ACCOUNTING

**ACCT 2003 Accounting for Small Businesses**
A course designed for management personnel that will enable them to acquire the knowledge and basic skills in bookkeeping, which are needed for employment in service or trading concerns and other small businesses. Course will also prepare a person for financial accounting. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**ACCT 2113 Financial Accounting [AC 201]**
Basic principles of financial accounting. Emphasis is placed on preparation and usage of the financial statements for corporations. Coverage includes the analysis and recording of transactions involving cash, accounts receivable, inventories, fixed assets, bonds and capital stock as well as adjusting, closing and reversing entries. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**ACCT 2213 Managerial Accounting [AC 201]**
*Prerequisite:* ACCT 2113
(3 credit hours, 48 lecture hours, 0 lab hours)

**ACCT 2773 Micro-Accounting with Integrated Software**
Introduction to computerized procedures used in accounting by proprietorships, partnerships, and corporations to carry out simulated accounting tasks with the accounting cycle and spreadsheet software: accounts receivable, accounts payable, voucher system, depreciation, inventory, merchandising, payroll, departmentalized accounting, and financial statement analysis. Familiarity with the keyboard is suggested. (LAS)
*Prerequisites:* ACCT 2113 or ACCT 2003
(3 credit hours, 48 lecture hours, 0 lab hours)

AGRICULTURE

**AGRI 1001 Individual Studies in Agriculture**
A laboratory course designed to give the student internship experience dealing with research techniques, data collection, and project presentations in the field of agriculture.
(1 credit hour, 0 lecture hours, 32 lab hours)

**AGRI 1011 Agriculture Orientation**
An orientation course required of all freshmen in the agricultural field. It covers methods of study, discussion of degree requirements, and exploration of career opportunities in various fields of agriculture.
(1 credit hour, 16 lecture hours, 0 lab hours)

**AGRI 1013 Principles of Horticulture**
The practical application and use of horticulture around the home. Emphasis on planning and care of home grounds, the fruit and vegetable garden and selection, use and care of indoor plants.
(3 credit hours, 32 lecture hours, 32 lab hours)
AGRI 1114 Introduction to Agriculture Economics
A study of the role of agriculture within the American economic system with emphasis on market structures and economic analysis as a management tool. (LAS)
(4 credit hours, 64 lecture hours, 0 lab hours)

AGRI 1124 Introduction to Animal Science
Includes the study of species adaptability, product standards, and types of production, processing, and distribution of products - includes meat animals, dairy, and poultry. (LAS)
(4 credit hours, 48 lecture hours, 32 lab hours)

AGRI 1133 Fundamentals of Food Science
Food industry from producer to consumer and the current U.S. and world food situation.
(3 credit hours, 48 lecture hours, 0 lab hours)

AGRI 1152 Livestock Evaluation
A study of live animal form and function in beef cattle, dairy cattle, swine, sheep, and horses. Where applicable, slaughter animals as well as breeding animals are evaluated.
(2 credit hours, 16 lecture hours, 32 lab hours)

AGRI 1223 Range Management
This course is a three-credit hour introductory course in range management. The course will explore a wide range of topics including, but not limited to, rangeland types, range plant physiology, range ecology, range condition, range livestock production, and range wildlife management. Two hours per week will be lecture and one hour per week will be dedicated to laboratory.
(3 credit hours, 48 lecture hours, 32 lab hours)

AGRI 1243 Agriculture Internship
The internship course is designed to provide students appropriate college credit for career-oriented learning experiences that complement and enhance their formal classroom training. Course credit is awarded upon successful completion of a structured intern program with a business or organization involved in the production, processing, distribution, regulation, or oversight of agricultural and food products, services, or related resources.
(3 credit hours, 0 lecture hours, 96 lab hours)

AGRI 1314 Plant Science
A study of the basic concepts in production of plants in modern agriculture. Labs provide an introduction to basic procedures to support lectures. (LAS)
(4 credit hours, 48 lecture hours, 32 lab hours)

AGRI 1413 Introduction to Agricultural Engineering
The study of power, machines and engineered systems of agricultural products, including engineering aspects of land and water resources development.
(3 credit hours, 48 lecture hours, 0 lab hours)

AGRI 1443 Computers in Agriculture
Introductory course in the application of microcomputers in the agricultural environment. Students will develop a management system in some aspect of the farm or ranch enterprise. Students will learn to use basic microcomputer programs to make spreadsheets, cash flow statements, and budgets. The use of the worldwide web to market agricultural products and services will also be
covered. The student will exit the course with an understanding of how to effectively incorporate computers in an agricultural business.

(3 credit hours, 48 lecture hours, 0 lab hours)

**AGRI 1511-13 Agriculture Practices and Procedures**
A course designed to teach the student how to evaluate and correct problems in process and techniques in specific agriculture practices and principles. (LAS)
(1-3 credit hours, 0 lecture hours, 32-96 credit hours)

**AGRI 2013 Crops and Environment**
A survey of the various important agronomic crops, which include effects of climates, soils, biotic factors, and agronomic principles and practices. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**AGRI 2023 General Entomology [BI 724]**
A study of insects and their controls including classification, anatomy, physiology, and various methods of control. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**AGRI 2114 Environmental Science**
A survey of the fundamental principles that govern the functioning of the environment with emphasis on problems considered to be the core of most environmental issues: growing population, shortages in food and energy resources. The ethical issues related to the environmental problems are also considered. (LAS)
(4 credit hours, 48 lecture hours, 32 lab hours)

**AGRI 2123 Livestock Feeding**
A study of livestock feeding problems including the selection of feeds and their preparation for the different classes of livestock, balancing rations, and practical feeding methods.
(3 credit hours, 48 lecture hours, 0 lab hours)

**AGRI 2124 Fundamentals of Soil Science**
The study of the formation and classification of soils including chemical, biological, and physical properties of soils in relation to plant growth. (LAS)
(4 credit hours, 48 lecture hours, 32 lab hours)

**AGRI 2133 Communications in Agriculture**
This course is designed to be an overview of information systems and media associated with the agriculture industry. The purpose of this course is to improve written, visual, and oral communication skills for students in the agriculture industry. This is accomplished by studying oral and written communication through articles, proposals, advertisements, presentations, and other various forms of media. (LAS)

**Prerequisites:** ENGL 1113
(3 credit hours, 48 lecture hours, 0 lab hours)

**AGRI 2213 Herbaceous Ornamental Plants**
Identification, growth habits, cultural requirements and use of ornamental foliage and flowering plants for indoor garden environments. Tropical foliage plants, annual and perennial bedding plants and deciduous flowering shrubs are emphasized.
(3 credit hours, 32 lecture hours, 32 lab hours)
AGRI 2214 Forages and Hays
This course covers the use of forage crops for pasture, hay, and silage with reference to growth and development, production, nutritional quality, and grazing systems. Practical aspects will be demonstrated during class time of forage identification, legume see inoculation, fertilizer and animal waste calculations, pasture stocking rate problems, and whole-farm forage planning.
Prerequisite: AGRI 1213
(4 credit hours, 48 lecture hours, 32 lab hours)

AGRI 2303 Principles of Agriculture Marketing
A study of the marketing system, its importance to the economy, and the role of the individual firm.
(LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

AGRI 2313 Equine Health and Business Management
This course covers topics related to the health and business management of equines. Students will design a yearly management calendar for an equine business. Topics covered are overall equine health, equine facility construction and design, site selection, equine laws and liability issues, and management issues affecting different segments of the equine industry.
(3 credit hours, 48 lecture hours, 0 lab hours)

AGRI 2333 Personal Leadership Development in Agriculture
This course focuses on how leaders identify key attributes of leadership and link them to their own unique vision, values, and personal strengths. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

AGRI 2422 Horse Management
This course includes management, care, and handling of horses for work and pleasure. (LAS)
(2 credit hours, 32 lecture hours, 0 lab hours)

AGRI 2423 Precision Agriculture
Application of global positioning systems (GPS) and geographic information systems (GIS) in agriculture and natural resource management. Identification and delineation of locations and areas; collection, analysis, storage, and retrieval of site and time specific data for agriculture and natural resource management and monitoring.
Prerequisite: AGRI 1213
Co-Requisite: AGRI 2124
(3 credit hours, 32 lecture hours, 32 lab hours)

AGRI 2573 Livestock Management
A study of modern production and management practices for beef cattle, swine, and sheep.
(3 credit hours, 48 lecture hours, 0 lab hours)

ANTHROPOLOGY

ANTH 1113 General Anthropology [AN 101]
An introductory course in anthropology that covers various aspects of past cultures including, socio-cultural lifestyles, pre-history or archeology, physical biological anthropology, and linguistics.
(LAS, H)
ANTH 2413 Cultural Anthropology [AN 102]
A survey of the cultural variations of people all over the world. Particular emphasis is placed on preliterate cultures. Topics of study include marriage and family, kinship systems, religious beliefs, and economic and political organizations. (LAS, H)
(3 credit hours, 48 lecture hours, 0 lab hours)

ARTS

ARTS 1013 Drawing I [AA 056]
Introduction to the basic principles, techniques and media of drawing/perception.
(3 credit hours, 32 lecture hours, 48 lab hours)

ARTS 1053 Watercolor I [AA 171]
The art of painting with water-soluble pigments to produce finished results on various qualities of paper. Students explore transparent and opaque techniques expressing subjects of their choice.
(3 credit hours, 32 lecture hours, 48 lab hours)

ARTS 1073 Painting I [AA 130]
Painting I will explore the principles, techniques, media and creative potential of painting.
(3 credit hours, 32 lecture hours, 48 lab hours)

ARTS 1103 Ceramics I [AA 030]
The introduction to ceramic techniques with focus on exploration, ideas, and the aesthetic form. The student will acquire knowledge and basic techniques through construction, firing, and glazing procedures.
(3 credit hours, 32 lecture hours, 48 lab hours)

ARTS 1193 Photography I [AA 024]
Introduction to use of the camera, the gray scale, exposing, development and enlarging. Introduction to paper grades, cropping, burning-in with emphasis on creative and technical abilities. Students must provide their own 35mm SLR camera and film.
(3 credit hours, 32 lecture hours, 48 lab hours)

ARTS 1213 Art Appreciation [AA 005]
An introduction to various aspects of the visual arts with illustrated lectures and studio demonstrations. (GE, LAS, H)
(3 credit hours, 48 lecture hours, 0 lab hours)

ARTS 1263 Applied Design I
Individual study for students interested in receiving 3 credit hours for any creative activity or area of special interest in the Art or Commercial Art career fields. Examples: papier-mâché, specialized sculpture, ceramics research, printmaking. Individualized instruction by arrangement.
(3 credit hours, 32 lecture hours, 48 lab hours)

ARTS 1373 Digital Photography [AA 053]
An introduction to the critique and creation of digital images using image editing and/or image manipulation software. Readings will explore issues concerning the digital image and graphic
design for the internet as well as printed graphic media. Topics include scanning, resolution, file formats, output devices, color systems, and image-acquisitions. Students will be expected to use graphics software and create WWW pages to complete design assignments. Outside lab hours are required to complete assigned projects.

(3 credit hours, 32 lecture hours, 48 lab hours)

**ARTS 1513 Sculpture I [AA 154]**

The study of three-dimensional expression by means of three basic techniques: carving, modeling, and assembly. The student is given the opportunity to create form in space with emphasis on the object produced and the effects of the third dimension.

(3 credit hours, 32 lecture hours, 48 lab hours)

**ARTS 1523 Sculpture II [AA 155]**

Continuation of ARTS 1113 Sculpture I.

**Prerequisite:** ARTS 1513 or permission of instructor

(3 credit hours, 32 lecture hours, 48 lab hours)

**ARTS 1733 Stained Glass**

The introduction to stained glass techniques with focus on exploration, ideas, and the aesthetic form. The student will acquire knowledge and basic techniques through construction, glass selection, and various soldering procedures. May be repeated for credit.

(3 credit hours, 32 lecture hours, 48 lab hours)

**ARTS 2013 Drawing II [AA057]**

Continuation of ARTS 1013 Basic Drawing I.

**Prerequisite:** ARTS 1013 or permission of instructor

(3 credit hours, 32 lecture hours, 48 lab hours)

**ARTS 2053 Watercolor II [AA 172]**

Continuation of ARTS 1053 Watercolor I. Advanced watercolor techniques with individual attention to the student as he or she develops.

**Prerequisite:** ARTS 1053 or permission of instructor

(3 credit hours, 32 lecture hours, 48 lab hours)

**ARTS 2073 Painting II [AA 131]**

Continuation of ARTS 1073 Painting I.

**Prerequisite:** ARTS 1073 or permission of instructor

(3 credit hours, 32 lecture hours, 48 lab hours)

**ARTS 2103 Ceramics II [AA 031]**

Continuation of ARTS 1103 Ceramics I.

**Prerequisite:** ARTS 1103 or permission of instructor

(3 credit hours, 32 lecture hours, 48 lab hours)

**ARTS 2193 Photography II [AA025]**

An advanced black and white course emphasizing archival processing, extending film, vocabulary and processing techniques. Emphasis will be placed on conceptual and technical development. Students must provide their own 35mm SLR camera and film.
**Prerequisite:** ARTS 1193  
(3 credit hours, 32 lecture hours, 48 lab hours)

**ARTS 2263 Applied Design II**  
Continuation of ARTS 1263 Applied Design I.  
**Prerequisite:** ARTS 1263 or permission of instructor  
(3 credit hours, 32 lecture hours, 48 lab hours)

**ARTS 2613 Art History I [AA 015]**  
A survey of the painting, sculpture, and architecture from prehistoric times through the Gothic Period. (Lecture, films, discussion) (GE, LAS, H)  
(3 credit hours, 48 lecture hours, 0 lab hours)

**ARTS 2623 Art History II [AA 016]**  
A study of man's creative expression in painting, architecture, sculpture, etc., from the Renaissance through the present. (Lecture, films, discussion) (GE, LAS, H)  
(3 credit hours, 48 lecture hours, 0 lab hours)

**AVIATION**

**AVIA 1202 Private Pilot Laboratory**  
Flight training to meet the requirements of the Federal Aviation Administration Regulation Part 141 for the private pilot certificate. Requires a minimum of 20 hours of flight instruction and a minimum of 15 hours of solo flight.  
**Prerequisites:** AVIA 1313; Consent of instructor  
**Co-requisite:** AVIA 2861  
(2 credit hours, 0 lecture hours, 64 lab hours)

**AVIA 1212 Commercial Pilot Lab I**  
Western awards credit for 50 hours of pilot training beyond the private pilot certificate directed toward preparation for a commercial pilot certificate.  
(2 credit hours, 0 lecture hours, 64 lab hours)

**AVIA 1222 Commercial Pilot Lab II**  
Continuation of AVIA 1212 Commercial Pilot Lab I for a total of 150 hours.  
**Co-requisite:** AVIA 2881  
(2 credit hours, 0 lecture hours, 64 lab hours)

**AVIA 1232 Commercial Pilot Lab III**  
Continuation of AVIA 1222 Commercial Pilot Lab II until the individual has completed the requirements for the FAA practical test for the Commercial Pilot Certificate.  
**Prerequisite:** Consent of instructor  
(2 credit hours, 0 lecture hours, 64 lab hours)

**AVIA 1241-45 Equipment and Safety in Aviation**  
An orientation to the specialized equipment and safety associated with the aviation trades. Focuses on safety in the workplace and the consequences of incorrect use of the equipment in the
aviation industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**AVIA 1251-55 Blueprint Reading for the Aviation Industry**
A course designed to enable the student to accurately interpret blueprints, be familiar with symbols and know their meaning related to the technical specifications of the aviation industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**AVIA 1261-65 Introduction to Aviation Technology**
An orientation course designed to provide an industry overview as well as general introductory skills related to the aviation industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**AVIA 1271-75 Basic Electricity Principles**
Principles of electrical components and wiring as related to aviation power frame mechanics. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**AVIA 1313 Private Pilot Ground School**
This course prepares the student for the FAA Private Pilot knowledge examination. It includes theory of flight, instruments and systems, weight and balance, meteorology, air navigation, radio navigation, and regulations and procedures.
(3 credit hours, 48 lecture hours, 0 lab hours)

**AVIA 1323 Commercial Pilot Ground School**
This course prepares the student for the FAA Commercial Pilot knowledge examination. It includes a review of private pilot requirements, advanced navigation, systems, meteorology, regulations and procedures, maintenance, inspection and operation of airplanes and power plants, a review of aerodynamics, and theory of flight.
Prerequisite: AVIA 1313 or a private pilot certificate
(3 credit hours, 48 lecture hours, 0 lab hours)

**AVIA 1333 Airport Management**
This course prepares a student to manage a small municipal airport. Emphasized are training in handling of personnel, buying, legal procedures, aviation regulations, airport master planning and good business practices.
(3 credit hours, 48 lecture hours, 0 lab hours)

**AVIA 2112 Instrument Flying Laboratory**
This course provides the flight instruction for a private or commercial pilot to obtain an instrument rating. The course includes instruction in maneuvering an airplane solely by reference to instruments; IFR navigation; instrument approaches using navigation systems (to include VOR and ILS); cross-country instrument flying and simulated emergencies.
Prerequisite: AVIA 2343; flight experience necessary to qualify for an instrument rating. Concurrent enrollment in AVIA 2871 and consent of instructor. Flight laboratory.
(2 credit hours, 0 lecture hours, 64 lab hours)
AVIA 2122 History of Aviation
An introduction to the history of aviation and its impact upon the world around us. (LAS)
(2 credit hours, 16 lecture hours, 0 lab hours)

AVIA 2131 History of Aviation Independent Study
In depth research paper of specific topics in Aviation History to include significant civil, commercial and military events as well as important people, places and technological developments.
Prerequisites: Concurrent enrollment in AVIA 2122 and consent of instructor
(1 credit hour, 0 lecture hours, 16 lab hours)

AVIA 2141-45 Sheet Metal Layout and Design for Airframe
A course designed to teach the skills of layout and assembly of sheet metal as related to the aviation airframe industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

AVIA 2151-55 Basic Pneumatics for Air Frame Mechanics
A course that covers pneumatics controls, motors, gaseous fluids and their actions in pneumatically driven devices in the airframe industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

AVIA 2161-65 Basic Hydraulic Airframe Mechanic
A course that covers hydraulic controls, motors, drive mechanisms and pump operations and their actions in hydraulically drive devices in the airframe industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

AVIA 2171-75 Electric Machinery and Controls in the Airframe Industry
A course that covers the design, maintenance, installation and use of electrical machinery and controls that are used in the airframe industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

AVIA 2333 Advanced Airport Management
Companion to AVIA 1333 Airport Management which broadens the scope of airport management to include the study of federal grants in aid, interpretation of laws and regulations, weather information availability, handling of personnel, and other matters dealing with managing a large airport.
Prerequisite: AVIA 1333
(3 credit hours, 48 lecture hours, 0 lab hours)

AVIA 2343 Instrument Pilot Ground School
The course prepares pilots to take the FAA instrument knowledge examination. Students gain the aeronautical and procedural knowledge necessary for safe flight under instrument conditions.
Prerequisite: AVIA 1314 or private pilot certificate
(3 credit hours, 48 lecture hours, 0 lab hours)

AVIA 2553 General Aviation Management
This course prepares the student to manage a flight school and air taxi operation. Includes the study of FAA requirements, flight instruction, pilot training, inter-airline relations, insurance, sales promotion, and forecasting marketing potential for an airport service area. This course is highly recommended for the Aviation Mechanic [Option 00302].

(3 credit hours, 48 lecture hours, 0 lab hours)

**AVIA 2653 Aviation Meteorology**
Understanding the tropospheric meteorology from the view point of the pilot on the ground and in the air. This will acquaint the student with the varied weather systems and meteorological forecasting in relation to the aviation community.

(3 credit hours, 48 lecture hours, 0 lab hours)

**AVIA 2723 Aviation Mechanic General**
The objective of this course is to prepare the student for the FAA Aviation General Knowledge examination.

**Prerequisite:** Eighteen months of practical experience with airframes or 30 months with both powerplants and airframes

(3 credit hours, 48 lecture hours, 0 lab hours)

**AVIA 2733 Powerplant Mechanic**
The objective of this course is to prepare the student for the FAA powerplant mechanic knowledge and oral examination.

**Prerequisite:** Eighteen months of practical experience with powerplants or 30 months with both powerplants and airframes

(3 credit hours, 48 lecture hours, 0 lab hours)

**AVIA 2742 Powerplant Practical (Reciprocating Engine)**
The objective of this course is to prepare the student for the FAA Powerplant Mechanic Practical Examination.

