

Course Information

- Career and Technical courses have alphabetical prefixes and are generally numbered 2.000 through 8.999.
- Courses with 100 and 200 numbers are usually transferable to four-year institutions.
- Courses numbered 0.100 to 0.999 do not apply toward LBCC degree and certificate programs.
- Many departments offer professional/industry related courses not listed in this catalog. Please contact the appropriate department for a list and schedule of these courses, workshops and seminars.

Courses marked with the symbols below may be applied toward fulfilling the general education requirements for the Associate of General Studies degree. For lists of classes that fulfill general education requirements for other degrees offered at LBCC, see the "Graduation Requirements" section of this catalog.

- Humanities/Art
- Math/Science
- Social Sciences

AA: ART (GRAPHIC DESIGN)

Courses with the AA prefix are career and technical courses that have a primary purpose of meeting requirements for the Associate of Applied Science degree. Four-year institutions may or may not accept them for transfer credit.

AA 198 Independent Studies

(2–6 class hrs/wk, 1–4 cr) F/W/Sp

Individual instruction in advanced problems relevant to the student's interests and needs. Prerequisite: Instructor's approval.

AA 221 Graphic Design I

(6 class hrs/wk, 4 cr) F

Introduction to graphic design. Examines visual communication through the application of the elements and principles of art. Studies static vs. dynamic, visual centering, design systems, metamorphosis and continuums. Instills critical analysis and good design judgment. Prerequisites: AA 239 Illustration III or instructor's approval.

AA 222 Graphic Design II

(6 class hrs/wk, 4 cr) W

Studies publication design. Includes examination of formula vs. format, direct mail, poster, magazine and book design. Environmental implications are discussed. Teamwork and interaction are stressed. Instills critical analysis and good design judgment. Prerequisite: AA 221 Graphic Design I.

AA 223 Graphic Design III

(6 class hrs/wk, 4 cr) Sp

Studies corporate mark design, the development of symbols, logos, design programs and identity systems. Examines the design's adaptability, application, practicality and integrity. Environmental issues are discussed. Teamwork and interaction are stressed. Instills critical analysis, process and good design judgment. Prerequisite: AA 222 Graphic Design II.

AA 224 Typographical Design I

(6 class hrs/wk, 4 cr) W

Introduction to letterforms. Develops a fundamental awareness of type and typographic design. Studies the evolution, art and vocabulary of typography; hand-built letterforms; and designing with type. Emphasizes typography as a working tool. Prerequisites: GA 3.153 Digital Illustration I; GA 3.156 Digital Page Layout I; GA 3.157 Digital Image Manipulation I.

AA 225 Packaging and 3-D Design

(6 class hrs/wk, 4 cr) W

Introduction to design, display and merchandising of three-dimensional marketing solutions. Stresses suitability of concept, design and color as applied to various products. Materials and methods of printing, cutting, folding and assembly are explored for tactile and visual effect. Environmental issues are discussed. Good client/designer relationships are stressed. Prerequisites: AA 224 Typographical Design; AA 237 Illustration I; GA 3.155 Digital Illustration III; GA 3.168 Digital Page Layout III; GA 3.169 Digital Image Manipulation III.

AA 226 Typographical Design II

(6 class hrs/wk, 4 cr) F

Continues the study, use and design of letterforms. Emphasizes creating original type variations and form manipulation. Prerequisites: AA 224 Typographical Design I; GA 3.155 Digital Illustration III; GA 3.168 Digital Page Layout III; GA 3.169 Digital Image Manipulation III.

AA 228 Portfolio Preparation: Professional Practices

(6 class hrs/wk, 4 cr) Sp

Emphasizes reevaluation of previously produced projects; organization and production of the business card, business stationery, résumé, envelope, self-promotional and comprehensive portfolio. Covers current job opportunities; methods in merchandising job talents; action before, during and after the interview; business practices and ethics are covered. Intended for second-year graphic design students. Students present their professional portfolios to public at Portfolio Presentations and in a more personal setting at the reception that follows. Prerequisites: AA 222 Graphic Design II; AA 226 Typographical Design II. Corequisite: AA 223 Graphic Design III.

