

### **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 semesters.

### **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 semesters.

### **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 semesters.

### **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 semesters.

### **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 semesters.

**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 semesters.

**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 semesters.

**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 semesters.

**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 semesters.

**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 semesters.

**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 semesters.

**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 Educator**

1 credit

Overview of legal and ethical topics relevant to the Cosmetology Educator 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 Educator**

2 credits

Introduces students to safety concepts to be used as a potential Cosmetology Educator 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 Educators 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 Educator 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 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 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.

## 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-requisite:** 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. Both fall and spring semesters.

### 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. Both fall and spring semesters.

### ECD 112 • Enhancing Family and Community Engagement

1 credit

Overview of a parent, family and community engagement framework used in early childhood systems. Reviews research and assesses the value of family engagement as a fundamental strategy to promote children's learning and healthy development. One-half lecture; one practicum. 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 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. Both fall and spring semesters.

**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 141 • Healthy and Safe Early Childhood Practices**

2 credits

Provides an overview of policies, regulations and strategies that ensure young children's safety, health and well-being in a variety of early childhood settings serving children birth through age eight. Covers concepts of nutrition, environmental influences on development, physical activity, and safe sleep and playground practices. Addresses strategies for engaging families in healthy and safe practices in the home. One lecture; two practicum. Both fall and spring semesters.

**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. Both fall and spring semesters.

**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 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 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. Both fall and spring semesters.

**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. Both fall and spring semesters.

**ECD 184 • Early Social and Emotional Development**

2 credits

Overview of children's social and emotional development from birth through age eight. Explores instructional strategies and techniques to build young children's social-emotional competence, promote positive self-concepts, and support self-regulation in the early years. Emphasizes the child-adult relationship as the foundation for trusting, positive interactions with peers and adults. One lecture; two practicum. 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. Both fall and spring semesters.

**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. Both fall and spring semesters.

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

3 credits

Provides an overview of early childhood education including programs, policies and curriculum. Offers opportunities to design environments and instructional strategies using developmentally effective practices. Emphasizes play and constructivism as a means for supporting children's learning in settings serving children birth through age five.

**Prerequisite:** Satisfactory placement or instructor permission. 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. Both fall and spring semesters.

**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. Both fall and spring semesters.

**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 or instructor permission. One and a half lecture; three practicum. 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 methods and approaches to tutoring, including qualities, goals, strategies and implementation guidelines for the development of effective tutoring relationship. One lecture. Both fall and spring semesters; summer.

### 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, as well as basic math, computer and life skills. **Prerequisite:** EDU 101. One lecture. Both fall and spring semesters; summer.

### 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, ethical and legal aspects and foundations of education are examined. **Prerequisite:** Satisfactory placement. Three lecture. Both fall and spring semesters.

### 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. Spring semester; summer.

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

### 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 semesters.

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

3 credits

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

### 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 semesters.

### 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)

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### EMT 104 • Healthcare Provider CPR and First Aid

0.5 credit

Designed to certify the student in CPR (HealthCare Provider level) and First Aid (American Heart Association or ASHI). One-half lecture. Both fall and spring semesters.

### 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 semesters.

### EMT 131 • Emergency Medical Technician – Basic

8 credits

Students learn skills to recognize and properly treat illness and injury in the pre-hospital setting. Successful completion of the course provides eligibility to take the certification exam through the National Registry of EMTs and the Arizona Department of Health Services. **Prerequisites:** Current Healthcare Provider CPR certification and satisfactory placement; successful completion of EMT 130 is required unless documented proof of prior experience or equivalent class and successful completion of course final. Must be 18 years of age to test NREMT. Eight lecture; one and one quarter clinical. Both fall and spring semesters.

### 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 semesters.

### EMT 135 • EMT IVC

1 credit

Designed for the EMT BASIC technician to develop intravenous skills and provide advanced care for improved patient outcomes. **Prerequisites:** Current certification as an EMCT-B in the State of Arizona. Require written approval from the EMCT EMS provider agency and from an administrative medical director who agrees to provide medical direction. Half-hour lecture; one and one-half clinical. DBN.

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

3 credits

Content includes cardiac electrophysiology, basic heart rhythms, introduction to 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 semesters.