**Prerequisites:** Eighteen months of practical experience with powerplants or 30 months with both powerplants and airframes; AVIA 2733 and the FAA knowledge test or consent of instructor

(2 credit hours, 16 lecture hours, 32 lab hours)

**AVIA 2833 Airframe Mechanic**
This course prepares the student for the FAA Airframe Mechanic knowledge and oral examinations.

**Prerequisite:** Eighteen months of practical experience with airframes or 30 months with both airframes and powerplants

(3 credit hours, 48 lecture hours, 0 lab hours)

**AVIA 2842 Airframe Practical**
This course prepares the student for the FAA Airframe Mechanic Practical Examination.

**Prerequisites:** Eighteen months of practical experience with airframes or 30 months with both airframes and powerplants; AVIA 2833; and the FAA written test or consent of instructor

(2 credit hours, 16 lecture hours, 32 lab hours)

**AVIA 2861 Private Pilot Simulator Laboratory**
This course provides instruction in a flight training device equipped with an enclosed pilot's cockpit, controls to simulate rotation about the three axes, a means to simulate visual flight
conditions by use of a model and instruments and equipment required by FAA Part 91. Of the 16 simulator hours, a minimum of five hours of simulator flight will include flight training in traffic pattern operations, maneuvering during slow flight, recognition and recovery from stalls and spins, maneuvering solely by reference to instruments, VOR and ADF radio navigation, and emergency procedures in preparation for obtaining a private pilot certificate.

**Prerequisites:** AVIA 1313 and consent of instructor
(1 credit hour, 0 lecture hours, 32 lab hours)

**AVIA 2862 Instrument Flight Instructor Lab**
This course includes flight instruction to prepare the student for the Instrument Flight Instructor Rating Practical Test.

**Prerequisite:** AVIA 2433 or AVIA 2443, Flight Instructor Certificate, and consent of the instructor
(2 credit hours, 0 lecture hours, 64 lab hours)

**AVIA 2871 Instrument Pilot Simulator Laboratory**
This course provides instruction and practice in a flight training device equipped with an enclosed pilot’s cockpit, controls to simulate rotation about the three axes, a means for recording the flight path simulated, and instruments required by FAA Part 91. A minimum of ten hours of simulator flight will include maneuvering solely by reference to instruments. This course includes IFR Navigation and Instrument approaches.

**Prerequisites:** AVIA 2343 and consent of instructor
(1 credit hour, 0 lecture hours, 32 lab hours)

**AVIA 2881 Commercial Pilot Simulator Laboratory**
This course provides instruction in a flight training device equipped with an enclosed pilot’s cockpit, controls to simulate rotation about the three axes, a means to simulate visual flight conditions by use of a model, a means for recording the flight path simulated by the trainer, and instruments and equipment required by FAA Part 91. A minimum of 10 hours of simulator flight will include maneuvering during slow flight, recognition of imminent stall, recovery from stalls with and without power, spins and spin recovery, operation of retractable landing gear, flaps, and controllable propeller; and emergency procedures in preparation for obtaining a commercial pilot certificate.

**Prerequisites:** AVIA 1323 and consent of instructor
(1 credit hour, 0 lecture hours, 32 lab hours)

**BIOLOGY**

**BIOL 1001 Individual Studies in Biology**
Individual studies in the life sciences with field and laboratory activities. (LAS)
(1 credit hour, 0 lecture hours, 32 lab hours)

**BIOL 1114 General Biology [BI 102]**
Fundamentals of the organization, metabolism, genetics, taxonomy, and interactions of protozoan and metazoan organisms, with their ecological implications. (GE, LAS)
(4 credit hours, 48 lecture hours, 32 lab hours)

**BIOL 1124 General Botany [BI 201]**
A study of the structure and physiology of higher plants with a short survey of the plant kingdom. (GE, LAS)
(4 credit hours, 48 lecture hours, 32 lab hours)

**BIOL 1134 General Zoology [BI 701]**
A study of fundamental anatomical structures, physiology, taxonomy, and ecology of the animal kingdom. (GE, LAS)
(4 credit hours, 48 lecture hours, 32 lab hours)

**BIOL 2104 Human Anatomy [BI 406]**
A study of the normal functional anatomy of the human body. The laboratory includes extensive use of human models, computer tomography programs, and cat dissection.
**Prerequisite:** BIOL 1114 or BIOL 1134, or ACT science sub score of 21
(4 credit hours, 48 lecture hours, 48 lab hours)

**BIOL 2114 Environmental Science [BI 625]**
A survey of the fundamental principles that govern the functioning of the environment with emphasis on problems considered to be the core of most environmental issues: growing population, shortages in food and energy resources. The ethical issues related to the environmental problems are also considered. (LAS)
(4 credit hours, 48 lecture hours, 32 lab hours)

**BIOL 2224 Introduction to Microbiology [BI 301]**
Introductory principles of microbiology, including their application to human and animal diseases. Emphasis on growth and cultivation with identification of individual organisms. (GE, LAS)
**Prerequisite:** CHEM 1115
(4 credit hours, 48 lecture hours, 48 lab hours)

**BIOL 2304 Human Physiology [BI 465]**
A study of the normal function of the human body. Strong emphasis is placed on homeostasis. Laboratory required.
**Prerequisite:** BIOL 2104; CHEM 1115
(4 credit hours, 48 lecture hours, 32 lab hours)

**BIOL 2373 Medical Terminology [BI 903]**
An introduction to medical terminology and nomenclature; standard medical abbreviations and spelling; appreciation of the logical method found in medical terminology; and proper use of terms in written communication.
(3 credit hours, 48 lecture hours, 0 lab hours)

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**BUSINESS COMPUTER INFORMATION SYSTEMS**

**BCIS 1201, 1202, 1203 Microcomputer Specialized Software**
Study of selected commercial microcomputer software with emphasis on implementation, equipment requirements and installation, and a variety of integrated capabilities and limitations. Course may be repeated for credit with different software packages. Keyboard familiarity is helpful. (LAS)
**Prerequisite:** none, except second courses in a series require the first course
(1-3 credit hours, 16-48 lecture hours, 0 lab hours)
**BCIS 1513 Introduction to Spreadsheets**

A study of spreadsheet design and application, focusing on the use of spreadsheets to prepare reports and analyze data, including charts. Introduction to spreadsheet commands and capabilities. Course may be repeated with different software. (LAS)

**Prerequisite:** Fundamental knowledge of Business Math and/or Accounting; Keyboarding and 10 key skill helpful

(3 credit hours, 48 lecture hours, 0 lab hours)

**BCIS 1613 Advanced Spreadsheets [IS 030]**

Study of the numerous advanced features and extended data-analysis capabilities of spreadsheets with emphasis on the use of tables, macros, data base functions and charts. Course may be repeated with different software. (LAS)

**Prerequisite:** BCIS 1513

(3 credit hours, 48 lecture hours, 0 lab hours)

**BCIS 2013 Database Essentials using MS Access [IS 019]**

Students will be introduced to the concepts of relational database design and data modeling techniques. RDBMS concepts and database development will be included.

(3 credit hours, 48 lecture hours, 0 lab hours)

**BCIS 2024 Database Essentials**

Students will be introduced to the concepts of relational database design and data modeling techniques. RDBMS concepts and database development will be included. Course is repeatable with different database software packages.

(4 credit hours, 64 lecture hours, 0 lab hours)

**BCIS 2033 Multimedia Computing**

Course covers computer-aided creation, input, control, and other processing, storage, and output of text, graphics, animation, audio, video, and other media. Media will be synthesized by students into multimedia presentations using a graphical user interface (GUI), graphics, and paint packages, animation packages, audio and video hardware and software, and authoring systems. (LAS)

**Prerequisite:** COSC 1153

(3 credit hours, 48 lecture hours, 0 lab hours)

**BCIS 2213 Presentation Graphics**

Introduction to business graphics packages including terminology and guidelines for effective graphics through the creation of business presentations utilizing various charts, graphs, audio, animations, transitions, and word art. Having taken COSC 1153 will be helpful.

(3 credit hours, 48 lecture hours, 0 lab hours)

**BCIS 2601, 2602, 2603 Topics in Multimedia**

A study of topics and skill development related to multimedia. This course may be repeated with different topics. Only six hours of this course can be counted toward a degree.

(1-3 credit hours, 16-48 lecture hours)

**BCIS 2773 Cooperative Work Experience**
A capstone course designed to develop BCIS skills. Student, faculty, and employer develop objectives to be achieved in an applied setting. Workplace skills such as sociability and workplace ethics are emphasized.

**Prerequisite:** Instructor approval
(3 credit hours, 0 lecture hours, 96-128 lab hours)

**BCIS 2901, 2902, 2903 Directed Studies in Computer Information Systems**
This is a varying credit course that directs second year students into special projects designed to extend and complement the required curriculum.
(1-3 credit hours, 16 to 48 lecture hours, 0 lab hours)

**BCIS 2913 Web Page Development [ISO 027]**
This course is designed to acquaint the student with Web page design, formatting, and creation, Web site management and Hypertext Markup Language (HTML). Students will analyze, design and implement Web pages. Links, graphics, tables, frames, multimedia and form applications will be used to enhance the Web page.
(3 credit hours, 48 lecture hours, 0 lab hours)

**BCIS 2983 Desktop Publishing**
The course will acquaint students with graphic design techniques, principles of page layout and design, and desktop publishing terminology and applications. Students will create a variety of documents such as flyers, brochures, newsletters, professional forms, and business cards using industry standard desktop publishing software, graphics, and effective design conventions. Students will also become familiar with style sheets, templates, glossaries, and exporting and importing files created in other software programs.

**Prerequisites:** Knowledge of an operating system and skill in using a mouse would be beneficial. Additional suggested prerequisite: Introductory keyboarding or instructor's permission
(3 credit hours, 48 lecture hours, 0 lab hours)

**BUSINESS**

**BUSI 1003 Records Management**
Records Management will provide instruction in the administration and control of records systems. The course includes the creation, maintenance, protection, and disposition of records stored in a variety of media forms. Specialized functions such as micrographics, disaster recovery, and optical disk technology will also be covered.

**Prerequisites:** COSC 1153 Microcomputer Applications; BCIS 1203 Microcomputer Specialized Software
(3 credit hours, 48 lecture hours, 0 lab hours)

**BUSI 1093 Business Mathematics/Calculators**
Business applications of basic mathematics, including efficient utilization of 10-key calculators. Review of fundamental processes, bank and sales records, fractions, decimals, percentage applications in business, discounts and markups, simple and compound interest, finance charges, annuities, payroll and taxes, depreciation, inventories, insurance, business finance, and statistics. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)
**BUSI 1113 Introduction to Business**
An introductory course designed to give the student an understanding of the whole area of business, to help the student become knowledgeable of the different vocational areas, and to acquire a vocabulary of business terms. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**BUSI 2013 Business Statistics**
Provides an introduction to the elements of statistics. Includes frequency distributions, measures of central tendency, elementary probability, binomial distribution, measures of variation, normal distributions, random sampling, tests of significance, t-test and chi-square test. Projects may be assigned using statistical software. (LAS)

**Prerequisite:** MATH 1513
(3 credit hours, 48 lecture hours, 0 lab hours)

**BUSI 2113 Business English**
This course provides comprehensive coverage of the fundamentals of English grammar and usage with an emphasis on workplace terminology. The student will develop a solid foundation in grammar essential for successful communication. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**BUSI 2213 Business Communications [BC 001]**
This course is designed to strengthen basic language skills and to teach advanced communication techniques including skillful use of words, parallelism, emphasis, unity, tone, and style. Students are taught to use concise clear, straightforward language. Emphasis is placed in the development of problem-solving and critical thinking skills by analyzing business problems, the resolution of which results in functional business documents. Students are taught to be more perceptive and skillful communicators by improving interpersonal, listening, and speaking skills. Students will integrate electronic elements in the oral and written communication process. International communications will also be stressed. (LAS)

**Suggested prerequisite:** BUSI 2113

**Prerequisite:** ENGL 1113
(3 credit hours, 48 lecture hours, 0 lab hours)

**BUSI 2313 Business Internship**
Application of the theory and principles of business and/or economics to actual businesses or other organizations in which the student receives on-the-job experience. The intern must be directly supervised by a business professional. The internship supervisor at the work location and the internship instructor are both responsible for evaluating the internship. This course will be taken during the student's last semester.

**Prerequisite:** Approval of Dean of Arts and Sciences
(3 credit hours, 0 lecture hours, 96 lab hours)

**BUSI 2901-3 Directed Studies in Business**
This is a varying credit course that directs second-year students into special projects to extend and complement the required curriculum. This course can be used as a service learning course. May be repeated.
(1-3 credit hours, 16-48 lecture hours, 0 lab hours)
CHEMISTRY

**CHEM 1115 General Chemistry I [CH 140]**
The study of elements, atomic and molecular structure, stoichiometry bonding, chemical reactions, gas laws and thermo chemistry; with laboratory. (GE, LAS)

*Co-requisite: MATH 1513*
(5 credit hours, 64 lecture hours, 32 lab hours)

**CHEM 1215 General Chemistry II [CH 150]**
The study of solution chemistry, kinetics, chemical equilibrium, electrochemistry, chemical thermodynamics, acids and bases; with laboratory. (GE, LAS)

*Prerequisite: CHEM 1115 or consent of instructor*
(5 credit hours, 64 lecture hours, 32 lab hours)

**CHEM 1614 Chemistry for Non-Science Majors [CH 110]**
A one semester basic chemistry course especially designed for non-science majors. This course includes fundamental knowledge of inorganic chemistry; with laboratory. (GE, LAS)

*Prerequisite: High school algebra skills*
(4 credit hours, 48 lecture hours, 32 lab hours)

**CHEM 2001 Individual Studies in Chemistry**
A laboratory course covering the preparation of solutions, lab preparation and individual experimental research. (GE, LAS)
(1 credit hour, 0 lecture hours, 32 lab hours)

**CHEM 2014 Organic Chemistry [CH 210]**
Aliphatic and aromatic nomenclature, structure, stereochemistry, selected mechanisms and reactions, and an introduction to interpretive spectroscopy.

*Prerequisite: CHEM 1215*
(4 credit hours, 48 lecture hours, 32 lab hours)

CHILD DEVELOPMENT

**CHLD 1001-3 Child Development Seminar**
Directed intensive study on a selected problem or a special topic.

*Prerequisite: Consent of instructor*
(1-3 credit hours, 16-48 lecture hours, 0 lab hours)

**CHLD 1023 Administrative Program Planning (for Directors) [CD114]**
Focus on how to effectively manage child care programs. Relevant and current issues in the field are addressed. Licensing requirements, managing staff, and ethical professional issues are studied.
(3 credit hours, 48 lecture hours, 0 lab hours)

**CHLD 1103 The Child Development Professional [CD 105]**
An introduction to the profession of early childhood education, focusing on the professional competency standards that form the core of accreditation and credentialing programs. Topics include developmentally appropriate practices, types of programs, historical perspectives, ethics,
and current issues. A grade of “C” or better must be obtained in this course for degree completion.

Co-Requisite: Must show proficiency in writing and reading.
(3 credit hours, 48 lecture hours, 0 lab hours)

CHLD 1213 Growth and Development of Infants and Toddlers [CD 112]
Emphasizes developmental processes and environmental factors that can affect physical growth, shape personality and achievement from conception to three years of age. Presents skills for group of individual care of infants or toddlers such as individual daily schedules, record keeping, food preparation, age appropriate discipline techniques and activities. Also, includes interpreting the Oklahoma licensing standards for infants and toddlers. Students apply learning in four clock hours of field experiences (labs).
(3 credit hours, 48 lecture hours, 0 lab hours)

CHLD 1301 Family and Parenting Issues
Focuses on basic concepts and strategies helpful for single parent family situations. The course is designed to help the parent and child/children deal with adjusting to change, parenting techniques, problem solving, time management and utilizing community resources.
(1 credit hour, 16 lecture hours, 0 lab hours)

CHLD 1521 Child Care Management
Presents basic concepts and strategies helpful to the director of a childcare program regarding responsibilities in budgeting, record keeping, controlling costs and ensuring a stable income. This course is designed to allow students to develop budgets, read and interpret graphs and charts, use their reasoning abilities to solve problems and make decisions related to the financial system.
(1 credit hour, 16 lecture hours, 0 lab hours)

CHLD 1602 Creating and Understanding Art with Young Children
The study of basic elements in arts. Appropriate methods, materials, and techniques for exploring art with young children will be investigated.
(2 credit hours, 32 lecture hours, 0 lab hours)

CHLD 1701 Integrating Technology in Early Childhood Classroom
This course introduces the use of technology to enhance teaching and learning in the early childhood setting. Concepts include technology, website design (for delivery of information to families) materials and adaptive technology for children with exceptionalities, facilitation of assessment/evaluation, and ethical issues surrounding the use of technology. Upon completion students should be able to apply technology-enhanced instructional strategies, use a variety of technology resources and demonstrate appropriate technology skills in educational environments.
(1 credit hour, 16 lecture hours, 0 lab hours)

CHLD 2003 Conscious Discipline [CD 102]
This course presents how to create the school family. The students learn how to foster a caring and cooperative environment and developmentally appropriate instruction that uses everyday situations to build character and social skills. Emphasis will be placed on principles of guidance and organization/management of classroom environments and instruction. A grade of “C” or better must be obtained in this course for degree completion.
Co-Requisite: CHLD 1103 for all AS and AAS Early Childhood students.
(3 credit hours, 48 lecture hours, 0 lab hours)
**CHLD 2013 Introduction to Child Development (Growth & Development) [CD 106]**

This course will identify patterns of the physical, intellectual and emotional/psycho-social development of children. The course will recognize the major theories of human development as they apply to children. Emphasis is on the study of the developmental aspects of child growth from conception to eight and its relationship to planning of appropriate curriculum for young children. Students apply learning in 32 clock hours of field experiences (labs). A grade of “C” or better must be obtained in this course for degree completion.

**Co-requisite:** CHLD 1103 for all AS and AAS Early Childhood students  
(3 credit hours, 32 lecture hours, 32 lab hours)

**CHLD 2113 Nutrition, Health and Safety [CD 106]**

This course is a study of principles of nutrition applied to the selection, preparation, and preservation of food as it relates to young children in early childcare and the study of health and safety for young children based on the environment. It includes the study of practices, supervision, and instruction in habits of health, care, and safety. Students apply learning in 16 clock hours of field experiences (labs). A grade of “C” or better must be obtained in this course for degree completion.

**Co-Requisite:** CHLD 1103 for all AS and AAS Early Childhood students  
(3 credit hours, 48 lecture hours, 0 lab hours)

**CHLD 2121 Capstone Seminar**

Capstone course is required of all students during their last semester. It provides an opportunity to synthesize learning from previous course work and field experience. Reflection, discussion, and individual and group activities are used to achieve course objectives. The culminating project is the development of a professional portfolio. Students apply learning in two clock hours of field experiences (labs). A grade of “C” or better must be obtained in this course for degree completion.  
(1 credit hour, 16 lecture hours, 0 lab hours)

**CHLD 2153 Behavior and Guidance [CS 102]**

This course presents the theoretical basis for the use of positive, constructive child guidance and discipline techniques in programs serving young children. Emphasis will be placed on principles of guidance and organization/management of classroom environments and instruction. Students apply learning in 32 clock hours of field experiences (labs). A grade of “C” or better must be obtained in this course for degree completion. (LAS)

**Co-Requisite:** CHLD 1103 for all AS and AAS Early Childhood students  
(3 credit hours, 48 lecture hours, 0 lab hours)

**CHLD 2303 The Abused and Neglected Child**

Designed to educate students in current federal, state, and local child abuse laws, including the Oklahoma licensing standards. Includes procedures for observations, documentation, and interpretation of policies; as well as activities to encourage problem solving and decision making.  
(3 credit hours, 48 lecture hours, 0 lab hours)

**CHLD 2313 Children’s Literature and Language [CD107]**

This course is a study of language development and emergent literacy theories and practices for children birth to age eight. Students learn children’s use of language for representing and constructing meaning. Literacy standards and stages of children’s language development are placed in context of the early childhood environment while creating and implementing literacy learning experiences. Students apply learning in 16 clock hours of field experiences (labs). (LAS)  
(3 credit hours, 48 lecture hours, 0 lab hours)
**CHLD 2323 Effective Parenting**

Provides effective parenting skills appropriate for anyone who is interested in parenthood. Students learn to teach and monitor child's progress, develop reasoning skills to implement proper first aid, medication, and appropriate guidance measures. Effective listening and spoken techniques in parent/teacher conferences are developed along with communicating skills. Child-care situations and resources are explained and written report examples are developed. The intellectual and emotional growth of children and parents will be taught as well as learning how to develop strategies for managing stressful situations.