AA 237 Illustration I

(6 class hrs/wk, 4 cr) F

Explores and develops skills in the use of various tools, materials and techniques. Increases student awareness of illustrative possibilities and processes. Pen and ink, graphite and ink wash are included. Prerequisites: GA 3.153 Digital Illustration I, GA 3.156 Digital Page Layout I, GA 3.157 Digital Image Manipulation I, ART 133 Drawing III. Corequisite: ART 234 Figure Drawing.

AA 238 Illustration II

(6 class hrs/wk, 4 cr) W

Explores rendering with markers. Moves from an exercise, process and technique orientation to product rendering and ad development. Prerequisite: AA 237 Illustration I.

AA 239 Illustration III

(6 class hrs/wk, 4 cr) Sp

Explores further possibilities in illustration using soft pastel and colored pencil. Stresses conceptual development of illustration dealing with written material. Prerequisite: AA 238 Illustration II.

AA 280 CWE Graphics

(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su

Gives students practical experience in supervised employment related to graphics. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: GA 3.157 Digital Image Manipulation I, GA 3.156 Digital Page Layout I, and CWE coordinator's approval.

AG: AGRICULTURE

AG 111 Computers in Agriculture

(4 class hrs/wk, 3 cr) F/W/Sp

Agricultural examples and problems are utilized as a basis for the material in this course. Provides hands-on experience in the areas of word processing, spreadsheets, PowerPoint and web site development.

AG 250 Irrigation System Design

(4 class hrs/wk, 3 cr) W

Designing drip, low pressure, and sprinkler irrigation systems with an emphasis in horticultural and field crop applications from pump to output nozzle.

AG 280A CWE Agriculture*(6–42 class hrs/wk, 2–14 cr) As needed*

Designed to give students practical experience in supervised employment related to agriculture. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

AG 280B CWE Animal Technology*(6–42 class hrs/wk, 2–14 cr) As needed*

Designed to give students practical experience in supervised employment related to animal technology. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

AG 280C CWE Horticulture*(6–42 class hrs/wk, 2–14 cr) As needed*

Designed to give students practical experience in supervised employment related to horticulture. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

AG 8.130 Pesticide Safety*(5 class hrs/wk, 4 cr) W*

Covers background information in use of herbicides, insecticides, fungicides and other pesticides. Types of materials, safety in handling, storage and method of application are emphasized. Students develop ability to calibrate pesticide application equipment and explain to customers the precautions to be observed with agricultural chemicals. Attention also is given to keeping current with changes in pesticide recordkeeping procedures. Prepares students to take pesticide applicator examination.

AH: ALLIED HEALTH / HOSEC**AH 5.409 Career Counseling for Pre-Nursing***(5 class hrs/wk, 1 cr) F*

Provides pre-nursing applicants with an assessment of their own personal characteristics as they examine the career of nursing. Guidance in choosing a nursing career. Note: Two-week class.

ANS: ANIMAL SCIENCE

- **ANS 121 Introduction to Animal Science**

(5 class hrs/wk, 4 cr) F/Sp

Examines body systems of the food and fiber species and the interaction of these systems. Introduces the student to various phases of the livestock industry, including terminology, production practices, marketing and selection techniques. Students are expected to build communication skills through weekly lab reports and class presentations. Lab sessions are designed for practical experience with livestock. Emphasis is placed on the nutritional, reproductive and physical needs of the animals. This course includes a laboratory component.

ANS 207 Careers in Animal Agriculture*(1 class hr/wk 1 cr) W*

Explores career opportunities in animal science. Includes guest lecturers from various fields of animal agriculture as well as an emphasis on résumé writing and job interviewing.

ANS 210 Feeds and Feed Processing*(5 class hrs/wk, 4 cr) W*

Covers basic animal nutrition, including digestive systems and nutrients. Studies methods of determining feed values, types of feed, feed characteristics, nutritional requirements and composition, methods of feeding and feed processing.