### EMT 246 • Paramedic Training I

20 credits

Develops advanced knowledge and skills for recognition and appropriate management of illness and injury in the pre-hospital setting. **Prerequisites:** EMT 240, Current Arizona State Certified EMT for at least 1 year, satisfactory placement or “C” or better in ENL 101, current Healthcare Provider CPR, negative TB test result within last 6 months, MMR, Hep B immunization or signed waiver, current Tdap. Sixteen lecture; fourteen clinical. Fall semester.

### EMT 247 • Paramedic Training II

22 credits

Develops advanced knowledge and skills for recognition of and appropriate management of illness and injury in the pre-hospital setting. Successful completion provides the opportunity to test for certification by the National Registry of EMTs and the Arizona Department of Health Services. **Prerequisites:** EMT 246. Current AZ State EMCT Certification. Sixteen lecture; eighteen clinical. Spring semester.

## Energy and Industrial Technician (EIT)

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### 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. 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. 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. 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. 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. 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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. 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. 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. 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. 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. 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. 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. 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. 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. DBN.

**EIT 215 • Introduction to Steam Systems**

3 credits

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

**EIT 216 • Natural Gas Combustion Turbine and Heat Recovery Steam Generation Theory**

6 credits

Principles and applications of natural gas combustion turbines that drive generators that produce electricity. Four lecture; four lab. 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. 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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**EIT 241 • Hydraulic Troubleshooting**

4 credits

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

**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. DBN.

**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. DBN.

**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. DBN.

**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. DBN.

**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 semesters; 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 semesters; 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 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

Introduction to Native-American literature, including the relationship between oral traditions and literacy fiction, drama, poetry and non-fiction 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 115 • Introduction to Graphic Communication Technology**

3 credits

Introduction to the conceptualization, visualization and production of graphic communications using the computer as designer, illustrator and photographer's tool in digital applications. Two lecture; two lab. DBN.

**FDV 116 • Computer Photographic Imaging**

3 credits

Introduction to digital editing of images and the process of digital imaging through the use of digital editing applications. Basic foundation in the use of Adobe Photoshop software as a photographic and design tool for digital imaging. Two lecture; two lab. DBN.

**FDV 118 • Two-Dimensional Computer Design**

3 credits

Introduction to two-dimensional digital imaging. Basic foundation in the use of Adobe Illustrator software as an illustrator and designer's tool. Two lecture; two lab. DBN.

**FDV 119 • Digital Page Layout and Design**

3 credits

Introduction to digital page layout and design using industry standard layout and design software. Basic foundation in the production of professional document types using Adobe InDesign software. Two lecture; two lab. DBN.

**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 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)****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 semesters; Fall semester.

**FRS 103 • Firefighter I**

6 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 certification. An approved agency sponsorship is preferred, but not required. Five lecture; two lab. Both fall and spring semesters; summer.

**FRS 105 • Firefighter II**

4 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 II certification. An approved agency sponsorship is preferred, but not required. **Co-requisite:** FRS 110. Three lecture; two lab. Both fall and spring semesters; summer.

**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 semesters; summer.

**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. 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. DBN.

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

3 credits

Examines theoretical knowledge to understand principles of water use in fire protection and apply hydraulic principles to analyze and solve water supply problems. **Prerequisite:** Demonstration of a competency in high school-level algebra (or the equivalent) at a grade of "C" or better or instructor permission. Two and one half lecture; one lab. Spring semester.

**FRS 137 • Strategies and Tactics**

3 credits

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

**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. 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 event. Two and a half lecture; one lab. Both fall and spring semesters.

**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. Spring semester.

**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 semesters.

**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. Fall semester.

**FRS 201 • Fire Protection Systems**

3 credits

Focuses on information relating to the features of design and operation of fire alarm systems. Three lecture. Spring semester.

**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. Fall semester.

**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. Fall semester.

**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. Spring semester.

**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. Fall semester.

## 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 on a world and regional basis. **Prerequisite:** Satisfactory placement. Three lecture. Both fall and spring semesters.

### GEO 111 • Physical Geography

4 credits

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

### 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. Fall 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 semesters.

### 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. Spring semester.

### GLG 203 • Dinosaurs

4 credits

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

## 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 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.



## Health Sciences (HES)

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### 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 semesters; 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 semesters; 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 semesters.

### 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 semesters.

### 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 semesters.

### 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.* **Co-requisite:** HES 170. Three lecture; three lab. Spring semester.

## History (HIS)

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### 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 semesters; 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 semesters; 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. **Prerequisite:** Satisfactory placement. 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.