(3 credit hours, 48 lecture hours, 0 lab hours)

**CHLD 2413 Planning Curriculum for Young Children [CD 109]**

This course has been designed for developing a preschool classroom that balances teacher- and child-directed learning by responding to children's learning styles and building on their strengths and interests. Provides the opportunity to plan, implement, and evaluate an integrated curriculum that takes into account cultural-valued content and children's home experiences. Students apply learning in 32 clock hours of field experiences (Labs). A grade of “C” or better must be obtained in this course for degree completion.

**Co-Requisite:** CHLD 1103 for all AS and AAS Early Childhood Students

(3 credit hours, 32 lecture hours, 32 lab hours)

**CHLD 2423 Child Care Management and Financial Strategies [CD 114]**

An introduction to effective personnel management and budgeting processes of an early childhood program. This course includes managing enrollment, staff recruitment and retention, budgets, and financial record keeping.

(3 credit hours, 48 lecture hours, 0 lab hours)

**CHLD 2511 Methods and Practicum in Cognitive Development**

Focuses on designing and delivering appropriate experiences in math, science, and social studies for the young child. Requires a minimum of 30 clock hours practicum in the public schools arranged with instructor.

(1 credit hour, 0 lecture hours, 30 lab hours)

**CHLD 2513 Cognitive Activities in Math, Science & Social Studies [CD 110]**

The study of suitable activities in the physical, natural and social sciences; also a study of the development of reasoning processes through concrete experiences.

(3 credit hours, 48 lecture hours, 0 lab hours)

**CHLD 2543 Socialization and Support of Young Children [CD 103]**

This course will focus on the relationships and promoting optimum development and support between the child, family, community, and early childhood educators. Students apply learning in 16 clock hours of field experiences (labs). A grade of "C" or better must be obtained in the course for degree completion.

**Co-Requisite:** CHLD 1103 for all AS and AAS Early Childhood students

(3 credit hours, 48 lecture hours, 0 lab hours)

**CHLD 2613 Creative Activities in Play, Art & Music [CD108]**

A survey of appropriate materials and techniques in presenting art, music, dance, and drama. Different types of play are studied.

(3 credit hours, 48 lecture hours, 0 lab hours)
**CHLD 2703 Children with Special Needs [CD104]**
This course introduces the students to children with special needs, their families, and support services. Emphasis is placed on the characteristics of special needs, observation and assessment of children, strategies for adapting the learning environment, and identification of community resources. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**CHLD 2773 Field Internship/Practicum**
Practical general training and experiences in the workplace. The college with the employer develops and documents an individualized plan for the student. The plan relates the workplace training and experiences to the student’s general and technical course of study. The guided external experiences may be for pay or no pay. This course may be repeated if topics and learning outcomes vary.
(3 credit hours, 0 lecture hours, 96 lab hours)

**CHLD 2801 Child Care Staff Management**
Presents organizational skills, such as developing and communicating, job descriptions, job qualifications, employee policies and staff work schedules. Develops skills in hiring and dismissing employees. Staff maintenance will be covered, including staff meetings, employee records, self-analysis and improvement. Emphasizes staff training strategies, such as educational activities, planning workshops, use of consultants and resource libraries.
(1 credit hour, 16 lecture hours, 0 lab hours)

**CHLD 2811 Food & Meal Management**
Presents interpretation of local, state and federal regulations regarding planning and servicing nutritious meals to the children, with sanitation and cost factors being considered. Emphasizes planning a cycle menu, evaluating nutrient content and calculating food costs as well as listing required kitchen equipment and outlining systems of sanitation, safety and purchasing for food service. Also, stresses serving meals to children in order to make mealtime fun and organized.
(1 credit hour, 16 lecture hours, 0 lab hours)

**CHLD 2821 Program Communications & Discipline**
Emphasizes the importance of open communication and positive relationships between the staff members and the parents. Also, concentrates on choosing strategies and techniques, which can be used in guiding child behavior.
(1 credit hour, 16 lecture hours, 0 lab hours)

**COMPUTER SCIENCE**

**COSC 1153 Microcomputer Applications [IS 001/CS 000]**
Designed to familiarize the student with fundamental terminology and concepts of microcomputers, their operating systems and disk management, as well as major production applications including word processing, spreadsheets, data base management systems, and includes desktop publishing, graphics, Internet, and data communications. (LAS)
Prerequisite: Basic knowledge of keyboarding recommended.
(3 credit hours, 48 lecture hours, 0 lab hours)

**COSC 1223 PC Operating Systems [IS 025]**
This course will acquaint students with the basic terminology and concepts related to various operating systems. Resource sharing and network connectivity are also presented.
COSC 1313 Computer Instructions & Software Design [IS 017/CS 001]
Introductory course in structured programming logic used in high-level languages. Pseudo code will be used to develop algorithms and common language structures will be introduced. The structured programming concepts of modularization, cohesion and coupling will also be studied. Flowcharts and structure charts will also be used. Some programs will be coded and debugged using a high-level programming language.
(3 credit hours, 48 lecture hours, 0 lab hours)

COSC 1333 Systems Analysis and Design [IS 020]
Overview of entire System Development Life Cycle with a more detailed discussion of the Analysis and Design phases. Included are: problem identification, needs analysis, fact gathering techniques, communication skills, feasibility analysis, various design tools, implementation, management and evaluation of the information systems in small to large scale companies and how these can play a significant role in operations and survival.
Prerequisite: COSC 1313
(3 credit hours, 48 lecture hours, 0 lab hours)

COSC 1343 COBOL I [IS 007/CS 006]
COBOL language, with emphasis on structured design and structured programming, with I/O routines, loops, switching routines, branching, subscripting, and other fundamental programming techniques. The student writes, compiles, debugs, executes, and tests COBOL programs drawn from a variety of disciplines.
Prerequisite: COSC 1313 or instructor's permission. Keyboard familiarity is helpful.
(3 credit hours, 48 lecture hours, 0 lab hours)

COSC 1403 Visual BASIC Programming [IS 002/CS 007]
A variety of Windows programs will be designed, coded, and debugged using Visual BASIC. Topics of discussion will include input/output, functions, subprograms, selection, repetition, arrays, and files. (LAS)
Prerequisite: COSC 1313 or concurrent enrollment
(3 credit hours, 48 lecture hours, 0 lab hours)

COSC 2153 Advanced Microcomputer Applications [IS 000]
Course covers in-depth, business-oriented examples of advanced features of microcomputer operating systems, word processing, spreadsheets, databases, and presentation graphics software. Advanced features also covered include mail merge, macros, communications, desktop publishing, data file transfer between applications, linking files and creating projects.
Prerequisite: COSC 1153
(3 credit hours, 48 lecture hours, 0 lab hours)

COSC 2163 Database Management [IS 019]
The main emphasis of this course will be using SQL to create, update, and manipulate a database. Other topics will include database capabilities, normalization, the advantages versus the disadvantages of databases, and database security.
Prerequisite: COSC 1153 or instructor approval
(3 credit hours, 48 lecture hours, 0 lab hours)
COSC 2713 Programming with C++ [IS 005/CS 008]
Course is designed to introduce students to the C++ programming language and object-oriented programming. Structured programming and software design techniques will be used to develop simple application. Topics will include control structures, input/output, files, arrays, and structs. (LAS)
Prerequisites: COSC 1113 and proficiency in another program language
(3 credit hours, 48 lecture hours, 0 lab hours)

COSC 2723 Advanced C++ Programming [IS 013/CS 012]
A course to further develop C++ programming skills. Structured programming and software design techniques will be used to develop advanced applications. Areas to be covered include classes, pointers, dynamic data, queues, linked structures, and object-oriented programming.
Prerequisite: COSC 2713
(3 credit hours, 48 lecture hours, 0 lab hours)

COSC 2813 Programming with Java [IS 006/CS 019]
Student will develop object-oriented Java applications and applets, which demonstrate comprehension of fundamental programming structures, object-oriented programming, graphics, event handling, interface components, programming for the Internet, data structures, and exception handling.
Prerequisite: COSC 2713
(3 credit hours, 48 lecture hours, 0 lab hours)

COSC 2823 Advanced Programming [IS 011]
In-depth study of a selected language. Structured programming practices will be stressed and advanced features of the language will be covered.
Prerequisite: Previous course in the selected language or instructor’s consent.
(3 credit hours, 48 lecture hours, 0 lab hours)

COSC 2843 COBOL.NET
The primary topics in this course are creating new COBOL programs using the .NET environment which will include GUI interfaces, as well as updating legacy programs in the .NET environment to create an interface similar to Windows programs. Topics such as object-oriented COBOL, exception handling, and using the form designer will also be included.
Prerequisite: COSC 1343; COSC 1403
(3 credit hours, 48 lecture hours, 0 lab hours)

COSC 2901, 2902, 2903 Directed Studies in Computer Science
This is a varying credit course that directs second year students into special projects designed to extend and complement the required curriculum.
(1-3 credit hours, 16-48 lecture hours, 0 lab hours)

COSC 2913 COBOL II [IS 015/CS 014]
A continuation of COSC 1343. Topics covered will include multi-dimensional tables, search procedures, file organizations (sequential, relative, and indexed), maintenance, and subprograms. Structured program design will be stressed. Students will design, write, test, and debug a variety of complex programs.
Prerequisite: COSC 1343
CRIJ 1003 Orientation and Legal Matters
The Constitution and legal basis of law enforcement: the penal code, formation of law enforcement bodies, local ordinances and regulatory functions. (COP students must take this course before Criminal Investigation).
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 1013 Introduction to Criminal Justice [CJ 101]
An overview of the criminal justice system, to include police, courts, and corrections as they pertain to both adults and juveniles. An understanding of the participants and their roles in accomplishing the missions of the criminal justice system.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 1033 Criminal Law I [CJ 105]
The basic concepts of the theory of substantive criminal law including sources, classification of crimes, anticipatory offenses, parties to crime, uncompleted crimes, criminal liability, and defenses.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 1043 Applied Criminology
The objective of this course is to introduce the student to the study of criminal behavior within our society. The information will be presented from both a theoretical and practical point of view. The information will be presented beginning with the theoretical point of view, and moving into specific crimes and cases for study.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 1113 Criminal Investigation [CJ 110]
An introduction to the fundamentals of criminal investigation, including theory and history, conduct at crime scenes, and collection and preservation of evidence.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 1503 Introduction to Corrections [CJ 103]
An overview of the historical development and a complete analysis of the entire adult corrections system.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 1513 Special Problems in Corrections
Intensive probing of selected problem areas through employment of concepts learned in previous courses. The instructor will select germane topics of which the following are examples: Problems in Development of Prison Industries, Selection of Parolees, Functions of Psychiatry in Prison, and Balancing of Treatment and Social Protection as Goals and Conflicting Role Demands in Police Work.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 1523 Interpersonal Relations in Corrections
This course emphasizes the application of various models of counseling and leadership to interpersonal relations with peers and inmates. Given a corrections social setting, the student will be able to select social and psychological techniques likely to elicit positive behavior in the setting.
CRIJ 1533 Correctional Treatment Systems
A study of the basic concepts of behavior therapies and therapeutic methods based on experimentally established principles of learning. Special attention is placed on custody, rehabilitation, and treatment programs as recognized by modern penology.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 1543 Firearms
Care and use of police firearms, including legal provisions and restrictions. COP students must have permission from department coordinator.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 1553 Defensive Tactics / Custody Control
The study and practice of methods of defense employed by police officers. COP students must have permission from department head.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2003 Community Relations [CJ 111]
An examination of the relationships existing between the police and the communities they serve. Emphasis will be placed on the officer’s role relative to the community, crime prevention, civil rights, and the elements of effective community relations.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2013 Patrol [CJ 112]
A study of the police patrol operation, its organization and measurement of effectiveness, assignment of personnel, department policies, public relations, and the use of equipment in patrol operations.
Prerequisite: CRIJ 1003
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2023 Police Administration [CJ 115]
This course views the police as a functional unit in the criminal justice process. It presents the principles of police organization and administration and surveys the administration of operational staff and auxiliary units including patrol, traffic, detective, and juvenile.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2043 Human Relations
Application of sociological theory and methods to various job situations. (GE, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2073 Correctional Services in the Community
A study of the problems of released prisoners; interrelationships between institutional programs and their subsequent experiences; and the place and functions of probation, parole, pre-release centers, halfway houses, and work release.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2103 Introduction to Juvenile Justice and Delinquency [CJ 10 4]
An overview of the organization, function, and jurisdiction of the juvenile justice system; methods of handling, processing and detention of juveniles; case disposition and court procedures.
CRIJ 2113 Traffic [CJ 113]
Police responsibility in traffic control; organization of traffic and patrol division; routine traffic duties and accident reports.
Prerequisite: CRIJ 1003
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2123 Criminal Evidence [CJ 109]
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2133 Criminal Procedures [CJ 108]
Rules, principles, and concepts governing the enforcement of arrest, search, and seizure primarily focusing on the Fourth, Fifth, and Sixth Amendments to the U.S. Constitution.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2241 Law Enforcement Driver Training
Emphasizes defensive driving skills needed by police officers. Open only to COP students with permission of department head.
(1 credit hour, 8 lecture hours, 20 lab hours)

CRIJ 2243 Current Issues in Criminal Justice
A survey of matters of topical interest which influence law enforcement in American society. Focus is on social actions; legislative, executive and court decisions; and contemporary developments within criminal justice agencies.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2253 Criminal Law II [CJ 106]
An examination of the nature of the criminal acts of substantive criminal law defining the necessary elements and punishment of each act.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2293 Introduction to Counseling
A survey of the individual and group approaches to counseling. The basic principles of human behavior and some of the techniques of changing attitudes and behavior are evaluated.
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2373 Criminal Justice Internship
A capstone experience. Placement of advanced Criminal Justice majors in community-based agencies for career development. Involves frequent contact with faculty supervisor and off-campus supervisor. May not be repeated without department director's approval.
Prerequisites: Sophomore standing, and department director's permission
(3 credit hours, 0 lecture hours, 100 lab hours)

CRIJ 2563 Practicum I
A capstone experience. Students work in a corrections institution in preparation for certification.
CRIJ 2573 Practicum II
A capstone experience. Students work in a corrections institution in preparation for certification.
(3 credit hours, 0 lecture hours, 100 lab hours)

CRIJ 2583 Practicum III
A capstone experience. Students work in a corrections institution in preparation for certification.
(3 credit hours, 0 lecture hours, 100 lab hours)

CRIJ 2601/2602/2603 Topics in Criminal Justice
A study of a topic which includes current analysis of industry problems or technical training which enhances student knowledge and skills within the criminal justice industry. This course may be repeated with different topics.
Prerequisite: Program director approval
(1-3 credit hours, 16-48 lecture hours, 0 lab hours)

CRIJ 2703 Introduction to Substance
As an overall introduction to the field of substance abuse studies, this course covers categories of substance abuse, physiological and psychological effects of alcohol and other drugs, the disease concept of addiction, family and social dimensions of substance abuse, and the principle therapy and treatment approaches to the disease. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2803 Domestic Violence
An examination of the relationships of individuals in society, dealing in particular with recognized relationships and conflict. A focus on child, spouse, and elderly abuse with discussion of services available to the abused is studied. Social influences will be examined that may cause or reinforce violent behavior in the home. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2812 Private Security Skills I
Required for all forms of security guard licenses. Course is related to general private security tasks such as: interpreting the Oklahoma Security Guard and Private Investigator Act, developing basic first aid skills, operating a fire extinguisher and firefighting equipment, writing field notes and reports, and interpreting legal powers and limitations.
(2 credit hours, 32 lecture hours, 0 lab hours)

CRIJ 2813 Victimology
This course is a survey course of contemporary developments in the field of victimology. The course will focus on conceptual boundaries, basic concepts, literatures, and its sub-fields and role as a field of study in criminal justice and sociology. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

CRIJ 2822 Private Security Skills II
Course is related to tasks of unarmed security guards. Instruction will be given in public relations, performing fixed post duties, patrolling, and investigating security incidents.
(2 credit hours, 32 lecture hours, 0 lab hours)
**CRIJ 2832 Private Security Skills III**  
Course is related to tasks of private investigators. Instruction will be given in responsibilities to clients, interpreting private investigations laws, complying with the Fair Credit Reporting Act, conducting investigations and surveillance, and locating and communicating information.  
(2 credit hours, 32 lecture hours, 0 lab hours)

**CRIJ 2842 Private Security Skills IV**  
Course is related to firearms skills for armed security and private investigators. Instruction will be given in safety, revolver maintenance and nomenclature, inspecting, revolver shooting fundamentals, legal issues and deadly force, range procedures and tower commands, revolver qualification, and shotgun familiarization.  
(2 credit hours, 8 lecture hours, 24 lab hours)

**CRIJ 2901/2902/2903 Law Enforcement Seminar**  
The study, practice, and/or analysis of a selected topic in law enforcement. This course will be especially useful for Collegiate Officer Program (COP) students who need special areas of study in order to progress in the proper sequence while in the COP program. May be repeated with a different topic.  
**Prerequisite**: Instructor permission  
(1-3 credit hours, 16-48 lecture hours, 0 lab hours)

**CRIJ 2913 The Study of Terrorism**  
This course studies the effects of terrorism on our society. The course examines past, present, and future international players in the world of terrorism. The course is designed to develop a better understanding of terrorism while managing the consequences. (LAS)  
(3 credit hours, 48 lecture hours, 0 lab hours)

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**ECONOMICS**

**ECON 2113 Principles of Economics I [BU 410]**  
Fundamental macroeconomic principles appearing in production, consumption, and distribution of wealth; monetary and fiscal policy; determinants of such aggregates as national income, output, inflation, employment and price; and aspects of international trade interdependence. (LAS)  
(3 credit hours, 48 lecture hours, 0 lab hours)

**ECON 2123 Principles of Economics II [BU 420]**  
The continuation of ECON 2113, Principles of Economics I, with fundamental microeconomic principles involving behavior of consumers, business firms, market structures, and resource owners as they relate to the allocation of resources; individual price and output determination; goals of economic behavior with applications and illustrations from current issues; and international trade. (LAS)  
**Prerequisite**: ECON 2113  
(3 credit hours, 48 lecture hours, 0 lab hours)

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**EMERGENCY MEDICAL TECHNOLOGY**

**EMED 1238 Basic Emergency Care**  
Introduction to roles and responsibilities of the emergency medical technician by presenting terminology, concepts and techniques of pre-hospital patient care. Students learn to prioritize emergency care, medical-legal aspects, functional anatomy, cardiac and pulmonary problems,
wounds and fractures, medical and environmental emergencies, extrication, rescue and ambulance operations. Students will function as part of the pre-hospital team and learn how to control an emergency and apply their new knowledge of skills and achieve the goal of communicating with medical personnel and patients.  This course is not available for credit except through an active Western Oklahoma State College Cooperative Agreement.
(8 credit hours, 64 lecture hours, 96 clinical hours)

**EMED 1253 Basic Skills Practicum**
Introduction to emergency patient care. Designed to complement EMED 1238 and required of students wishing to write the exam for emergency medical technician. Includes students writing and interpreting patient records and relevant reports. Students learn to prioritize care, participate as part of the ambulance and hospital team, and perform skills to their level of knowledge and ability. Students will be exposed to the pre-hospital setting and hospital setting, and learn how to apply and use their knowledge and skills. The student will be responsible for achieving their EMED clinical goals and learn to communicate with instructors, hospital, and ambulance staff and patients. This course is not available for credit except through an active Western Oklahoma State College Cooperative Agreement.
(3 credit hours, 0 lecture hours, 82 clinical hours)

**ENGINEERING**

**ENGR 2113 Statics [EG 223]**
Analysis of forces at rest as they relate to structural systems and machine elements; forces, moment of force, distributed forces, reactions, free-body diagrams, friction, internal forces, and moments of inertia with applications.
**Prerequisite:** PHYS 1115 and MATH 2215
(3 credit hours, 48 lecture hours, 0 lab hours)

**ENGR 2123 Elementary Dynamics [EG 233]**
Dynamic equilibrium of particles and bodies. Principles of work, energy, impulse, and momentum.
**Prerequisite:** ENGR 2113
(3 credit hours, 48 lecture hours, 0 lab hours)

**ENGLISH**

**ENGL 0123 English Fundamentals**
A pre-collegiate course designed to aid students in mastering the basic language arts and communications skills. The course does not count toward degree requirements or in a student’s cumulative grade-point average.
(3 credit hours, 48 lecture hours, 0 lab hours)

**ENGL 0223 ESL Writing/Usage I**
A pre-collegiate level beginning English as a Second Language course for non-native speakers emphasizing elementary competency in standard written English with a focus on basic grammar, writing skills, and sentence structure.
(3 credit hours, 48 lecture hours, 0 lab hours)

**ENGL 0243 ESL Writing/Usage II**
A pre-collegiate level intermediate English as a Second Language course for non-native speakers of English designed to aid students in developing skills in standard written English with a continued focus on basic grammar, writing skills, and paragraph and essay structure.

Prerequisite: ENGL 0223, ESL Writing/Usage I or appropriate placement score
(3 credit hours, 48 lecture hours, 0 lab hours)

**ENGL 1113 English Composition I [E 001]**
Systematic analysis of expository rhetoric and composition with regular practice to develop proficiency. (GE, LAS)

**Prerequisites**: Score of 70 on Compass exam, 19 on ACT, or satisfactory in English Fundamentals
(3 credit hours, 48 lecture hours, 0 lab hours)

**ENGL 1213 English Composition II [E 002]**
This course is comprised of two parts: a research component and a literature component. Students will learn the research process; develop and complete a research paper; and read, analyze, and write about literature in three genres – short fiction, poetry, and drama. (GE, LAS)

**Prerequisite**: ENGL 1113
(3 credit hours, 48 lecture hours, 0 lab hours)

**ENGL 2123 Creative Writing [E 010]**
A study of the writing techniques involved in the various literary genres. The course provides a survey of all writing areas with emphasis on individualized writing interest. Extensive outside practice writing; class analysis and discussion. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**ENGL 2413 Introduction to Literature [E 003]**
An introduction to literature’s forms and components. Readings in prose, poetry, and drama accentuate the universality of literature from a variety of cultures and eras. (GE, LAS, H)
(3 credit hours, 48 lecture hours, 0 lab hours)

**ENGL 2453 African American Literature**
This course will be a combination of literature created about and by African Americans from pre-slavery to current day. It will contain reading, study, and discussion of prominent African American writers with particular attention to themes and philosophies dealing with the African American experience. This will demonstrate the ways in which African Americans have contributed to, been influenced by, and have transformed America. (H, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**FIRE COURSES**

**FIRE 1113 Basic Fire Skills A**
This course introduces basic fire fighter knowledge and skills to meet initial requirements for Fire Fighter I certification. *(Cooperative Agreement Course Only)*
(3 credit hours, 48 lecture hours, 0 lab hours)
FIRE 1122 Basic Fire Skills B
This course builds on basic skills to meet requirements for Fire Fighter I certification. This course adds more performance-based training and addresses core subjects not previously covered. Instruction helps career and volunteer personnel meet NFPA 1001 Fire Service Professional Qualifications standards. (Cooperative Agreement Course Only)
(2 credit hours, 32 lecture hours, 0 lab hours)

FIRE 1133 Basic Fire Skills C
This course includes advanced training on core subjects leading to Fire Fighter II certification. Includes practical exercises and scenario training. (Cooperative Agreement Course Only)
(3 credit hours, 48 lecture hours, 0 lab hours)

FIRE 1141 Live Fire Training
This course conducts Class A and B live burns, required to meet objectives of Fire Fighter I and II certifications. (Cooperative Agreement Course Only)
(1 credit hour, 16 lecture hours, 0 lab hours)

FIRE 1153 HazMat First Responder
This course introduces hazardous materials and the appropriate defensive actions and tactics to be employed to safely control and confine releases. (Cooperative Agreement Course Only)
(3 credit hours, 48 lecture hours, 0 lab hours)

FIRE 1164 Fire Fighter I
This course is designed to cover basic knowledge and skills needed to function as a firefighter. It also introduces National Incident Management System (NIMS). It explains the purpose, principles, key components, and benefits of NIMS. (Cooperative Agreement Course Only)
(4 credit hours, 32 lecture hours, 64 lab hours)

FIRE 2512 Basic Skills Instructor
This course is for entry-level departmental instructors so that they can meet NFPA 1041 performance standards. This includes skills included in the Fire Departmental Instructional Techniques (formerly Instructor Level I) course. (Cooperative Agreement Course Only)
(2 credit hours, 32 lecture hours, 0 lab hours)

FIRE 2521 Health & Safety Officer
This course introduces the Health and Safety Officer’s role in identifying, evaluating, and implementing policy and procedures that affect health and safety aspects of emergency responders. (Cooperative Agreement Course Only)
(1 credit hour, 16 lecture hours, 0 lab hours)

FIRE 2531 Incident Command Instructor
This National Fire Academy course introduces instructors to key concepts of EMS-specific incident Command, and presents instructional methodology for teaching this course. (Cooperative Agreement Course Only)
(1 credit hour, 16 lecture hours, 0 lab hours)

FIRE 2541 Tactical Operations Instructor
This course introduces material designed to develop company officer’s supervisory and management capabilities in structural fire fighting operations. (Cooperative Agreement Course Only)
FIRE 2543 Practicum
A capstone experience, students will work in an approved fire department under supervised conditions. Students will understand National Incident Management System. *(Course offered through Cooperative Alliance Only)*
(3 credit hours, 15 lecture hours, 80 lab hours)

FIRE 2551 Incident Safety Instructor
This course identifies and analyzes safety concerns as they relate to all hazards scene evaluation. *(Cooperative Agreement Course Only)*
(1 credit hour, 16 lecture hours, 0 lab hours)

FIRE 2562 Fire Course Development
This course is designed for the instructor who aspires to the Instructor Level II certification. The student prepares curriculum and develops a lesson plan. *(Cooperative Agreement Course Only)*
(2 credit hours, 32 lecture hours, 0 lab hours)

FIRE 2811 Wildland Fire Skills
This course is designed for instructors who wish to teach Wildland Fire Fighter II according to NFPA 1051 standards. *(Cooperative Agreement Course Only)*
(1 credit hour, 16 lecture hours, 0 lab hours)

FIRE 2821 LPG Emergency Operations
This course introduces basics of LPG properties. Skills in emergency operations and safety are acquired. *(Cooperative Agreement Course Only)*
(1 credit hour, 16 lecture hours, 0 lab hours)

FIRE 2834 Inspection Codes and Standards
This course prepares the student to meet Fire Inspector I job performance requirements as outlined in NFPA 1031. A working knowledge of inspection techniques and reporting mechanisms, as well as prevailing codes and standards are obtained. *(Cooperative Agreement Course Only)*
(4 credit hours, 72 lecture hours, 0 lab hours)

FIRE 2843 Fire Investigation
This course introduces initial fire investigation according to the National Fire Academy’s 48-hour course outline. Suited for fire investigation personnel with less than six months of field experience. *(Cooperative Agreement Course Only)*
(3 credit hours, 48 lecture hours, 0 lab hours)

FIRE 2852 Arson Investigation and Prevention
This course presents investigators with advanced skills in gathering, managing, and presenting investigative findings. Guided by NFPA codes 1033 and 921. *(Cooperative Agreement Course Only)*
(2 credit hours, 32 lecture hours, 0 lab hours)

FIRE 2911 Confined Space Rescue
This course introduces safety and tactical considerations relating to confined space rescue incidents. Attention is given to 29 CFR 1910.46 and other applicable standards. *(Cooperative Agreement Course Only)*
(1 credit hour, 16 lecture hours, 0 lab hours)
FIRE 2921 Trench Rescue
This course familiarizes participants with planning, various methods, equipment usage, and operational procedures for successful trench rescue. (Cooperative Agreement Course Only)
(1 credit hour, 16 lecture hours, 0 lab hours)

FIRE 2931 Vehicle Extrication
This course introduces the Assize up @ problem-solving process. Students demonstrate proper protective gear and operational skills in vehicular rescue. (Cooperative Agreement Course Only)
(1 credit hour, 16 lecture hours, 0 lab hours)

FIRE 2941 Rope Rescue I
This course introduces sound fundamentals of high angle rescue to fire and EMS personnel. (Cooperative Agreement Course Only)
(1 credit hour, 16 lecture hours, 0 lab hours)

FIRE 2951 Rope Rescue II
This course specializes in specific skills such as patient packaging, rigging, and mechanical advantage systems. (Cooperative Agreement Course Only)
(1 credit hour, 16 lecture hours, 0 lab hours)

FIRE 2961 Rope Rescue III
This course focuses on advanced skill such as 3:1 and 4:1 mechanical advantage systems, knots, and advanced rigging techniques. (Cooperative Agreement Course Only)
(1 credit hour, 16 lecture hours, 0 lab hours)

FIRE 2972 NWCG Wild land Qualification
This course provides instructional depth on Wild land fuels, weather and topography and emphasizes wildfire suppression techniques. (Cooperative Agreement Course Only)
(2 credit hours, 32 lecture hours, 0 lab hours)

FOREIGN LANGUAGE

SPAN 1113 Conversational Spanish
Intensive practice in speaking Spanish on topics of everyday life. Study designed to develop fluency in speaking Spanish and a command of idiomatic expression. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

SPAN 1115 Beginning Spanish I [WL 110-SP]
A course designed to establish a sound foundation in the basics of the language, understanding, speaking, reading, and writing Spanish. Emphasis is on essentials of grammar and phonetics, simple reading, composition, and oral-aural practice in classroom. (GE, LAS, H)
(5 credit hours, 80 lecture hours, 0 lab hours)

SPAN 1225 Beginning Spanish II [WL 120-SP]
Follows SPAN 1115, Beginning Spanish I. Continued review of grammar, idioms, composition, oral-aural practice, and readings in modern Spanish usage. Emphasis is on expansion of the student’s passive vocabulary and his ability to make inferences as to the meaning of Spanish constructions. (GE, LAS, H)
Prerequisite: SPAN 1115 or instructor’s permission
(5 credit hours, 80 lecture hours, 0 lab hours)
GEOGRAPHY

**GEOG 2243 Fundamentals of Human Geography [GG 102]**
An introductory course which emphasizes the interrelationships of man and his physical and cultural environment. (GE, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**GEOG 2253 Physical Geography [GG 103]**
Introduction to physical geography with emphasis on the distribution and analysis of the earth's natural features including soil types, landforms, vegetation, water, climates, weather, minerals, and human-environment relations. (GE, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

GEOLOGY

**GEOL 1114 General Geology [GS 110]**
Fundamentals of physical and historical geology, including basic mineral and rock types, rock structures, plate tectonics, erosion and deposition, and principles of interpreting earth history. (GE, LAS)
(4 credit hours, 48 lecture hours, 32 lab hours)

HISTORY

**HIST 1223 Early Western Civilization [HS 001]**
A survey of early European civilization from prehistoric times to 1648. (GE, LAS, H)
(3 credit hours, 48 lecture hours, 0 lab hours)

**HIST 1323 Modern Western Civilization [HS 002]**
A survey of European civilization from 1648 to present. (GE, LAS, H)
(3 credit hours, 48 lecture hours, 0 lab hours)

**HIST 1483 American History (1492 to 1865) [HS 005]**
A survey of American History from the discovery of the New World through the Civil War. (GE, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**HIST 1493 American History (1865 to Present) [HS 006]**
A survey of American History from the Reconstruction period after the Civil War to the present. (GE, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**HIST 2323 Oklahoma History [HS 007]**
A survey of the development of Oklahoma from the first explorers to the present. (GE, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**HIST 2901, 2902, 2903 Selected Topics in History**
A directed study of history, providing the opportunity for the student to study a selected topic and develop elementary skills in research, analysis, interpretation, and writing as they pertain to history. May be repeated for a maximum of three credit hours. (GE, LAS)
Prerequisite: Permission of the instructor and academic dean  
(1-3 credit hours, 0 lecture hours, 32-96 lab hours)

**HEALTH, PHYSICAL EDUCATION, AND RECREATION**

**HPER 1003 Lifetime Health**
This course is designed to provide the student with a philosophy of living that encourages a higher quality of life and a state of well being. Lifestyle choices are identified and explained in regard to proper exercise, weight management, stress management, health care, nutrition and cardiovascular disease prevention. Assessment techniques and development of individual prescriptions in the areas of muscular strength, muscular flexibility, cardiovascular endurance, body composition, and nutrition are studied. Lifetime leisure skills are identified and developed to provide a well rounded exposure to wellness.  
(3 credit hours, 48 lecture hours, 0 lab hours)

**HPER 1021 Cardio-Circuit Training**
Skills and training in exercise for flexibility, muscle strengthening, and cardiovascular fitness including monitoring pulse. Activity course. (GE)  
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1053 Personal and Community Health**
Principles from the physical, biological, and social sciences applied to personal and community health policy and practice. (LAS)  
(3 credit hours, 48 lecture hours, 0 lab hours)

**HPER 1071 Swimming**
Orientation to water, floating, diving, basic swimming skills, crawl stroke. Activity course. (GE)  
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1092 Lifeguard Training**
Theory and training in skills required for qualification as a non-surf lifeguard. Red Cross approved. (GE)  
(2 credit hours, 32 lecture hours, 0 lab hours)

**HPER 1101 Bowling**
Rules, skills, and practice in bowling. Activity course. (GE)  
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1111 Physical Conditioning**
Course targets the physical conditioning and concepts needed to perform in emergency and protective service careers.  
Prerequisites: Admission to Corrections Program or permission of instructor  
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1121 Social Dance**
Instruction and practice of a variety of popular dances for exercise and enjoyment. Activity course. (GE)  
(1 credit hour, 0 lecture hours, 32 lab hours)
**HPER 1171 Water Exercise**
Introductory exercises in the water with motivation and training in overall fitness. Activity course. (GE)
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1231 Intercollegiate Softball-Women**
Rules, skills, strategies, and practice of softball with intercollegiate team competition for women. Activity course. (GE)
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1241 Intercollegiate Baseball-Men**
Rules, skills, strategies, and practice of baseball with intercollegiate team competition for men. Activity course. (GE)
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1251 Intercollegiate Basketball-Men**
Rules, skills, strategies, and practice of basketball with intercollegiate team competition for men. Activity course. (GE)
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1261 Intercollegiate Basketball-Women**
Rules, skills, strategies, and practice of basketball with intercollegiate team competition for women. Activity course. (GE)
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1271 Aerobics**
Skills and practice of aerobic exercises for muscle tone and circulatory conditioning. Activity course. (GE)
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1282 Care and Treatment of Athletic Injuries**
Safety and prevention of injuries in athletic and physical education programs, with theory and practice of emergency treatment and care for injuries and illness.
(2 credit hours, 32 lecture hours, 0 lab hours)

**HPER 1311 Golf**
Rules, skills, strategies and practice of golf with intercollegiate team competition for men. Activity course (GE)
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1321 Intercollegiate Golf-Women**
Rules, skills, strategies, and practice of golf with intercollegiate team competition for women. Activity course. (GE)
(1 credit hour, 0 lecture hours, 32 lab hours)
**HPER 1331, Intercollegiate Golf-Men**  
Rules, skills, strategies and practice of golf with intercollegiate team competition for men. Activity course (GE)  
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1421 Cheerleading**  
Theory, skills, and practice of cheerleading, including squad activities at college sporting and promotional events. Activity course. (GE)  
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1423 Nutrition**  
A basic course in which nutrients are studied in relation to the food requirements of an individual’s nutrition. (LAS)  
(3 credit hours, 48 lecture hours, 0 lab hours)

**HPER 1431 Intercollegiate Rodeo-Men and Women**  
Rules, skills, strategies, and practice of rodeo with intercollegiate team competition. Activity course. (GE)  
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1541 Swimming Conditioning**  
Theory and practice of aerobic conditioning in water exercises. Activity course. (GE)  
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 1881 Water Safety Instructor**  
Instruction in general water safety, causes and prevention of water accidents, and skills and teaching methodologies for water safety. Red Cross approved.  
(1 credit hour, 16 lecture hours, 0 lab hours)

**HPER 1953 Introduction to Health, Physical Education, and Recreation**  
History, philosophy, current practices and opportunities in the field of Health, Physical Education, and Recreation. (LAS)  
(3 credit hours, 48 lecture hours, 0 lab hours)

**HPER 1991 Country and Western Dance**  
Instruction and practice of a variety of traditional and contemporary country and western dances for exercise and enjoyment. Activity course. (GE)  
(1 credit hour, 0 lecture hours, 32 lab hours)

**HPER 2013 Sports Officiating I**  
Study of interpretation of rules and practice in officiating at football, soccer, volleyball, and swimming events including tournaments and meets.  
(3 credit hours, 48 lecture hours, 0 lab hours)

**HPER 2023 Sports Officiating II**  
Study of interpretation of rules and practices in officiating at baseball, basketball, softball, and wrestling events including tournaments and meets.  
(3 credit hours, 48 lecture hours, 0 lab hours)
HPER 2111/2112/2113 CPR/First Aid
Theory and practical skills for emergencies when medical assistance is not available, including techniques of CPR and clearing airway obstructions.
(1-3 credit hours, 16-48 lecture hours, 0 lab hours)

HUMANITIES

HUMA 1133 Humanities Seminar [HH 010]
A course designed for those who have a special interest in the humanities or some specialized area of the humanities. The three-hour course guides freshmen and sophomore students through an intense immersion into another culture via overseas travel. Students will travel to, and interact with, natives from other countries, in surveys, personal meetings, and by physically visiting places of cultural interest. The course will be administered by a traveling faculty member who will be responsible for the course work. (H, LAS)
(3 credit hours, 48 lecture hours, 16 lab hours)

HUMA 2113 General Humanities I [HH 001]
This humanities course provides an examination of various art forms, including philosophy, drama, music, literature, painting, and architecture from the beginning of civilization through the Medieval Period. (H, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

HUMA 2131-2133 Selected Topics in Humanities [HH 010]
A directed study of the humanities, providing the opportunity for the student to study a selected topic and develop elementary skills in research, analysis, interpretation, and writing as they pertain to the humanities. May be repeated for a maximum of three credit hours. (LAS, H)
Prerequisite: Permission of the instructor and academic dean
(1-3 credit hours, 0 lecture hours, 32-96 lab hours)

HUMA 2223 General Humanities II [HH 002]
This humanities course provides an examination of various art forms, including philosophy, drama, music, literature, painting, and architecture beginning with the Renaissance and continuing into the modern era. (H, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

JOURNALISM

JOUR 1113 Introduction to Mass Communication [JR 130]
A survey course of the field of mass communications and its influence on modern society. This course is also a comparative study of communication through newspapers, radio, television, magazines, and motion pictures with emphasis on journalism techniques. Special emphasis will be placed on emerging technologies, such as the Internet and the rapidly increasing varieties of news and entertainment outlets. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

JOUR 2001-2003 Individual Studies in Communications
Independent study provides the opportunity for specialized activities that augment a student’s program of study. At Western, independent study in journalism will consist of an internship arrangement through the Public Information and Marketing Office on campus or through a commercial media outlet in the geographical area. Students who work off campus will be required to maintain a log and/or complete a portfolio depending on the type of assignment(s) agreed upon. Students may choose to focus on a specialty area such as video, graphics, or writing, or a broader approach, such as working as a general assistant to the Public Information/Marketing Office. A minimum of 32 hours of work is required per credit hour. Permission of the Coordinator for Arts and Humanities Division is required.

(1-3 credit hours, 0 lecture hours, 32-96 lab hours)

**MANAGEMENT**

**MGMT 2213 Principles of Management [MG 001]**
An introductory management course dealing with the fundamental principles of management such as planning, organizing, leading, and controlling the basic processes. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**MGMT 2323 Principles of Marketing [MK003]**
A survey course for students who have prior course work and understanding in business, includes a survey of all the aspects of marketing - consumer behavior issues, products, pricing, distribution, promotion, research, strategy, and trends. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**MATHEMATICS**

**MATH 0103 Basic Mathematics**
Reviews and provides a solid foundation in fractions, decimals, percent, ratio, proportion, and elementary geometry, preparing students for Beginning Algebra. The course reviews this background material using methods suited to the adult student. Pre-college level credit. Does not fulfill general education requirement.

**Prerequisite:** Appropriate placement score
(3 credit hours, 48 lecture hours, 0 lab hours)

**MATH 0113 Beginning Algebra**
A pre-college level course especially for students who have no algebra background. Topics covered include introduction to the real number system, solving linear equations and inequalities, arithmetic operations using polynomials, and factoring. Does not fulfill General Education requirement.

**Prerequisite:** Appropriate placement score or satisfactory completion of MATH 0103
(3 credit hours, 48 lecture hours, 0 lab hours)

**MATH 0123 Intermediate Algebra**
A pre-college course designed to assist the student in the study of rational expressions, roots and radicals including complex numbers, quadratic equations and inequalities, graphing linear equations, slope, and linear inequalities, and an introduction to functions. This course does not satisfy requirements for any degree plan at Western Oklahoma State College. This course is a high school deficiency removal course.