**Honors Colloquia (HON)****HON 101 • Honors Colloquium I****HON 102 • Honors Colloquium II****HON 201 • Honors Colloquium III****HON 202 • Honors Colloquium IV**

1 credit each

The Honors Colloquium is the academic component of the NPC President's Scholars Program. These are theme-based courses designed to enhance critical inquiry of a particular theme from a wide variety of academic viewpoints. 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)****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. Both fall and spring semesters.

### **HDE 106 • Workforce Skills I**

3 credits

Enhances soft skills necessary for success in the workplace. Instruction and practice are provided in the areas of Reading for Information, Applied Mathematics, and Locating Information, as they are applied directly in the workplace. Two lecture; two lab. Fall semester; DBN

### **HDE 107 • Workforce Skills II**

3 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:** Successful completion of CCP 106/HDE 106 or CCP 103/HDE 103 or instructor permission. Two lecture; two lab. Spring semester; 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)**

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### **HUM 150 • Humanities in the Western World I**

3 credits

A critical reading/writing/thinking-centered, integrated humanities course, emphasizing landmarks in the cultural heritage of Western civilization from classical Greece to the Renaissance. **Prerequisite:** Satisfactory placement. Three lecture. 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 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.

**Information and Communication Technology (ICT)****ICT 095 • Skills for Online Learning**

0.5 credit

Examination and practice of rudimentary skills necessary for or successful online learning. One-quarter lecture; one-half lab. DBN.

**ICT 096 • Teaching Online Learning**

1 credit

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

**Languages (LAN)****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. Fall semester.

## 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. Spring semester.

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

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

### 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 semesters; 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 semesters; 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 with “C” or better or satisfactory placement. Three lecture. Both fall and spring semesters; 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 semesters.

**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 semesters.

**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 outtake 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

For licensed practical nurses preparing to enter the Associate Degree Nursing (ADN) Program. Emphasis is on ensuring students are prepared to enter the ADN Program in the third semester. Knowledge gaps will be identified, nursing skills updated, and current trends in nursing explored. **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

Preparation for the NCLEX-PN examination through comprehensive critical content review, practice questions with rationales, and development of a study plan. Emphasis is on strengthening critical thinking skills and test-taking strategies for a practical nurse. **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 comprehensive critical content review, practice questions with rationales, and development of a study plan. Emphasis will be placed on the current NCLEX-RN Test Plan. **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 291 • RN Refresher**

8 credits

Designed for the RN whose license has lapsed. Updates nursing knowledge and skills including medication administration and intravenous therapy. Candidate applies to the Arizona State Board of Nursing for licensure upon completion. Student responsible to negotiate placement in health care agency for 160 hours precepted clinical experience during the course. **Prerequisite:** Student must acquire a temporary RN license for refresher course prior to first day of class. Five lecture; ten clinical. Both fall and spring semesters.

**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. Both fall and spring semesters; summer.

Before enrolling in this course, the student must present a "Health Science Student" AZ DPS Fingerprint Clearance Card. There is a \$65 application fee and a fingerprinting fee may also apply. Go to [azdps.gov/services/public/fingerprint](http://azdps.gov/services/public/fingerprint), click on *Apply for Card*, then on *Online Application* to schedule an appointment with the closest FieldPrint Office, after signing up as a new user, or logging in. Card must be paid for online. Additional costs and requirements will apply. Your academic adviser, or the NPC Nursing Department, can provide detailed instructions. See page 100.

**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 internship. Provides instruction required to pass the national examination of the Pharmacy Technician Certification Board (PTCBB). **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. **Internship Requirements:** Prior to starting the clinical internship, 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; eight clinical. Both fall and spring semesters. *Students completing the NPC course will meet PTCB's 2020 education/training eligibility requirements for CPhT Certification. Students must still take, and pass, the national exam.*

**Philosophy (PHL)****PHL 101 • Introduction to Philosophy**

3 credits

SUN# PHI 1101

Introduction to and analysis of selected philosophical issues, including ideas which have shaped Western thought: knowledge, causality, the existence of God, morality, the nature of persons, free will, the good life, the ideal community, and the nature of reality. Reading and critical discussion of both classical and contemporary texts. **Prerequisite:** Satisfactory placement. Three lecture. Both fall and spring semesters.

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

3 credits

SUN# 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 semesters.

**PHL 105 • Introduction to Ethics**

3 credits

SUN# PHI 1105

Introduction to moral philosophy and problems of practical ethics; analysis of philosophical problems in ethics and 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 philosophers of both the classical and contemporary periods. **Prerequisite:** Satisfactory placement. Three lecture. Both fall and spring semesters.