**Prerequisite:** Appropriate placement score or satisfactory completion of MATH 0113
MATH 1143 Survey of Mathematics [MA 201]
An introduction to mathematical ideas and their applications. Topics are chosen from set theory, logic, probability and statistics, number theory, and graph theory. (GE, LAS)
Prerequisite: Appropriate placement score or MATH 0123
(3 credit hours, 48 lecture hours, 0 lab hours)

MATH 1513 College Algebra [MA 203]
Course content includes graphic relations and functions, rational functions and their zeros, quadratic equations and inequalities, exponential and logarithmic functions, systems or equations, sequences and series, probability, permutations, combinations and matrices. (GE, LAS)
Prerequisite: Appropriate placement score or MATH 0123
(3 credit hours, 48 lecture hours, 0 lab hours)

MATH 1613 Trigonometry [MA 204]
Course content includes trigonometric functions, identities and equations, trigonometric function graphs, inverse trigonometric functions, solutions of triangles, complex numbers, exponential functions, and logarithmic functions. (GE, LAS)
Prerequisite: MATH 1513
(3 credit hours, 48 lecture hours, 0 lab hours)

MATH 1743 Elementary Calculus for Business, Life, and Social Sciences [MA 602]
Introductory course in calculus for non-mathematics major with topics in limits, derivatives, differentiation, integration of polynomial functions, and introduction to exponential and logarithmic functions. Applications related to the business, economics, and the social sciences. (LAS)
Prerequisite: Math 1513
(3 credit hours, 48 lecture hours, 0 lab hours)

MATH 2013 Elementary Statistics [PY 105/ST 001]
Provides an introduction to the elements of statistics. Includes frequency distributions, measures of central tendency, elementary probability, binomial distribution, measures of variation, normal distributions, random sampling, tests of significance, t-test and chi-square test. Projects may be assigned using statistical software. (LAS)
Prerequisite: MATH 1513
(3 credit hours, 48 lecture hours, 0 lab hours)

MATH 2215 Calculus I
Topics include differentiation and integration of functions, curve tracing, definite integrals, and treatment of trigonometric, exponential, and logarithmic functions. (GE, LAS)
Prerequisites: MATH 1513, MATH 1613. (May be entered directly from high school if student’s courses included college algebra and trigonometry and if student’s ACT test is sufficiently high)
(5 credit hours, 80 lecture hours, 0 lab hours)

MATH 2235 Calculus II
Topics include hyperbolic functions, techniques of integration, disc and shell methods, parametric equations and polar coordinates, l’Hôpital’s Rule, sequences and series, and an introduction to vectors. (GE, LAS)
Prerequisite: MATH 2215
(5 credit hours, 80 lecture hours, 0 lab hours)

**MATH 2273 Calculus III**
A continuation of MATH 2235 Calculus II. Includes vectors, infinite series, partial derivatives, multiple integration, Green’s Theorem, and Stokes’ Theorem.
Prerequisite: MATH 2235
(3 credit hours, 48 lecture hours, 0 lab hours)

**MUSIC (APPLIED)**

**MUAP 1100 Recital Attendance**
Non-credit course required for all instrumental applied lessons. (Lab to applied lessons.)
(0 credit hours, 0 lecture hours, 2 lab hours)

**MUAP 1111 Applied Brass I [MU 130]**

**MUAP 1121 Applied Brass I [MU 131]**

**MUAP 2131 Applied Brass III [MU 132]**

**MUAP 2141 Applied Brass IV [MU 133]**

**MUAP 1211 Applied Woodwind I [MU 090]**

**MUAP 1221 Applied Woodwind II [MU 091]**

**MUAP 2231 Applied Woodwind III [MU 092]**

**MUAP 2241 Applied Woodwind IV [MU 093]**

**MUAP 1241 Applied Guitar I**

**MUAP 1251 Applied Guitar II**

**MUAP 2041 Applied Guitar III**

**MUAP 2051 Applied Guitar IV**

**MUAP 1311 Applied Strings I [MU 070]**

**MUAP 1321 Applied Strings II [MU 071]**

**MUAP 2331 Applied Strings III [MU 072]**

**MUAP 2341 Applied Strings IV [MU 073]**

**MUAP 1411 Applied Percussion I [MU 110]**
MUAP 1421 Applied Percussion II [MU 111]
MUAP 2431 Applied Percussion III [MU 112]
MUAP 2441 Applied Percussion IV [MU 113]
MUAP 1511 Applied Organ I [MU 030]
MUAP 1521 Applied Organ II [MU 031]
MUAP 2531 Applied Organ III [MU 032]
MUAP 2541 Applied Organ IV [MU 033]
MUAP 1611 Applied Piano I [MU 030]
MUAP 1621 Applied Piano II [MU 031]
MUAP 2631 Applied Piano III [MU 032]
MUAP 2641 Applied Piano IV [MU 033]
MUAP 1711/ 1712/ Applied Voice I [MU 050]
MUAP 1721/ 1722/ Applied Voice II [MU 051]
MUAP 2731/ 2732/ Applied Voice III [MU 052]
MUAP 2741/ 2742/ Applied Voice IV [MU 053]

Private instructions in piano, organ, voice, strings, wind or percussion instruments is primarily for music majors, but open to all students as an elective. One half-hour lesson per week per hour of credit. Performance in recital is a requirement for all music majors and minors; all students enrolled will perform before a faculty jury before a final grade is issued. May be repeated for credit. All students enrolled in applied lessons must enroll in MUAP 1100 or MUAP 1101.

(1 credit hour, 0 lecture hours, 32 lab hours)

MUAP 1110 Vocal Recital Attendance
Non-credit course required for all vocal applied lessons.

Prerequisite: Instructor permission required. Must be enrolled in Applied Voice I, II, III or IV.

(0 credit hours, 0 lecture hours, 3 lab hours)

MUAP 1271 Western Jazz Ensemble Lab
A lab all Western Jazz students must attend once a week.

Prerequisite: Must be enrolled in Western Jazz

(1 credit hour, 0 lecture hours, 32 lab hours)

MUAP 1431 Brass Class
Class instruction in one brass instrument and survey of the brass family. May be repeated for credit.

(1 credit hour, 0 lecture hours, 32 lab hours)
MUAP 1531 Woodwind Class
Class instruction in one woodwind instrument and survey of the woodwind family. May be repeated for credit.
(1 credit hour, 0 lecture hours, 32 lab hours)

MUAP 1631 Percussion Class
Class instruction in one percussion instrument and survey of the percussion family. May be repeated for credit.
(1 credit hour, 0 lecture hours, 32 lab hours)

MUSIC

MUSI 1013 American Popular Music
A lecture course for students of all levels. The focus is on American popular music of the last two hundred years, and mainly the twentieth century. Folk music, Tin Pan Alley, rock ’n roll, jazz, and blues are some of the highlighted areas of study. (GE, LAS, H)
(3 credit hours, 48 lecture hours, 0 lab hours)

MUSI 1033 Fundamentals of Music [MU 003]
Course is a precursor to Music Theory covering the elements of music inclusive of staffs, clefs, key signatures, meter signatures, intervals, etc. (LAS, H)
(3 credit hours, 48 lecture hours, 0 lab hours)

MUSI 1133 Music Appreciation [MU 001]
A study of the basic elements of music to encourage the enjoyment and appreciation of the various styles and periods of music history. Includes listening to recordings of music and attending musical performances. (GE, LAS, H)
(3 credit hours, 48 lecture hours, 0 lab hours)

MUSI 1252 Western Jazz Band [MU 230, MU 231, MU 232, MU 233]
The band studies and performs a wide variety of music including contemporary, jazz, and traditional styles. The band performs at most home basketball games and various civic events. The band also tours and aids with recruitment for the college. Student must have consent of instructor. Scholarships are available to qualified students.
(2 credit hours, 0 lecture hours, 64 lab hours)

MUSI 1261 Community Jazz Band [MU 250, MU 251, MU 252, MU 253]
Instrumental ensemble open to adults who play saxophone, trumpet, trombone, piano, trap set, electric guitar and bass.
Prerequisite: To be able to read music for your instrument. To have high school or above playing ability on a jazz band instrument.
(1 credit hour, 0 lecture hours, 32 lab hours)

MUSI 1271 Wind Ensemble [MU 230, MU 231, MU 232, MU 233]
A wind or wind and percussion group to work on concert or small ensemble music. The music will depend on the instrument each semester. Not a beginner piece.
Prerequisite: To have played your instrument through high school and display a competent level of musicianship.
(1 credit hour, 0 lecture hours, 32 lab hours)
**MUSI 1301 Beginning Piano Class [MU 040]**
An introduction to the rudiments of piano performance. Musical terminology, technical skills, folk songs, simple harmonization, and beginning piano literature are included in the course. Consult with instructor.
(1 credit hour, 0 lecture hours, 32 lab hours)

**MUSI 1513 Music Theory I [MU 004]**
A study of the basic rudiments of tonal music including scales, modes, key signatures, intervals, triads, meter, and rhythmic notation. These principles are taught by written exercises and analysis. Application of the proceeding to keyboard harmony. (LAS)
Co-Requisite: MUSI 1531 Aural Skills I
(3 credit hours, 48 lecture hours, 0 lab hours)

**MUSI 1523 Music Theory II [MU 005]**
A further study of the rudiments of music including harmonic modulation, non-harmonic tones, and secondary functions. This includes beginning composition; analysis of four-part chorales; instrumental, vocal, and piano music from Baroque and early Classical periods. Advanced keyboard theory is also included. (LAS)
Prerequisite: MUSI 1521 Music Theory I
Co-requisite: MUSI 1541 Aural Skills II
(3 credit hours, 48 lecture hours, 0 lab hours)

**MUSI 1531 Aural Skills I [MU 027]**
Designed to improve musical skills as related to melodic, harmonic, and rhythmic dictation, sight reading and keyboard harmony. Taken concurrently with Music Theory I. (LAS)
Prerequisite: MUSI 1033 Fundamentals of Music
Co-requisite: MUSI 1513 Music Theory I
(1 credit hour, 0 lecture hours, 32 lab hours)

**MUSI 1541 Aural Skills II [MU 028]**
Designed to improve musical skills as related to melodic, harmonic, and rhythmic dictation, sight reading and keyboard harmony. Taken concurrently with Music Theory II. (LAS)
Prerequisite: MUSI 1513 Music Theory I
Co-requisite: MUSI 1523 Music Theory II
(1 credit hour, 0 lecture hours, 32 lab hours)

**MUSI 1901 Voice Class**
Laboratory class instruction in voice dealing with tone production, breath control, articulation, and interpretation. May be repeated for a total of 2 hours credit.
(1 credit hour, 0 lecture hours, 32 lab hours)

**MUSI 1911 Vocal Diction**
An introduction to diction in Italian, German and French based on song literature and using the International Phonetic Alphabet. Each language will be offered separately, except English.
Prerequisite: Vocal experience in choir
(1 credit hour, 0 lecture hours, 32 lab hours)
MUSI 1921 Vocal Ensemble - Western Jazz Choir [MU 150, MU 151, MU 152, MU 153]
Performance-based group of 16-18 members. Two or three rehearsals a week, depending on ensemble assignment. Enrollment by audition and permission of instructor.
(1 credit hour, 0 lecture hours, 32 lab hours)

MUSI 1941 Community Chorus [MU 170, MU 171, MU 172, MU 173]
This course is designed as a community choir program. The repertoire depends upon the constituency of the choir. A wide variety of small and large works is studied and performed. There is one public performance presented at the end of the semester.
(1 credit hour, 16 lecture hours, 0 lab hours)

MUSI 1951 Guitar Class
Study of classical guitar and musical note reading.
(1 credit hour, 0 lecture hours, 32 lab hours)

MUSI 2212 WOSC Choir
A select ensemble of vocalists concentrating on the study and performance of contemporary entertainment music and traditional choral music. The Western Choir functions as a public relations and recruitment group for the college. Membership is open to any student who wishes to audition for the director. Scholarships are available to qualified students.
(2 credit hours, 16 lecture hours, 32 lab hours)

MUSI 2301 Intermediate Piano Class
A continuation of MUSI 1302, Beginning Class Piano. Emphasis is on piano literature and harmonization. Required of music majors who have had less than one year of previous piano training.
Prerequisite: MUSI 1301 or consent of instructor.
(1 credit hour, 0 lecture hours, 32 lab hours)

MUSI 2421-2423 Selected Topics in Music
A directed study of music providing the opportunity for the student to study a selected topic and develop elementary skills in research, music theory, composition, and performance.
(1-3 credit hours, 0 lecture hours, 32-96 lab hours)

MUSI 2513 Music Theory III
A continued study of musical elements and style in the music of the late Classical and early Romantic Periods. Chords, borrowed chords, altered dominant cords, and augmented sixth chords are included. Modulations to all keys and analysis of the 19th century music. (LAS)
Prerequisite: MUSI 1523 Music Theory II
Co-requisite: MUSI 2531 Aural Skills III
(3 credit hours, 48 lecture hours, 0 lab hours)

MUSI 2523 Music Theory IV
A study of musical elements, style, form, and medium in music from the late Romantic Period to present Twentieth Century techniques in form and composition, with continued related aural and oral exercises. Students will study, analyze, and compose music as related to the styles of the late Romantic Period and the Twentieth Century. (LAS)
Prerequisite: MUSI 2513 Music Theory III
Co-requisite: MUSI 2541 Aural Skills IV
(3 credit hours, 48 lecture hours, 0 lab hours)
MUSI 2531 Aural Skills III
Advanced musical skills developed to complement the corresponding theory course. Emphasis is on advanced melodic, harmonic, rhythmic, dictation, sight reading, and keyboard development. Taken concurrently with Music Theory III. (LAS)

Prerequisite: MUSI 1523 Music Theory II
Co-requisite: MUSI 2513 Music Theory III
(1 credit hour, 0 lecture hours, 32 lab hours)

MUSI 2541 Aural Skills IV
Advanced musical skills developed to complement the corresponding theory course. Emphasis is on advanced melodic, harmonic, rhythmic, dictation, sight reading, and keyboard development. Taken concurrently with Music Theory IV. (LAS)

Prerequisite: MUSI 2513 Music Theory III
Co-requisite: MUSI 2523 Music Theory IV
(1 credit hour, 0 lecture hours, 32 lab hours)

MUSI 2711 Community Band [MU 190]
The Community Band studies and performs a wide variety of concert band literature. Open to all instrumentalists in the community, the band performs one concert per semester. Required of all instrumental majors. May be repeated for credit.
(1 credit hour, 16 lecture hours, 0 lab hours)

NURSING

NURS 1119 Nursing I – Foundations of Nursing and Functional Health Patterns
This course introduces the student to the concepts essential for establishing a foundation in professional nursing practice and the skills needed to become a competent associate degree nurse. The foundations of nursing practice include, but are not limited to, competent, contemporary nursing care and skills, critical thinking and problem solving skills, caring behavior, efficient and effective use of all resources, communicative and collaborative skills, cultural sensitivity, health promotion and wellness care, ethical and legal practice, and desire to continue to learn and help others learn. Functional health patterns is the conceptual foundation for client care while the nursing process is the foundational bases for providing client care. Clinical focus is on developing clinical skills for therapeutic interventions when caring for clients experiencing dysfunctional health patterns and identifying practices which promote optimal functioning. Nursing Process emphasis is on Assessment and Nursing Diagnosis, with a beginning introduction to outcome identification, planning, implementation, and evaluation in providing client care.

Prerequisites: Admission to the Associate in Applied Science Degree Nursing Program, BIOL 2104, CHEM 1115 and MATH 1513.
Co-requisite: BIOL 2304
(9 credit hours, 96 lecture hours, 144 lab hours)

NURS 1123 LPN to RN Transition
This course is for LPNs who are articulating into the program under advanced standing status. This course is designed to validate prior learning and experiences and enhance the student’s knowledge. This course will focus on the transition of the LPN to that of a student preparing for the role of RN. Gordon’s Functional Health Patterns are utilized as a framework for gathering and organizing data. This course will also focus on the RN/LPN scope of practice; nurse competencies; nursing process; and clinical skills.
**Prerequisites:** Admission to the Associate in Applied Science Degree Nursing Program; BIOL 2104; BIOL 2304; MATH 1513; CHEM 1115; COSC 1153; PSYC 1113

**Co-Requisites:** ENGL 1113; POLS 1113

(3 credit hours, 32 lecture hours, 48 lab hours)

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**NURS 1129 Nursing II – Functional Health Patterns for Maternal/Infant and Child Care**

Functional health patterns for maternal/newborn and child-care are the emphasis for this course. Students use the nursing process to develop a plan of care for the maternal/newborn and pediatric client. Students continue to build on the foundations of nursing practice and in skill development for therapeutic interventions. Advanced skills of intravenous medication administration, is introduced during this course. Nursing process emphasis is on Assessment, Nursing Diagnosis, and Outcome Identification, while continuing to expand awareness of planning, implementation, and evaluation in providing client care.

**Prerequisites:** BIOL 2104, BIOL 2304, CHEM 1115, MATH 1513, NURS 1119

**Co-requisites:** COSC 1153, PSYC 1113

(9 credit hours, 96 lecture hours, 144 lab hours)

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**NURS 2219 Nursing III – Functional Health Patterns – Adult Client Care**

This course is divided between the nursing care of the adult client with dysfunctional health patterns in mental health and in physical health. The students are introduced to the principles and concepts of mental health, psychopathology and treatment modalities and also begin the study of dysfunctional health patterns of the adult client in an acute care setting. This course continues to build on and enhance the student’s foundation in nursing practice and skill development. Critical thinking is emphasized in relationship to entry-level competencies of the associate degree nurse. Management and leadership concepts are emphasized in both the mental health and physical health components of this course. Nursing process emphasis is on Assessment, Nursing Diagnosis, Outcome Identification, Planning, and Implementation, and developing awareness of evaluation in providing client care.

**Prerequisites:** BIOL 2104, BIOL 2304, CHEM 1115, MATH 1513, COSC 1153, PSYC 1113, NURS 1119, and NURS 1129

**Co-requisites:** ENGL 1113 and POLS 1113

(9 credit hours, 96 lecture hours, 144 lab hours)

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**NURS 2229 Nursing IV – Functional Health Patterns – Advanced Adult Client Care**

Students continue to study dysfunctional health patterns of the adult client in an acute care setting, but are also introduced to advanced complex nursing roles. Focus of this course is to solidify the foundational bases for nursing practice and skill competencies for the entry-level associate degree nurse. Critical thinking is enhanced through a semester long problem solving project. Management and leadership concepts continue to be emphasized for the associate degree nurse in an acute care setting. The last course brings together all aspects of the nursing process, Assessment, Nursing Diagnosis, Outcome Identification, Planning, Implementation, and Evaluation, as a foundational base for providing client care.

**Prerequisites:** BIOL 2104, BIOL 2304, MATH 1513, CHEM 1115, COSC 1153, PSYC 1113, ENGL 1113, POLS 1113, NURS 1119, NURS 1129 and NURS 2219

**Co-requisites:** HIST 1483/1493

(9 credit hours, 96 lecture hours, 144 lab hours)
OFFICE SYSTEMS TECHNOLOGY

OFST 1103 Beginning Keyboarding/Formatting
The Beginning Keyboarding/Formatting course is devoted primarily to developing personal-business use skills. The major objectives of the course are to master touch control of the keyboard and proper keyboarding techniques, build basic speed and accuracy skills, and provide practice in applying basic skills to formatting letters, tables, reports, memos, and a variety of personal, personal-business, and business documents. Students may apply for advanced standing based on former course experience or work experience. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

OFST 1153 Intermediate Keyboarding/Formatting
The Intermediate Keyboarding/Formatting course concentrates on developing the kinds of formatting skills required most frequently in the professional business affairs office. The course promotes the further development of basic keyboarding skills and emphasizes the production of a wide variety of typical business correspondence, tables, reports, and forms from unarranged and rough-draft sources. Jobs that students prepare and the formats they use are based on current office practices.