## PHL 150 • Comparative World Religions

3 credits

Introduction to the concepts and philosophies of religion including: the nature religious belief; arguments for the existence of God; mysticism; religion and meaning; 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.

## 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 • United States Government

3 credits  POS 1110

General survey of the constitutional bases, organizations and functioning of the United States government and political processes. **Prerequisite:** Satisfactory placement. Three lecture. Both fall and spring semesters.

### 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 semesters; 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 semesters; 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 semesters; 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. DBN.

### 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 semesters; 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 semesters.

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

A sociological exploration of selected social problems.

**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. Both fall and spring semesters.

**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. Both fall and spring semesters.

**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 semesters.

## 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.

**Surgical Technology (SGT)****SGT 117 • Pharmacology for Surgical Technology**

3 credits

Presents role of the surgical technologist in safe handling of drugs according to standard policies and best practices. Includes drug classifications and uses, federal and state pharmacy regulations. Covers labeling, dosage calculation and methods of administration. Emphasizes complications and safety issues of medication administration. **Prerequisite:** Admission into the Surgical Technology Program. Three lecture. Fall semester.

**SGT 121 • Surgical Sterile Techniques and Instrumentation**

2 credits

Introduction to surgical technologist profession and practice. Applies principles of microbiology to decontamination, inspection, sterilization, packaging and storage of reusable surgical instruments and devices. **Prerequisites:** EMT 104 or equivalent; DPS Fingerprint Clearance Card; immunization records. One lecture; one lab; two clinical. Fall semester.

**SGT 122 • Surgical Techniques**

4 credits

Introduction to the hospital environment, the role of the surgical technologist, fundamental principles and practices in surgical techniques, safe patient care and knowledge to identify, select and safely use equipment and supplies in the operating room. **Co-requisite:** SGT 121. Three lecture; three lab. Spring semester.

**SGT 221 • Perioperative Procedures**

4 credits

Develops fundamental understanding of perioperative environments, roles of surgical team members and surgical patient processes. Includes a clinical experience in sterile processing environment. **Prerequisite:** SGT 121. Three lecture; three lab. Spring semester.

### **SGT 222 • Surgical Concepts and Specialty Procedures**

4 credits

Classroom presentations and laboratory demonstrations of surgical procedures with review of anatomy and related pathophysiology. Operating room procedures, instrumentation and equipment in surgical specialties including genitourinary, ophthalmic, otolaryngology, maxillofacial, plastic/reconstructive, orthopedic, vascular, thoracic/pulmonary, cardiac, pediatric, neurosurgery and emergency trauma. **Prerequisite:** SGT 221. Three lecture; three lab. Spring semester.

### **SGT 223 • Surgical Technology Clinical Practicum I**

5 credits

Students assume role as surgical technologist in a live operating room setting applying learned skills. **Prerequisites:** SGT 117, SGT 122, SGT 222. Seventeen clinical. Summer.

### **SGT 224 • Surgical Technology Clinical Practicum II**

10 credits

Continuation of SGT 223 providing student opportunities to develop proficiency by serving in First and Second Scrub roles on surgical cases of increasing complexity to advance toward entry-level graduate achievement. **Prerequisite:** SGT 223. Thirty-one clinical. Fall semester.

### **SGT 229 • Surgical Technologist Review Seminar**

1 credit

Preparation for the Certified Surgical Technologist examination (CST-ERC) through lecture, analysis of practice questions, development of a study plan and taking practice exams.

**Prerequisite:** SGT 223. One lecture. Fall semester.

## **Therapeutic Massage Program (TMP)**

### **TMP 107 • Overview for Alternative and Complementary Medicine**

3 credits

Exploration of the definition of health and the mind-body-spirit-emotional connection. Identify the strengths and limitations of alternative therapies and alternative health professionals. Introduction to history and techniques of various massage therapies and how to research and discern the value of therapeutic modalities. Three lecture. Fall semester.

### **TMP 108 • A & P with Kinesiology Techniques I**

4 credits

The study of human anatomy and physiology with emphasis on the central nervous system, muscles and specific normal muscular structural functions, deviations, the body's energy systems, the pain cycle, kinesiology theories, and massage therapy benefits, indications and contraindications. **Prerequisite:** DPS Fingerprint Clearance Card. Three lecture; three lab. Fall semester.