Prerequisite: One year of high school keyboarding, OFST 1103, or instructor's permission.
(3 credit hours, 48 lecture hours, 0 lab hours)

OFST 1201, 1202, 1203 Microcomputer Specialized Software
Study of selected commercial microcomputer hardware or software applications. Course may be developed to meet training needs of business and industry. Course may be repeated for credit with different software packages. Keyboard familiarity is helpful. Course may be developed and offered in a series. (LAS)

Prerequisite: None, subsequent courses in a series may require previous course(s) knowledge or computer experience
(1-3 credit hours, 16-48 lecture hours, 0 lab hours)

OFST 1513 Introduction to Spreadsheets
Study of spreadsheet design and application. The course covers formatting worksheets with basic features, working with templates and workbooks, basic functions, working with lists, analysis tools in application, and managing worksheets. Applications integration includes combining word processing and spreadsheet files for the Internet. Course may be repeated for credit with different software packages. (LAS)

Prerequisite: Basic knowledge of business math, accounting, keyboard, and/or 10-key helpful
(3 credit hours, 48 lecture hours, 0 lab hours)

OFST 1613 Advanced Spreadsheets
Study of advanced spreadsheet design and application. The course covers formatting worksheets with advanced techniques; financial functions, working with templates and multiple worksheets and workbooks; advanced functions; analysis tools in spreadsheet; managing and auditing worksheets. Application integration includes combining word processing, database, and spreadsheet files for the Internet. Course may be repeated for credit with different software packages. (LAS)

Prerequisite: OFST 1513 or instructor's permission
(3 credit hours, 48 lecture hours, 0 lab hours)

OFST 2033 Multimedia Computing
Course covers computer-aided creation, input, control, and other processing, storage, and output of text, graphics, animation, audio, video, and other media. Media will be synthesized by students into
multimedia presentations using a graphical user interface (GUI), graphics, and paint packages, animation packages, audio and video hardware and software, and authoring systems. (LAS)

**Prerequisites:** COSC 1123, BCIS 1123, or COSC 1153
(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2213 Presentation Graphics**
Study of popular business graphics package. Students add visual audio and video elements to presentations; modify presentations and import and export data; use embedded visuals to enhance a slide show; create presentations containing interactive OLE documents; create various output media; and deliver individually developed presentations. Students use the "Pack and Go" feature for presentation delivery anywhere a PC is available. Students learn to link and embed objects between word processing, spreadsheet, and presentation graphics software.

**Prerequisite:** OFST 1153 helpful
(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2253 Document Production and Word Processing**
This course focuses on frequently occurring formatting tasks and develops those skills associated with document processing that are typical of the high-level office worker. Integrated office jobs emphasize and provide practice in applying modern office skills such as creating a wide range of business documents, editing, and combining documents created in different applications.

**Prerequisites:** OFST 1103, OFST 1153, or equivalent computer experience
(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2383 Administrative Office Procedures**
This course provides comprehensive coverage of an administrative office career and the integration of modern office skills and issues. Course provides practice in applying such office skills as abstracting, human relations, decision making, setting priorities, following directions, working under pressure, and working with interruptions. Students develop an understanding of the role of administrative support personnel; office health, safety, and ethical issues; national and international communications; meeting and travel planning; reprographics; and report and presentations research and development.

**Prerequisites:** OFST 1153, OFST 2553, equivalent computer experience, or instructor's permission
(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2483 Medical Office Procedures**
This course provides comprehensive coverage of a medical office career and the integration of medical office tasks and issues. Course provides practice in applying such office skills as medical coding, medical vocabulary, human relations, decision making, setting priorities, following directions, working under pressure, and working with interruptions. Students develop an understanding of the role of medical office personnel as it relates to office health, safety, and ethical issues; business communications; scheduling appointments, and ordering and dispensing medical supplies.

**Prerequisites:** BIOL 2373, OFST 1153, OFST 2553, or instructor's permission
(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2513 Medical Insurance Procedures**
Basic functions of processing medical insurance claims. A computer-based training program guides students through the insurance claim form cycle and focuses on the areas in which medical office assistants encounter the greatest difficulties.
Prerequisite: BIOL 2373, OFST 2483, or instructor’s permission
(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2523 Medical Coding**
This is a beginning medical coding course designed to provide students with the skills needed to be a successful medical coder. Course will include an introduction to current procedural terminology (CPT) with an introduction to the CPT manual, followed by in-depth explanation of the sections found in the code set, an overview of the ICD-9-CM codes and their use in medical coding; and an overview of reimbursement which ties everything together with the reimbursement process, making the connections between coding and insurance.

Prerequisite: BIOL 2373
(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2533 Advanced Medical Coding**
This course will focus on mastering essentials of advanced medical coding and coding services of medical visits, diagnostic testing and interpretation, treatments, surgeries, and anesthesia. Course work will focus on the use of the Current Procedural Handbook, ICD-9-CM, and HCPCS. This class will help students in preparation of certification in the field of medical coding.

Prerequisite: OFST 2523
(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2553 Word Processing**
This course introduces the students to the proper format for various business documents (memorandums, letters, e-mail messages, and reports) (some incorporate Internet information and résumés). Word processing activities are based on real-world documents. (LAS)

Prerequisite: OFST 1103, Beginning Keyboarding or instructor’s permission
(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2613 Medical Document Processing**
Course prepares the medical office assistant in preparation of administrative documents from handwritten, keyed, rough-draft, and simulated dictated copy. Students rotate job simulations through the medical center.

Prerequisite: BIOL 2373, Medical Terminology, keyboarding proficiency of 40-45 wpm, and OFST 2553, or instructor’s permission
(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2773 Cooperative Work Experience**
A capstone course designed to develop OFST skills. Student, faculty, and employer develop objectives to be achieved in an applied setting. Workplace skills such as sociability and workplace ethics are emphasized.

Prerequisite: Instructor approval
(3 credit hours, 0 lecture hours, 96-128 lab hours)

**OFST 2813 Health Information Records**
Emphasis on medical transcription, correct formatting, use of electronic health records, software for use in the medical field.

Prerequisites: OFST 1103, Beginning Keyboarding; OFST 1153, Intermediate Keyboarding; BIOL 2373, Medical Terminology
(3 credit hours, 48 lecture hours, 0 lab hours)
**OFST 2883 Advanced Word Processing**
This course focuses on special formatting and enhancement techniques for documents; merging documents and sorting and selecting data; sharing documents; creating tables of contents and indexes; recording, running and editing macros; and creating fill-in forms. Proper formatting of business documents is integrated with learning program features.

**Prerequisites:** OFST 1103, Beginning Keyboarding; OFST 2553, Word Processing or instructor’s permission

(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2943 Medical Transcription Skills**
Emphasis is on developing transcription skills from voice media into usable medical communication. Correct formatting of medical documents, medical definitions, and correct spelling of medical terminology are also emphasized. A major objective is first-time-final copy at a transcriptions rate in excess of 40 wpm.

**Prerequisites:** OFST 1103, Beginning Keyboarding; OFST 1153, Intermediate Keyboarding; BIOL 2373, Medical Terminology

(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2963 Advanced Medical Transcription**
A continuation of beginning medical transcription, this course will focus on abbreviations, anatomy, terminology and pronunciation, and transcription tips for the following areas: dentistry/oral surgery, psychiatry, ophthalmology, pediatrics, plastic surgery, neurology, hematology, oncology, urology, respiratory/pulmonary, gastroenterology, orthopedics, pathology, radiology, cardiology, and surgery.

**Prerequisites:** OFST 2943

(3 credit hours, 48 lecture hours, 0 lab hours)

**OFST 2983 Desktop Publishing**
This course provides basic technical and graphic arts concepts essential for all students and professional desktop publishers, print industry practices, and the typography terminology needed to efficiently use a desktop publishing system. Students will use desktop publishing software to develop professional-looking publications, including newsletters, advertisements, stationery, flyers, business cards, announcements, and use HTML (Hypertext Markup Language) in the desktop publishing software to create documents to post on the Web.

**Prerequisite:** OFST 1103 or instructor’s permission.

(3 credit hours, 48 lecture hours, 0 lab hours)

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**ORIENTATION**

**ORIN 1100 New Student Orientation**
New Student Orientation is designed to orient new students to college life. This course is conducted with the counselor and trained student facilitators to provide vital information in a non-threatening and fun way. Topics that will be covered will include college terminology, student services, the Discover Program, extracurricular activities, and tips for college success.

(0 credit hours, 1.5 lecture hours, 0 lab hours)

**ORIN 1101 Success Seminar**
Designed to orient students to college life. This course provides information in the following areas: time management, study skills, and career decision-making. (Admission Requirement)
PHILOSOPHY

PHIL 1113 Introduction to Philosophy [PI 101]
The study of fundamental problems of philosophy and the use of philosophical methods for studying the world and human life throughout recorded time. (GE, LAS, H)
(3 credit hours, 48 lecture hours, 0 lab hours)

PHIL 2233 Ethics [PI 103]
A study of the major philosophers, theories, and ethical issues concerning the morality of human behavior. (GE, LAS, H)
(3 credit hours, 48 lecture hours, 0 lab hours)

PHIL 2243 Philosophy of Religion [PI 210]
This course examines the major religious questions of mankind. It focuses primarily on the great religions of the world. (GE, LAS, H)
(3 credit hours, 48 lecture hours, 0 lab hours)

PHYSICAL SCIENCE

PSCI 1134 General Physical Science [GS 101]
A lecture-laboratory course designed for students with intentions for a non-science major. A study of selected topics from physics, chemistry, and astronomy. (GE)
(4 credit hours, 48 lecture hours, 32 lab hours)

PSCI 1651 Fall and Winter Meteorology
Introduces the student to the fundamentals of weather with emphasis on fall/winter weather. (LAS)
(1 credit hour, 16 lecture hours, 0 lab hours)

PSCI 2561 Spring Meteorology
Introduces the student to the fundamentals of weather with emphasis on spring weather. (LAS)
(1 credit hour, 16 lecture hours, 0 lab hours)

PHYSICS

PHYS 1115 General Physics I [PH 120]
Algebra-based physics for students majoring in fields other than the physical sciences. Mechanics, fluids, oscillations, heat, and thermodynamics. (GE, LAS)
Prerequisites: MATH 1513 and MATH 1613 or high school or concurrent enrollment in MATH 1613 with permission of instructor
(5 credit hours, 64 lecture hours, 32 lab hours)

PHYS 1215 General Physics II [PH 130]
Continuation of PHYS 1115, General Physics I. Waves, electricity and magnetism, optics, electronics, and atomic and particle physics. (GE, LAS)
Prerequisite: PHYS 1115
PHYS 2115 Physics I for Physical Science Majors [PH 240]
Calculus-based physics for students majoring in the physical sciences or engineering. Mechanics, fluids, oscillations, heat, and thermodynamics. (GE, LAS)
Prerequisite: MATH 2215 or concurrent enrollment
(5 credit hours, 64 lecture hours, 32 lab hours)

PHYS 2215 Physics II for Physical Science Majors [PH 250]
Continuation of PHYS 2115, Physics I for Physical Science Majors. Waves, electricity and magnetism, optics, electronics, and atomic and particle physics. (GE, LAS)
Prerequisite: PHYS 2115, majors or consent of instructor
(5 credit hours, 64 lecture hours, 32 lab hours)

POLITICAL SCIENCE

POLS 1113 American Federal Government [PS 101]
Studies of the principles, structure, processes and functions of the United States Federal Government. (GE, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

POLS 2203 Introduction to Law [PS 205]
An introduction to the U.S. legal system through a study of the origins and evolution of the United States Constitution and selected Supreme Court cases. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

POLS 2703 Introduction to Political Theory [PS 202]
An introduction to the foundations of political philosophy. Examines the major works of selected political thinkers of Western Civilization. (LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

POLS 2901, 2902, 2903 Selected Topics in Political Science
A directed study of political science, providing the opportunity for the student to study a selected topic and develop elementary skills in research, analysis, interpretation, and writing as they pertain to political science. May be repeated for a maximum of three credit hours. (LAS)
Prerequisite: Permission of the instructor and academic dean
(1-3 credit hours, 0 lecture hours, 32-96 lab hours)

PSYCHOLOGY

PSYC 1113 Introduction to Psychology [PY 101]
A survey of the major areas of study in Psychology such as motivation, learning, physiology, personality, social psychology, abnormal behavior, perception, memory, cognition/thought, and treatment. (GE, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)
**PSYC 2013 Psychology Statistics [PY 105]**
Provides an introduction to the elements of statistics. Includes frequency distributions, measures of central tendency, elementary probability, binomial distribution, measures of variation, normal distributions, random sampling, tests of significance, t-test and chi-square test. Projects may be assigned using statistical software. (GE, LAS)

**Prerequisite:** MATH 1513
(3 credit hours, 48 lecture hours, 0 lab hours)

**PSYC 2253 Developmental Psychology [PY 103]**
A theoretical and research based course, with a prerequisite of Introduction to Psychology, offered at the 2000 level or above. The course will cover social, emotional, physical and cognitive aspects of human development throughout the life-span, from conception to death of old age. (GE, LAS)

**Prerequisite:** PSYC 1113
(3 credit hours, 48 lecture hours, 0 lab hours)

**PSYC 2273 Social Psychology [PY 102]**
A psychology course with a prerequisite of Introduction to Psychology offered at the 2000 level or above. The course will cover topics such as conformity, social influence, social cognition, prosocial behavior, prejudice, group processes, interpersonal attraction and social comparison. (GE, LAS)

**Prerequisite:** PSYC 1113
(3 credit hours, 48 lecture hours, 0 lab hours)

**PSYC 2403 Personality Theories [PY 104]**
A psychology course with a prerequisite of Introduction to Psychology examining personality processes and the various theoretical approaches to the study of personality such as psychodynamic, behavioral, phenomenological, trait, and social learning theories. (GE, LAS)

**Prerequisite:** PSYC 1113
(3 credit hours, 48 lecture hours, 0 lab hours)

**PSYC 2713 Aging [PY 163]**
Introduces the student to the processes of aging, including both the physical and psychological aspects. Discusses federal and state programs designed to serve the aging and social changes associated with aging. (LAS)

**Prerequisites:** PSYC 1113 or SOCI 1113
(3 credit hours, 48 lecture hours, 0 lab hours)

**PSYC 2901, 2902, 2903 Selected Topics in Psychology**
A directed study of psychology, providing the opportunity for the student to study a selected topic and develop elementary skills in research, analysis, interpretation, and writing as they pertain to psychology. May be repeated for a maximum of three credit hours.

**Prerequisite:** Permission of the instructor and academic dean
(1-3 credit hours, 0 lecture hours, 32-96 lab hours)
**RADIOLOGIC TECHNOLOGY**

**XRAY 1101 Introduction to Radiologic Technology**
An overview of medical imaging and the role of radiography in the health care delivery system. Topics cover radiation protection and monitoring, orientation to the RT program, health science professions, radiology and hospital organization, professional ethics, confidentiality, patient care professional organizations, professional development, and accreditation and credentialing.

**Prerequisites:** Formally admitted to the Radiologic Technology Program
**Co-requisites:** XRAY 1111, XRAY 1122, XRAY 1133, XRAY 1212, and XRAY 1222
(1 credit hour, 16 lecture hours, 0 lab hours)

**XRAY 1111 Patient Care in Radiography**
A study of basic patient care and safety in radiographic imaging. Topics will include basic care and monitoring for the patient in radiology, infection control, safety, surgical asepsis, vital signs, HIPAA, oxygen administration, special needs patients, medical emergencies, pharmacology, parental drug administration, and special procedures care.

**Prerequisite:** Formally admitted to Radiologic Technology Program.
**Co-requisites:** XRAY 1133, XRAY 1101, XRAY 1122, XRAY 1212, and XRAY 1222
(1 credit hour, 16 lecture hours, 0 lab hours)

**XRAY 1113 Principles of Radiographic Exposure**
An in-depth coverage of the production of the radiographic image on film. Consideration will be given to how processing and exposure variables affect the final radiograph. Film characteristics and adjuncts (screens, grids) will be explored. Technique formulation and exposure compensations will be studied and practiced.

**Prerequisite:** MATH 1143 or MATH 1513, XRAY 1212, XRAY 1212, and XRAY 1133
**Co-requisites:** XRAY 1203, XRAY 1233
(3 credit hours, 32 lecture hours, 32 lab hours)

**XRAY 1122 Radiographic Procedures I**
Basic positioning and procedure considerations as they relate to chest, abdomen, extremities, pelvic girdle, and shoulder girdle. Consideration will be given to topography, radiographic anatomy, and positioning nomenclature. Other relative topics will include clinical histories, patient care, lifting and moving patients, improvisation, radiographic requisitions and reports, film critique, basic equipment and portable radiography.

**Prerequisite:** Formally admitted to Radiologic Technology program.
**Co-requisites:** XRAY 1101, XRAY 1111, XRAY 1133, XRAY 1212, XRAY 1222, and BIOL 2373
(2 credit hours, 16 lecture hours, 32 lab hours)

**XRAY 1133 Clinical Practicum I**
Orientation to the clinical environment. Development of basic competencies under direct supervision in selected procedures studied in the college classroom and laboratory (chests, abdomens, extremities). Observation and participation in office procedures, film filing, darkroom, and exposure rooms. Manipulation of radiographic equipment - collimator, table, tube, marking systems. Setting of exposure factors according to charts. Patient care will include transfer techniques and emphasize a concern for patient comfort. Film critique will be carried out regularly. 16 hours per week.

**Prerequisites:** Formally admitted to Radiologic Technology program
**Co-requisites:** XRAY 1101, XRAY 1111, XRAY 1122, XRAY 1212, and XRAY 1222
XRAY 1203 Radiographic Procedures II

A survey of common procedures of the gastrointestinal, urinary, respiratory, and biliary systems, and the bony thorax, as well as, basic positioning, procedures and anatomy of the spinal column. Topics will include radiographic anatomy and function, emergency reactions, pharmacology, contrast media and drug administration, universal precautions, fluoroscopic equipment, mobile radiography, film critique and image processing with quality control and quality assurance.

Prerequisite: XRAY 1122
Co-requisites: XRAY 1233, XRAY 1113

XRAY 1212 Radiation Pathology

This course provides the student with the basic principles of pathology, how disease processes work, and recognizing the radiographic appearance of specific diseases. To acquaint the student radiographer with basic medical terminology used to describe various pathologic conditions occurring in the human body and to introduce the student to some specialized imaging techniques. Consideration will be given as to how radiographic technique may be adapted to demonstrate desired pathologies. This course will be taught in the 2nd 8-weeks of the semester.

Prerequisite: XRAY 1222
Co-requisites: XRAY 1133, XRAY 1122, XRAY 1101, and XRAY 1111

XRAY 1222 Radiation Biology

This course provides the student with a current and thorough overview of the bioeffects of radiation. It provides comprehensive coverage of the physical principles and technical aspects of radiation protection in diagnostic radiology. Summarizes the need to provide radiation safety measures during the implementation of ionizing radiation to the patient. This course will be taught the 1st 8-weeks of the semester.

Prerequisite: Formally admitted to the radiologic technology program
Co-requisites: XRAY 1133, XRAY 1122, XRAY 1101, XRAY 1111, XRAY 1212

XRAY 1233 Clinical Practicum II

Under direct supervision, a continued development of competence and practice in basic positioning learned in procedures I and II. Independent performance in selected procedures, film processing, and film critiques. Assistance in variety of patient care needs. 16 hours per week.

Prerequisite: XRAY 1133
Co-requisites: XRAY 1113, XRAY 1203

XRAY 1353 Clinical Practicum III

Under direct supervision, a continued development of competence and practice in basic positioning learned in procedures I and II. Independent/intermediate level of performance in selected procedures, film processing, and film critiques. Assistance in variety of patient care needs. Eight (8) hours a day for 16 days.

Prerequisite: XRAY 1233

(3 credit hours, 0 lecture hours, 256 clinical hours)
**XRAY 2403 Radiographic Procedures III**
The study of procedures, projections, and anatomy of the cranium, facial bones, sinuses, and mastoids. Film critique evaluation will be discussed for each projection, as well as critical thinking skills in emergency and trauma situations.

**Prerequisite:** XRAY 1203
**Co-requisites:** XRAY 2414, XRAY 2412
(3 credit hours, 32 lecture hours, 32 lab hours)

**XRAY 2412 Radiographic Physics**
A study of the physical principles of diagnostic radiography. Topics include units of measurement, structure of matter, atomic theory, x-ray interactions, attenuation, electrostatics, magnetism, electromagnetism, electrodynamics, x-ray tubes, x-ray circuitry, and equipment.

**Prerequisite:** XRAY 1113
**Co-requisites:** XRAY 2403, XRAY 2414
(2 credit hours, 32 lecture hours, 0 clinical hours)

**XRAY 2414 Clinical Practicum IV**
A continued development of competence and practice in basic positioning learned in procedures I, II, and III. Independent/intermediate level of performance in selected procedures, film processing, and film critiques. Assistance in variety of patient care. 24 hours per week.