### **TMP 109 • A & P with Kinesiology Techniques II**

4 credits

Continues the study of structure and function of the human body systems related to therapeutic massage. Introduces assessment skills, applied kinesiology, the modalities of healing, therapist role with other health care professionals, and mastery of fundamental massage techniques appropriate to specific muscle areas and those of special populations. **Prerequisite:** TMP 108. Three lecture; three lab. Fall semester.

### **TMP 111 • Pathology for Massage Therapists**

3 credits

Student develops skills to work with special population including those with abnormal conditions and disabilities. Three lecture. Fall semester.

### **TMP 112 • Business and Communication for Massage Therapy**

3 credits

Relevant financial, legal, business and ethical skills necessary to start and maintain a profitable massage therapy business. Knowledge of client intake forms, charting, business forms, contracts, insurance and billing, marketing, licensing, ADA compliance, financial record keeping, informed consent and client confidentiality, job search, résumé skills, effective communication and problem-solving techniques. Three lecture. Spring semester.

### **TMP 205 • Applied Therapeutic Massage**

4 credits

Introduces historical and functional knowledge of massage therapy skills, ethical and legal responsibilities, client physical and emotional assessment, postural assessment, proper body mechanics and client draping, Swedish Massage techniques, types of muscular releases, joint motions and range of motion, Trigger point therapy, pain and pain pathways, benefits of stretching. **Co-requisites:** TMP 107, 109, 111 and 112. Three lecture; three lab. Spring semester.

### **TMP 214 • Massage Techniques**

4 credits

Mechanics of popular and effective techniques and clinical settings utilized in massage therapy, use of appropriate equipment and supplies. Introduces research methodologies relating to research and case studies, explores a variety of massage techniques including Lymphatic, Thai, Pregnancy, Infant, Geriatric, Fibromyalgia, Sports, Deep Tissue, Seated, Medical, Spa, Neuromuscular therapies. **Prerequisite:** TMP 205. Three lecture; three lab. Spring semester.

**TMP 221 • Body/Mind Therapy**

3 credits

Explore historical and fundamental psychological dimensions of nurturing touch relating to massage therapy. Learn boundaries and limits, therapist self-care, how the body expresses emotional patterns and emotional release, and psychological contraindications to therapy. Increase understanding of mental health conditions/disorders, discover the value of making client referrals and per collaboration. Three lecture. Spring semester.

**TMP 240 • Massage Therapy Clinical Practice**

4 credits

Refines technical massage therapy skills, with emphasis on the student's development as a therapist within the legal/ethical framework of the profession. Interpersonal skills to establish working rapport with clients, peers and other health care practitioners. Includes 160 hours of hands-on experience by practicing massage and spa protocols with public clientele. **Prerequisites:** TMP 214 and 221. One lecture; ten practicum. Summer.

**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; summer; 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; summer; 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; summer; 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; summer; 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; summer; 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; summer; 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; summer; 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; summer; 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; summer; 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; summer; 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; summer; 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; summer; 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

Instruction in welding fabrication for advanced student welding projects, using welding detailed drawings. Projects are completed from documents. **Prerequisite:** Instructor permission. Two lecture; two lab. Fall and spring semester; summer; 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.

## ★ Merit™ Honors, Awards & Recognition



### Highlighting Your Student Achievements!

<http://npc.meritpages.com>

### Sometimes it's OK to brag!

NPC is recognizing and celebrating student accomplishments through Merit! Merit pages allow NPC to publicize your achievements, such as making the president's or dean's list, earning a certificate or degree, participating in a club or event and more! Merit pages assist NPC in sending press releases about a student's accomplishments to their hometown newspaper, as well as publish these news stories on the web.

### How does Merit work?

When NPC creates a story about student accomplishments, an online profile page is created for the students involved and he/she receives a notification in their college email with a link to view his/her story. An NPC badge (pictured above) signifying the achievement is added to the student's Merit page. Students can use their free Merit page and social media, such as Facebook and Twitter, to share their achievements with friends and family! You can even add your own badges to your Merit page to highlight your activities and jobs!

### Your positive online identity!

You work hard for your accomplishments so share them! Your Merit page is a place that recognizes your achievements and creates a positive, professional online persona of your college experience. Employers often research job applicants online and your NPC Merit page makes it easy to showcase your accomplishments.

Find out more about NPC Merit pages at [www.npc.edu/Merit](http://www.npc.edu/Merit).