**Prerequisite:** XRAY 1353
**Co-requisite:** XRAY 2403, XRAY 2412
(4 credit hours, 0 lecture hours, 384 clinical hours)

**XRAY 2503 Radiographic Procedures IV**
This course is primarily a lecture course regarding the various diagnostic imaging modalities. Students will learn the basic principles of mammography, radiation therapy, CT, MRI, nuclear medicine, ultrasound, PET, and angiography. Other topics such as pediatric radiography, mobile radiography, PACS, and teleradiology will be discussed. Field trips to local hospitals may be arranged in order for the students to observe the various modalities.

**Prerequisite:** XRAY 2403
**Co-requisites:** XRAY 2504, XRAY 2512
(3 credit hours, 48 lecture hours, 0 lab hours)

**XRAY 2504 Clinical Practicum V**
The student will continue to develop competencies and practice basic positioning as learned in procedures I, II, and III. Independent performance in selected procedures, film processing, and film critiques. Observation, involvement, and assistance in special procedures and special imaging modalities. 24 hours per week. A registry review will be covered at the end of the semester.

**Prerequisite:** XRAY 2414
**Co-requisites:** XRAY 2503, XRAY 2512
(4 credit hours, 0 lecture hours, 384 clinical hours)

**XRAY 2512 Radiographic Ethical and Legal Issues**
This course familiarizes the student with biomedical ethics and the medico-legal aspects of the imaging professional. Topics include professionalism, patients rights, patient confidentiality, HIPAA, health care distribution, diversity and antidiscrimination statutes in employment situations.
**Prerequisite:**  XRAY 2412, XRAY 2414, XRAY 2403  
**Co-requisites:**  XRAY 2503 and XRAY 2504  
(2 credit hours, 32 lecture hours, 0 clinical hours)

**READING**

**READ 0323 Developmental Reading II**  
A pre-collegiate level course designed to help students improve basic reading and thinking skills. The course does not count toward degree requirements or in a student's cumulative grade-point average.  
**Prerequisite:**  READ 0313 or appropriate placement test score  
(3 credit hours, 48 lecture hours, 0 lab hours)

**READ 0333 Developmental Reading III**  
A pre-collegiate level course designed to help students advance reading and thinking skills. The course does not count toward degree requirements or in a student's cumulative grade-point average. This course may be required to remove curricular deficiency in reading.  
**Prerequisite:**  READ 0323 or appropriate placement test score  
(3 credit hours, 48 lecture hours, 0 lab hours)

**READ 0423 ESL Reading I**  
A pre-collegiate level course designed to emphasize the acquisition of simple reading skills, expansion of receptive and productive vocabulary, and comprehension of short, adapted reading selections. Simple reading skills practice includes previewing, finding the main idea, simple outlining, scanning and detecting sequence.  
(3 credit hours, 48 lecture hours, 0 lab hours)

**READ 0433 ESL Reading II**  
A pre-collegiate course designed to emphasize the continued acquisition of reading skills needed for the expansion of receptive and productive vocabulary and comprehension of medium-length adapted reading selections.  
**Prerequisite:**  READ 0423 ESL Reading I or appropriate placement score  
(3 credit hours, 48 lecture hours, 0 lab hours)

**RELIGION**

**RELI 1213 Introduction to the Old Testament**  
This course is designed to give the student a grasp of the basic elements of the Old Testament from the standpoint of the text as historic literature. The focus is on gaining an understanding of the actual words that shaped Judaism, Christianity, and Islam. (H, LAS)  
(3 credit hours, 48 lecture hours, 0 lab hours)

**RELI 1223 Introduction to the New Testament**  
This course is designed to give the student an understanding of the New Testament text as historic literature. It focuses on the impact of the New Testament in shaping human thought. (H, LAS)  
(3 credit hours, 48 lecture hours, 0 lab hours)
**RELI 2113 Introduction to Eastern Religions**
This class will attempt to answer the major religious questions of mankind’s existence and how the different Eastern religions have answered them. (H, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**RELI 2123 Introduction to Judaism**
This class will give the student an understanding of foundational principals of Judaism. The student will also learn the differences and similarities between the major branches in Judaism and the importance of Israel and Zionism to each group. (H, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**RELI 2221-2223 Selected Religious Studies**
This class will allow the student to seek more in-depth religious studies, specifically, but not limited to, study abroad. (H, LAS)
(1-3 credit hours, 16-48 lecture hours, 0 lab hours)

**SOCIOLOGY**

**SOCI 1113 Introduction to Sociology [SS 001]**
An analysis and description of society, focusing on culture, the socialization process, social change, social institutions (family, the economy, education), and social inequality. (GE, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**SOCI 2013 Marriage and Family [SS 008]**
The study of values and goals of marriage and the family with major emphasis on specific problems such as role conceptions, parenthood, and child training as influenced by psychological factors of modern society. (GE, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**SOCI 2113 Social Problems [SS 031]**
A study of some of the major social problems in American society including, but not limited to, crime and delinquency, drug and alcohol abuse, poverty, mental health, family violence, and environmental problems. The problems are analyzed with emphasis on the underlying conditions dealing with their probable causes, extent, cost, and possible solutions. (GE, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**SOCI 2223 Cultural Diversities [SS 014]**
An investigation of the sociological processes of a racially and culturally heterogeneous society. (GE, LAS)
(3 credit hours, 48 lecture hours, 0 lab hours)

**SOCI 2901, 2902, 2903 Selected Topics in Sociology**
A directed study of sociology, providing the opportunity for the student to study a selected topic and develop elementary skills in research, analysis, interpretation, and writing as they pertain to sociology. May be repeated for a maximum of three credit hours.

Prerequisite: Permission of the instructor and academic dean
(1-3 credit hours, 0 lecture hours, 32-96 lecture hours)
**SPEECH**

**SPCH 1113 Public Speaking [SP 020]**

Principles and techniques of preparing for, participating in, and evaluating communication behavior at the interpersonal and public levels. (GE, LAS)

(3 credit hours, 48 lecture hours, 0 lab hours)

**SPCH 1513 Introduction to Theater [TH 353]**

A survey and analysis of theater history, literature, and practices relating to the theater as a social force. (GE, LAS, H)

(3 credit hours, 48 lecture hours, 0 lab hours)

**SPCH 2291 Theater Practicum [TH 311]**

Credit is given for participation in major dramatic productions as an actor, a director, or as an assistant in stage craft. This includes three hours lab work for each one hour of credit per week.

(1 credit hour, 0 lecture hours, 48 lab hours)

**SPCH 2513 Oral Interpretation [SP 070]**

A course in the fundamentals of oral reading. Emphasis is on selection and performance of various types of literature.

**Prerequisite:** SPCH 1113

(3 credit hours, 48 lecture hours, 0 lab hours)

**SPCH 2333 Debate**

The study and application of logic and argumentation in persuasion. Includes theories of argumentation and practical debate experience.

**Prerequisite:** SPCH 1113

(3 credit hours, 48 lecture hours, 0 lab hours)

**SPCH 2533 Introduction to Acting [TH 513]**

Practical Training in beginning acting styles and techniques through stage movement, vocal interpretation, and performance of scenes.

(3 credit hours, 48 lecture, 0 lab hours)

**APPLIED TECHNOLOGY COURSE DESCRIPTIONS**

The following courses are available only through a Western Oklahoma State College Cooperative Alliance Agreement or certain advanced standing agreements.

**TECHNOLOGY (APPLIED) - TECHNICAL CORE COURSES**

**TECH 1013/1014 Introduction to Industrial Technology**

An orientation course designed to provide an industry overview as well as generalized introductory skills. This course may be taken in any industrial specialty where the student wishes to get basic skills in a wide range of areas. This course relates to any technical/industrial program and is a terminal course for the non-major or the introductory course for the program major. **Not available**
TECH 1023 Integrated, Applied Technical Math
A course designed to teach technology students the math skills necessary to compute the material and labor involved in industrial projects. This content is taught as an integrated part of a technical course or courses. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(3 credit hours, 32 lecture hours, 48-80 lab hours)

TECH 1223 Industrial Safety
An introduction to industrial safety from a holistic approach rather than individual safety rules for individual occupational area. A concentration on the development of a safe attitude as related to such topics as technology changes, new and existing hazards, health and safety regulations, ethics, and cooperate responsibilities as well as individual responsibilities, philosophies related to product safety and a basic understanding of a safety program. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(3 credit hours, 32 lecture hours, 32 lab hours)

TECH 2091/2092/2093 Advanced Technology Skills
A course designed for the student to develop extra proficiency in specialized skills in a chosen area of technology. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(1-3 credit hours, 8-16 lecture hours, 32-64 lab hours)

TECH 2773 Field Internship
A capstone course designed to integrate academic and technical course lectures and labs with business and industry work experience. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(3 credit hours, 16 lecture hours, 176 external hours)

TECH 2801, 2802, 2803 Directed Studies in Technology
A course designed to meet the industrial demands in retraining their workforce. Emphasis will be placed on meeting specific goals of individuals or individual industries. This course may be repeated as needed to meet individual goals, but may be used only once, with departmental permission, toward an AAS degree in Applied Technology. Not available for credit except through an active Western Oklahoma State College Cooperative Agreement.
(1-3 credit hours, 8-24 lecture hours, 16-48 lab hours)

AGRICULTURE POWER

AGPR 1001-1005 The Internal Combustion Engine
Principles of automotive engines operation, terminology, and troubleshooting. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

AGPR 1011-15 Air and Hydraulic Systems in Diesel Technology
A course designed to teach the basic cognitive and psychomotor skills necessary to maintain and repair air and hydraulic systems in diesel-powered systems. *Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**AGPR 1021-25 Equipment and Safety in Agricultural Equipment**

An orientation to the specialized equipment and safety associated with agricultural equipment. Focuses on safety in the workplace and the consequences of incorrect use of the equipment in the agricultural industry. *Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**AGPR 2001-2005 Maintenance Fundamentals in Agriculture**

A course that teaches the principles and skills in maintaining agricultural equipment. Stresses preventative scheduling, troubleshooting, and repair and using technical service manuals. *Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**AGPR 2021-2025 Electrical Systems in Farm Equipment**

A course designed to teach the cognitive and psychomotor skills related to the electrical systems of farm equipment. *Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**AGPR 2031-35 Setup and Maintenance of Harvesting Equipment**

A course that covers proper techniques of setting up and maintaining various types of harvesting equipment used in the agricultural industry. *Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**CONSTRUCTION**

**CSTE 1053 Fundamentals of Residential Construction**

A survey course introducing the students to the techniques of home construction which includes foundations, flooring, framing, sheathing, roofing, and other related activities. *Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.*

(3 credit hours, 16 lecture hours, 64 lab hours)

**CSTE 1041-45 Commercial Concrete Applications**

A course designed to teach the skills as related to the placement of concrete on large residential and commercial projects. *Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.*

(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)
CSTE 1061-65 Residential Concrete Forming Techniques
A course designed to teach the methods and techniques of concrete forming as related to residential construction. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)

CSTE 1081-85 Beginning Commercial Concrete Forming Techniques
A course designed to teach the basic forming techniques and knowledge as applied to commercial construction. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)

CSTE 1111-15 Equipment and Safety in Construction
An orientation to the specialized equipment and safety associated with the construction trade. Focuses on safety in the workplace and consequences of incorrect use of the equipment in the construction industry. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1121-25 Basic Electrification Wiring
A course designed to teach the basic cognitive and psychomotor skills as related to simple 115 volt circuitry in construction electrification. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1131-35 Blueprint Reading
A course designed to enable the student to accurately interpret construction blueprints, be familiar with the symbols and their meaning as well as the technical specifications related to construction materials. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1141-45 Beginning Commercial Framing Techniques
A course designed to teach the framing techniques used in commercial construction with an emphasis on steel members rather than wood. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1151-55 Basic Mechanical Refrigeration
A course designed to familiarize the student with the basic techniques and knowledge required of the heat and air conditioning technician. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1161-65 Beginning Construction Techniques
A course designed to teach the skills and knowledge related to basic construction techniques with an emphasis or residential construction. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)
CSTE 1171-75 Beginning Framing Techniques
A course designed to teach the cognitive and psychomotor skills as related to simple residential framing techniques and skills. *Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.*
(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)

CSTE 1201-05 Beginning Air Conditioning Electrical Systems
A course designed to teach the basic cognitive and psychomotor skills required of the IVAC technician in the service and installation of HVAC electrical systems. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1211-15 Servicing Air Conditioning Systems
A course designed to teach the cognitive and psychomotor skills necessary to service air conditioning systems in the field. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1221-25 Heating Systems
A course designed to teach the cognitive and psychomotor skills necessary to install and maintain residential and light commercial heating systems. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1241-1245 Duct Design
A course designed to teach the techniques and theory of producing a properly designed and sized duct system for a HVAC system. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1251-55 Residential and Light Commercial HVAC Systems
A course designed to teach the cognitive and psychomotor skills necessary to maintain and install residential and light commercial HVAC systems and the interrelationships of the different sub-systems. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1261-65 Commercial Electrification
A course designed to give the student cognitive and psychomotor knowledge in commercial structure electrification building upon the knowledge gained in CSTE 2161-65, Residential and Light Commercial Electrification. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1271-75 Specialty Systems in Structure Electrification
A course designed to teach the cognitive and psychomotor skills related to the installation of electrical systems in structures of less than 115 volts. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
CSTE 1281-85 Basic Electricity
Principles of electrical components and wiring. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1291-95 Floor Framing Techniques
A course designed to teach the skills and techniques of residential floor framing and design. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 1301-05 Commercial Interior Trim
A course designed to teach the skills necessary to successfully install the interior trim in commercial structures. *Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.*
(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)

CSTE 1691-95 Residential Exterior Trim
A course designed to teach the methodology used in the application of exterior trim on modern residential construction. *Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.*
(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)

CSTE 1721-25 Residential Interior Trim
A course designed to teach the methodology used in the application of interior trim in modern residential homes. *Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.*
(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)

CSTE 2041-45 Advanced Electrification Wiring
A continuation of CSTE 1121-25, Basic Electrification Wiring, continuing into more complex switching and simple reduced voltage circuits. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 2051-55 Refrigeration Theory
Includes theory of heat transfer, behavior or gasses, refrigeration cycle, component parts of compression, refrigeration machine, and its accessories. Student understands and interpret charging charts and recover UL approved recovery systems to recover refrigerant. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 2061-65 International Mechanical Code
A course designed to teach the International Mechanical Code as related to the HVAC industry. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
CSTE 2071-75 Intermediate Air Conditioning Electrical Systems
A continuation of CSTE 1201-05, Beginning Air Conditioning Electrical Systems, with more of an emphasis on troubleshooting. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 2081-85 Troubleshooting Air Conditioning Systems
A course designed to teach the application of HVAC theory to the repair and troubleshooting of residential HVAC systems. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 2091-95 Troubleshooting Commercial Wiring
A course designed to teach the student the analytical skills necessary to troubleshoot and solve circuitry problems in commercial electrification. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 2113 Cabinet Making
Advanced machine woodworking incorporating modern methods and materials used in cabinet making. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(3 credit hours, 16 lecture hours, 64 lab hours)

CSTE 2114 Advanced Cabinetmaking
A course designed to enhance the construction student’s skills in the use of the tools of cabinetmaking and his ability to analyze situations and react appropriately. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(4 credit hours, 16 lecture hours, 96 lab hours)

CSTE 2121-25 Commercial Electrification Circuit Design
A course designed to introduce the student to the techniques and engineering thought process that goes into the circuit design of a commercial structure. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 2131-35 Advanced Commercial Concrete Forming Techniques
A continuation of CSTE 1081-85, Beginning Commercial Concrete Forming Techniques, dealing with more complex layouts and the problem solving techniques used to successfully form a commercial concrete project. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)

CSTE 2141-45 Advanced Commercial Electrification
A continuation of CSTE 1261-65, Commercial Electrification, with an emphasis on the cognitive skills of commercial electrification. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
CSTE 2151-55 Advanced Commercial Trim
A course designed to teach the problem solving and layout skills necessary to successfully trim a commercial structure. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)

CSTE 2161-65 Residential and Light Commercial Electrification
A course designed to teach the theory and codes as related to residential and light commercial electrification. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 2171-75 Residential and Light Commercial Electrical Application
A course designed to give the student field experiences in the proper installation of residential and light commercial electrical wiring. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 2181-85 Special Problems in Structural Electrification
A course designed to give the student the opportunity to apply their knowledge of structural electrification to projects not typically covered in the curriculum. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 2191-95 Advanced Sheetmetal Layout and Design
Advanced skills in sheetmetal projects from blueprints. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 2214 Advanced Construction Techniques
A course designed to enhance the construction student’s skills in the use of the tools of construction and his ability to analyze situations and react appropriately. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(4 credit hours, 16 lecture hours, 96 lab hours)

CSTE 2221-25 Troubleshooting Heating Systems
A course designed to teach the troubleshooting techniques used in repair of residential and light commercial heating systems. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

CSTE 2231-35 Introduction to Residential Plumbing Techniques
An introductory course in the skills of residential plumbing as related to drain, waste, and vent (DWV) systems as well as copper pipe and fittings. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
**CSTE 2241-45 Introduction to the National Electrical Code for Construction**

A course designed to teach the National Electrical Code as related to the construction industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**CSTE 2251-2255 Light Commercial Refrigeration**

A continuation of CSTE 2171-75 with an emphasis placed on light commercial HVAC systems and the analysis of problems in the systems. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**CSTE 2333 Special Problems in Construction Technology**

The student is allowed an opportunity to apply basic skills in construction technology to a specific problem in the construction industry. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.

(3 credit hours, 16 lecture hours, 64 lab hours)

**CSTE 2631-35 Advanced Commercial Framing Techniques**

A continuation of TECH 1071-75, Beginning Construction Techniques, with more of an emphasis placed on commercial and the differences between residential and commercial. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.

(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)

**DRAFTING**

**DRAF 1141-45 Equipment and Safety in Drafting**

An orientation to the specialized equipment and safety associated with the drafting trades. Focuses on safety in the workplace and the consequences of incorrect use of the equipment in the drafting and design industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**DRAF 1151-55 Mechanical Drafting with CAD**

A course designed to develop the skills necessary to draw components of mechanical systems of the manufacturing industry using a CAD system. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**DRAF 1213 Fundamentals of Drafting**

This course offers fundamentals of drafting and drafting room practices, procedures, and techniques. Emphasis is placed on drafting interpretations of typical industrial drawings. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.

(3 credit hours, 16 lecture hours, 64 lab hours)

**DRAF 1313 Computer-Aided Drafting**

A course in the use of high level CAD programs in the production of geometric shapes, orthographic projections and pictorial illustrations. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
DRAF 1323 Advanced Computer-Aided Drafting
A continuation of DRAF 1313, Computer-Aided Drafting, emphasizing the elements and techniques relating to two-dimensional computer aided drafting with an introduction to three-dimensional. Additionally, the student will be able to better understand and use the AutoCAD program as related to two-dimensional drawing. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.

(3 credit hours, 16 lecture hours, 64 lab hours)

DRAF 1363 Architectural Drawing
This is a course in the development of residential home plans. Structural design and common methods of construction are considered in the production of floor plans, plot plans, foundation plans and details, electrical plans, plumbing plans, cabinet and typical details, exterior elevations and presentation drawings. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.

(3 credit hours, 16 lecture hours, 64 lab hours)

DRAF 1711-15 Solid Works Use and Application
A course designed to teach the use and application of the “Solid Works” computer program as used in the drafting field. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.

(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)

DRAF 2101-05 File Management within CAD Systems
A course designed to develop the skills necessary to manage the files created within a CAD system. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

DRAF 2111-15 Material/Equipment Specifications in Drafting
A course designed to teach the techniques of developing and writing specifications for documents related to the drafting industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

DRAFT 2121-2125 Introduction to Architectural Drawing
A course designed to introduce the student to the processes and skills of architectural drawing through lecture and laboratory experiences. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

DRAF 2203 Special Drafting Problems
This course is designed to permit students to gain additional knowledge and skill in a chosen area of drafting. Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.

(3 credit hours, 16 lecture hours, 64 lab hours)

DRAF 2723 Machine Drawing and Design
A course in the preparation of production drawings of professional quality emphasizing dimensioning and tolerances. A study of gears, cams, fasteners, springs, assembly drawings of small machines, design characteristics, detail drawings, and manufacturing specifications. Use of
computers to produce some drawings is encouraged.  Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(3 credit hours, 16 lecture hours, 64 lab hours)

**DRAF 2753 Computer-Aided Illustration**
Applying high level 3-D solids modeling programs in the solution of mechanical and architectural problems.  Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(3 credit hours, 16 lecture hours, 64 lab hours)

**DRAF 2871-75 Troubleshooting Drafting Problems**
A course designed to enhance the student's ability to evaluate and correct production drawings as related to accepted drafting practices and customer needs.  Not available for credit except through an active Western Oklahoma State College Cooperative or Alliance Agreement.
(1-5 credit hours, 0-32 lecture hours, 0-128 lab hours)

**GRAPHS/COMMUNICATIONS**

**GRPH 1001-05 Electronic Imaging I**
A course designed to teach the basic techniques of producing the electronic images used in the printed communication industry.  Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**GRPH 1011-15 Reproductive Photography**
A course designed to teach the techniques of camera photography and dark room procedures as related to the printed communication industry.  Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**GRPH 1021-25 Basic Offset Press**
A course designed to teach the basic theory and techniques of the offset press used in the printed communication industry.  Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**GRPH 1031-35 Image Assembly/Platemaking**
A course designed to teach the techniques used in arranging images in the making of master copies into plates for duplication in the printed communication industry.  Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**GRPH 1041-45 Equipment and Safety in Graphics Communications**
An orientation to the specialized equipment and safety associated with the graphic communications industry.  Focuses on safety in the workplace and the consequences of incorrect use of the equipment in the graphic communications industry.  Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
GRPH 1051-55 Finish and Proofing Graphics Projects
A course designed to teach the skills necessary to successfully proof graphics projects for errors as well as other skills used in the graphics and communications industry to successfully complete a project. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

GRPH 2001-05 Electronic Imaging II
A continuation of Electronic Imaging I into more advanced methods of producing electronic images for the printed communication industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

GRPH 2011-15 Special Projects in Graphics
A course designed to allow students to apply their knowledge of graphics as used in the printed communication industry in the production of projects of the students. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

GRPH 2021-25 Advanced Offset Press
A continuation of Basic Offset Press into more advanced methods and procedures in the use of the offset press. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

GRPH 2031-35 Troubleshooting Press Techniques
A course designed to teach the use of theory and application in troubleshooting printing press production and quality problems. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

GRPH 2041-45 Production Cost Estimating for the Graphics Industry
This course deals with the study of the basic calculation of paper and its weights, grades, and measurements. The processes of selecting and purchasing proper paper and using the paper price catalogs, primarily the Franklin Catalog, are introduced. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

GRPH 2051-55 Basic Bindery Procedures
The student will study the basic bindery operations which include cutting, folding, drilling, assembling, collating, jogging, and fastening. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

GRPH 2061-65 Drawing and Illustration for Graphics and Communications
A course covering the unique techniques of drawing and illustration used in the commercial graphics and communications industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
**GRPH 2071-75 Vinyl Signage Production**
A course covering the unique techniques of producing vinyl signage used in the commercial graphics and communications industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**GRPH 2081-85 Graphic Screen Printing**
A course covering the unique techniques of producing screen prints used in the commercial graphics and communications industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

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**MANUFACTURING**

**MNFG 1001-05 DC Circuits**
Principles of direct current circuitry. Includes Ohm’s Law, series-parallel circuits, batteries, meters, conductors, insulators and basic circuitry. Troubleshooting and repairing DC circuits are emphasized. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 1011-15 AC Circuits**
Principles of alternating current circuitry. Includes basic formulas pertaining to induction, capacitance, reactance, impedance, and resonance. Troubleshooting and repairing AC circuits are emphasized. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 1021-25 Fundamentals of Industrial Electrical Systems**
Principles of alternating current circuitry. Includes basic formulas pertaining to induction, capacitance, reactance, impedance, and resonance. Troubleshooting and repairing AC circuits are emphasized. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 1031-35 Introduction to Semiconductors**
A course designed to teach the principles of semiconductors as well as their use and applications. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 1041-45 Introduction to Analog Theory and Applications**
A course designed to teach the basic theory of analog electronics and its application. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 1051-55 Introduction to Digital Circuits**
A course designed to teach the basic concepts and applications of digital circuits. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. 
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 1061-65 Oxy-Fuel Cutting**

A course designed to teach the basic skills and knowledge required to successfully separate or cut metal using oxygen and another gaseous fuel. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. 
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 1071-75 Beginning Welding**

Introduction to the fundamentals of electrical and oxyacetylene welding of mild steel through the use of projects provided by the student. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. 
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 1081-1085 Advance Welding**

Continuation of the study of the processes of electrical and oxyacetylene welding through the use of projects provided by the student. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. 
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 1091-95 Welding Practices and Procedures**

A course designed to teach the student how to evaluate welds and correct problems in process and technique as well as basic metallurgical practices and principles. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. 
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 1101-05 Introduction to Metal Mill Operations**

A course designed to introduce the student to precision milling processes of metal and related occupations. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. 
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 1111-15 Machine Tool Grinding**

A course designed to teach the cognitive and psychomotor skills involved in the grinding of machine tools. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. 
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 1121-25 Quality Assurance Techniques**

A course designed to teach the skills necessary to assure quality in the precision machining trades, such as the use of micrometer, calipers, jigs, etc. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. 
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
MNFG 1131-35 3-Jaw Operations
A course designed to teach the skills, psychomotor and cognitive, necessary to produce quality products with the 3-jaw engine lathe. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. (1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1141-45 CNC Mill Operations
A course designed to teach the basic operation and programming of CNC industrial quality milling machines. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. (1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1151-55 Basic Metallurgy Theory
A study of metallurgical defects and difficulties encountered during fabrication through the use of projects provided by the student. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. (1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1161-65 Metal Cutting Principles and Practices
A course designed to teach the skills and knowledge necessary to function as a maintenance mechanic in a factory setting. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. (1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1171-75 Introduction to PC Maintenance
A course designed to teach the basic concepts and applications related to the maintenance of personal computers. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. (1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1181-85 Introduction to Programmable and Ladder Logic Circuits
A course designed to teach the principles of programmable and ladder logic circuits with emphasis on relating to industrial applications. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. (1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1191-95 Introduction to Digital Applications and STAMP Use
A course designed to teach the basic concepts and applications of digital circuits and also how it is applied to the use of STAMP applications. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. (1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1201-05 Introduction to Networking and Communications
A course designed to teach the basics of networking theory and applications as related to the communications industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement. (1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
MNFG 1211-15 Facilities Maintenance Mechanic
A course designed to teach the mechanics skills necessary to function as maintenance in a factory setting. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1221-25 Industrial Motors and Distribution Systems
A course designed to teach the skills and knowledge necessary to maintain industrial motors and distribution systems in a manufacturing setting. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1231-35 Variable Speed Controllers
A course designed to teach the operation and maintenance of variable speed controllers as used in a manufacturing setting. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1241-45 Programmable Controllers
A course designed to teach the operation and maintenance of programmable controllers as used in a manufacturing setting. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1251-55 Distribution Control Systems
A course designed to teach the skills necessary to understand the operation of and maintain the control systems used in the distribution of materials in a manufacturing setting. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1261-65 Fluid Power
A course designed to teach the fundamentals of fluid power as used in a manufacturing setting. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1271-75 Introduction to Industrial Electrical Systems
Introduction to industrial electrical systems. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1281-85 Introduction to Solid State Electrical Systems
A course designed to teach an introduction into solid state electrical systems as used in a manufacturing plant. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1291-95 Electrical Systems Maintenance and Control
A course designed to teach the cognitive and psychomotor skills necessary to maintain and control the electrical systems in a manufacturing plant. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
MNFG 1301-05 Introduction to Analog Theory and Applications
A course designed to teach the basic theory of analog electronics and its application. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1311-15 Flux Core Welding
A course designed to teach the skills and knowledge necessary to successfully combine metals using the flux core wire feed process. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1321-25 Soldering and Welding of Tubing and Piping
A course designed to teach the skills necessary to successfully solder and weld tubing and pipes used in the HVAC industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1331-35 Equipment and Safety in Manufacturing
An orientation to the specialized equipment and safety associated with the manufacturing trades. Focuses on safety in the workplace and the consequences of incorrect use of the equipment in the manufacturing industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1341-45 Introduction to Electromechanical Device
An introduction into the design, setup, and use of various types of electromechanical devices. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1351-55 Introduction to Pipe Welding
A course designed to teach the processes and skills of pipe welding. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 1361-65 Blueprint Reading for Manufacturing
A course designed to enable the student to accurately interpret blueprints, be familiar with symbols and know their meaning related to technical specifications related to the manufacturing industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 2001-05 Advanced Analog Theory and Application
A continuation of MNFG 1041-45, Introduction to Analog Theory and Application, delving into more advanced applications and the theory behind the processes. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
**MNFG 2011-15 Applied Advanced Welding**

Study of advanced shielded metal arc welding. Included are the basic principles of gas tungsten arc welding (TIG) and gas metal arc welding (MIG) of various ferrous and nonferrous metals. Emphasis is on joint preparation and fitting through the use of classroom activities and student supplied projects. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 2021-25 4-Jaw Lathe Operations**

A course designed to teach the skills, psychomotor and cognitive, necessary to produce products with the 4-jaw engine lathe. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 2031-35 Troubleshooting Lathes and Mills**

A course designed to teach the analytical skills necessary to use the knowledge learned to troubleshoot and solve problems related to producing products using precision lathes and mills. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 2051-55 Advanced Fluid Power**

A continuation of Fluid Power into more complex systems and maintenance problems. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 2061-65 Basic Hydraulics**

Includes knowledge and skills in power tools, drill presses, drive mechanisms, and pump operations. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 2071-75 Basic Pneumatics**

Includes pneumatic controls, motors, gaseous fluids and their actions in pneumatically driven machines. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 2081-85 Electrical Machinery/Controls**

Principles, applications, and peripherals of control circuitry. Includes electrical motors, transformers, relays, contacts, starters, and ladder logic. Stresses troubleshooting and repair of control circuitry. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**MNFG 2091-95 Troubleshooting Analog Circuitry**

A course designed to teach the theory and techniques of troubleshooting analog circuits and systems. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
MNFG 2101-05 Troubleshooting Digital Circuitry
A course designed to teach the theory and techniques of troubleshooting digital circuits and systems. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 2111-15 Tungsten Inert Gas Arc (TIG) Welding
Welds are made using mild steel, stainless steel, and aluminum. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 2121-25 Metallic Inert Gas (MIG) Welding
Wire feed processes including metallic inert gas and flux cored. The wire feed processes are taught utilizing semiautomatic equipment. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 2131-35 Introduction to Linear Circuits
An introduction to the theory and application of linear circuits in the operation and design of electronic circuitry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 2141-45 Introduction to Basic Microprocessors Use and Operation
A course designed to teach the basic theory and operation of the microprocessor and how it is used in the manufacturing industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 2151-55 Welding Practices and Procedures II
A continuation of MNFG 1091-95, Welding Practices and Procedures, with an emphasis on cause and effect of welding defects in the production of welded products. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 2161-65 Welding Blueprint Reading
This course is designed to enable the student to accurately interpret welding blueprints, become familiar with welding symbols, and know their meaning related to welding specifications. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

MNFG 2171-75 Introduction to Networking Communications
A course designed to teach the basics of networking theory and applications as related to the communications industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
SIMULATOR MAINTENANCE

**SIMT 1001-05 Simulator Fluid Mechanics**
A course designed to teach the cognitive and psychomotor skills necessary to maintain the fluid systems of simulators. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**SIMT 1011-15 Introduction to Simulator Maintenance**
A course designed to introduce the student to the field of aviation simulator maintenance knowledge necessary to work as a simulator technician. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**SIMT 1021-25 Simulator Equipment and Safety**
An orientation to the specialized equipment and safety associated with simulators. Focuses on safety in the workplace and the consequences of incorrect use of the equipment in the aviation simulation industry. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**SIMT 1031-35 Simulator Systems Maintenance**
A course designed to blend the specialty maintenance training of each component of the aviation simulator into the overall process of maintaining a simulator. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**SIMT 1041-45 Introduction to Simulator Simulation**
A course designed to introduce the student into the computer programming side of aviation simulator maintenance. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**SIMT 2001-05 Simulator Depot Maintenance**
A course designed to teach the skills necessary to maintain the depot of an aviation simulator. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**SIMT 2011-15 Troubleshooting Simulator Applications**
A course designed to teach the troubleshooting techniques used in maintaining and repairing an aviation simulator. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**SIMT 2021-25 Computer Systems for Flight Simulators**
A course designed to teach data entry and program execution related to the operation of flight simulators within a computer environment. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
TRANSPORTATION

**TRAN 1001-05 Basic Automotive Braking System**
A course designed to teach the basic concepts and practices associated with basic automotive braking systems. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 1011-15 Basic Automotive Heating and Air Conditioning Systems**
A course designed to teach the basic concepts and applications of automotive heat and air conditioning systems. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 1021-1025 Basic Automotive Transmissions and Power Trains**
A course designed to teach the basic automotive steering and suspension systems. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 1031-35 Electrical/Electronic Systems**
The student will apply specific competencies in battery, starting, charging, lighting, driver information, horn, wiper/washer, and accessory systems. Additionally, the student will demonstrate principles of electricity, magnetism, voltage, and current regulation and basic circuitry as applied in automotive electrical systems to aid general diagnosis of automotive electrical problems. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 1041-45 Automotive Transmissions and Power Trains**
A course designed to teach the theory, application, and maintenance of automotive transmissions and power trains. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 1051-55 Basic Automotive Engine Repair**
A course designed to teach the basic concepts and techniques of automotive engine repair. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 1061-65 Engine Performance**
The student will discuss and demonstrate general diagnostic procedures. Additionally, the student will demonstrate specific competencies in diagnosis and repair of ignition systems, fuel, air induction systems, and exhaust systems, emission control systems, and engine electronic systems as required by NATEF guidelines. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
TRAN 1071-75 Brakes
A course designed to instruct students in the areas of hydraulic systems, drum brakes, power assist units, antilock brakes, and traction control systems as required by NATEF guidelines. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1081-85 Basic Automotive Engine Performance
A course designed to teach the basic methods and techniques of improving automotive engine performance. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1091-95 Non-Structural Auto Body Repairs
A course designed to teach the knowledge and skills necessary to perform non-structural repairs on automotive bodies and components. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1101-05 Auto Body Pre-Paint Preparations
A course designed to teach the knowledge and skills necessary to properly prepare an auto body or component for the application of paint. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1111-1115 Auto Body Painting Techniques
A course designed to teach the psychomotor and cognitive skills necessary to successfully paint an automobile body of component. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1121-25 Braking Systems in Diesel Powered Systems
A course designed to teach the basic cognitive and psychomotor skills related to maintaining and repairing braking systems in diesel powered trucks and tractors. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1131-35 Diesel Electrical System
A course designed to teach the cognitive and psychomotor skills related to the electrical systems of diesel trucks and tractors. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1141-45 Introduction to Diesel Technology
A course designed to familiarize the student with diesel technology and the basic skills related to the trade. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
TRAN 1151-55 Diesel Engines and Repair
Principles of diesel engine operation, terminology, and repair. Stresses troubleshooting and repair using technical service manuals. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1161-65 Suspension and Steering in Diesel Powered Systems
A course designed to teach the skills related to maintenance and repair of diesel truck and tractor suspension and steering systems. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1171-75 Auto Detailing
Principles of automotive detailing. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1181-85 Auto Body Refinishing
Includes professional painting and body work. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1191-95 Auto Body Panel Replacement
A course designed to teach the knowledge and skills for proper panel replacement on automobiles. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1201-1205 Auto Corrosion Prevention Techniques
A course designed to teach the techniques necessary to successfully apply corrosion prevention materials to automobile bodies and components. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1211-1215 Introduction to Automotive Service
This introductory course will cover skills related to general shop and equipment operations as well as basic vehicle maintenance and repairs which may not be considered a part of the recognized specialty areas in automotive service. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1221-25 Heating and Air Conditioning in the Transportation Industry
The student will apply specific competencies in air conditioning system diagnosis and repair as well as diagnosis and repair of refrigeration system components, heating and engine cooling systems and control units. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
TRAN 1231-35 Basic Automotive Electrical Systems
A course designed to teach the basic concepts application of electricity as related to the electrical systems of an automobile. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1241-45 Structural Auto Body Finishing
A course designed to teach the knowledge and skills necessary to refinish an automobile body or component. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1251-55 Engine Repair
The student will discuss and demonstrate competencies in general engine and in cylinder, head, valve train, engine block diagnosis and repair, as well as lubrication, cooling, fuel, exhaust, ignition, battery and starting system diagnosis and repair procedures. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1261-65 Equipment and Safety in Transportation
An orientation to the specialized equipment and safety associated with the transportation trades. Focuses on safety in the workplace and the consequences of incorrect use of the equipment in the transportation industry. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1271-75 Introduction to Engine Repair and Performance
An introduction into simple repairs and performance tune up of automotive engines. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 1281-85 Automotive Glass Replacement
A course designed to teach the processes and skills of glass replacement and repair in various types of vehicles. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 2001-05 Advanced Automotive Braking Systems
A course designed to teach the concepts and repair of automotive braking systems. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 2011-2015 Preform Sheet Metal Auto Component Replacement
A course designed to teach the processes and skills of door skin and quarter panel replacement as well as other types of sheet metal components in various types of vehicles. Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
**TRAN 2021-25 Advanced Automotive Steering and Suspension Systems**
A continuation of TRAN 1021-25, Basic Automotive Steering and Suspension Systems, into more advanced concepts and techniques related to automotive steering and suspension systems. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2031-35 Advanced Engine Performance**
A continuation of TRAN 1081-85, Basic Automotive Engine Performance, into the more advanced methods and techniques of improving automotive engine performance. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2041-45 Troubleshooting Automotive Heat and Air Systems**
A course designed to teach the use of theory and application in troubleshooting automotive heat and air systems. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2051-55 Structural Auto Body Repairs**
A course designed to teach the knowledge and skills necessary to perform structural repairs on automotive bodies and components. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2061-65 Auto Body Refinishing**
A course designed to teach the knowledge and skills necessary to successfully refinish an automobile body or component. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2071-75 Troubleshooting Auto Body Repairs**
A course designed to teach how to analyze and solve the problems that will be encountered in the repair of automotive or their components. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2081-85 Special Projects in Diesel Systems**
A course designed to give the student the opportunity to apply their knowledge in diesel engine maintenance and repair to projects not typically covered in the curriculum. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2091-95 Automatic Transmissions/Transaxles**
The student will apply specific competencies in general transmission and transaxle diagnosis. Additionally, the student will demonstrate competencies in transmission/transaxle/maintenance, adjustment, and on/off vehicle repair. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
**TRAN 2111-2115 Manual Drive Train and Axels**
The student will apply specific competencies in general transmission and transaxle diagnosis. Additionally, the student will demonstrate competencies in transmission/transaxle maintenance, adjustment, and on/off vehicle repair. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2121-25 Special Problems in Auto Body Repair**
A course designed to let the student develop their skills in auto body repair through projects provided by sources outside the classroom. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2131-35 Steering and Suspension**
This course is an application of basic competencies in steering systems, suspension systems, and wheel alignment diagnosis, adjustment, and repair. The student will further discuss and demonstrate an understanding of wheel and repair as required by NATEF guidelines. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2141-45 Troubleshooting Diesel Engines**
A course designed to give the student experience in troubleshooting and repairing problems in the operation of diesel engines. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2151-55 Troubleshooting Steering and Suspension in Diesel-Powered Systems**
A course designed to give the student experience in troubleshooting and repairing problems in the steering and suspension of diesel-powered trucks and tractors. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2161-65 Troubleshooting Auto Body Pre-Paint Preparations**
A course designed to teach how to analyze the problems encountered in automotive pre-paint operations and successfully solve them. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2171-75 Troubleshooting Automotive Engines**
A course designed to teach the use of theory and application in troubleshooting automotive engines. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

**TRAN 2181-85 Troubleshooting Diesel Electrical Systems**
A course designed to teach the techniques associated with troubleshooting the electrical systems of diesel trucks and tractors. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*

(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)
TRAN 2191-95 Auto Collision Estimating
A course designed to teach the current techniques in estimating and submitting a bid to repair the damaged body of an automobile. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 2201-05 Automotive Glass Replacement
A course designed to teach the current techniques in replacing automotive glass. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 2211-15 Advanced Automotive Electrical Systems
A continuation of Basic Automotive Electrical Systems into the more advanced concepts and applications of electricity as related to the electrical systems of an automobile. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)

TRAN 2221-25 Preventative Maintenance of Diesel Engines and Equipment
A course designed to teach the student the concept of preventative maintenance and service of diesel-powered trucks and equipment. *Not available for credit except through an active Western Oklahoma State College Cooperative Alliance Agreement.*
(1-5 credit hours, 0-72 lecture hours, 0-128 lab hours)