ANS 211 Applied Animal Nutrition*(4 class hrs/wk, 3 cr) Sp*

Introduces formulating and analyzing rations for livestock, balancing nutritional needs and choice of ingredients in relation to cost and suitability. Includes economics of livestock feeding and performance indicators. Prerequisite: ANS 210 Feeds and Feed Processing.

ANS 215 Applied Beef Production*(5 class hrs/wk, 4 cr) F*

Covers fundamentals of modern beef production and management, including cattle breeds, mating systems and reproduction, nutrition, marketing, production testing, diseases and parasites, and other management practices. Particular emphasis is on developing beef husbandry skills.

ANS 216A Applied Sheep Production*(5 class hrs/wk, 4 cr) W*

Covers fundamentals of modern sheep production, including sheep breeds, industry segments, nutrition, reproduction, diseases and parasites, wool evaluation, marketing and modern management practices. Note: Course offered alternate years only. Offered Winter 2010.

ANS 216B Applied Swine Production*(5 class hrs/wk, 4 cr) W*

Covers fundamentals of modern swine production, including swine breeds, marketing, reproduction, nutrition, production testing, diseases and parasites, production problems, and environmental concerns. Note: Course offered alternate years only. Offered Winter 2009.

ANS 220 Introductory Horse Science*(5 class hrs/wk, 4 cr) F*

Basic course in commercial horse production and management. Covers breeds, breeding systems, physiology, nutrition, reproduction and diseases. Also develops basic skills in handling, foot care, feeding, selection and health management.

ANS 221 Equine Industries*(5 class hrs/wk, 3 cr) Sp*

Teaches students practical skills in four specific areas of horse science: anatomy, foot and leg care, fitting and showing, and horse conformation judging. Recognizing common unsoundnesses and blemishes is also covered. In addition, students learn proper techniques for preparing horses for show competition in halter, and are exposed to Western and English pleasure, reining, cutting, dressage, show jumping and the saddle seat industries.

ANS 222 Young Horse Training*(6 class hrs/wk, 2 cr) F*

Provides hands-on training. The student is assigned a young horse to train for the term. The training consists of halter breaking, leading, sacking, longeing, trailer loading and handling the feet. Saddling, biting, ground driving and early stages of riding are taught, as well as grooming, safety and use of equipment.

ANS 223 Equine Marketing*(2 class hrs/wk, 2 cr) W*

Introduces the practical concepts of equine marketing. Emphasizes assessing the market, targeting potential buyers, and preparing and presenting the product. Business law, as it relates to equine marketing, is discussed. Through practicing interviewing skills and writing a résumé, students learn to "market themselves."

ANS 227 Artificial Insemination*(5 class hrs/wk, 4 cr) Sp*

Includes instruction on reproductive organs, hormones, heat diagnosis, semen collection, insemination techniques, semen evaluation, pregnancy testing, freezing and dilution methods. Hands-on experience is stressed. Note: Recommended for second-year students.

ANS 231 Livestock Evaluation*(5 class hrs/wk, 3 cr) Sp*

Introduces criteria and principles in the physical evaluation of beef, sheep and swine. Emphasizes correctness of body type, relation of type to production, market standards, soundness and body parts. Extensive time is spent on applying techniques in evaluating live animals.

ANS 278 Genetic Improvement of Livestock*(5 class hrs/wk, 4 cr) W*

Introduces basic, practical concepts of improving livestock through a variety of genetic programs, including genetic possibilities, utilizing heritability for production gains, inbreeding coefficient, mating systems, genetic predictors and improvement programs. Corequisite: MTH 065 Elementary Algebra.

ANTH: ANTHROPOLOGY**ANTH 103 Introduction to Cultural Anthropology***■ (3 class hrs/wk, 3 cr) F/W/Sp*

Surveys the field of cultural anthropology and its focus — studying human behavior and culture. Introduces a methodology for studying human sociocultural adaptations. Includes the topics of major cross-cultural studies with a focus on language, economics, marriage, kinship, gender, political organization, stratification, and spiritual belief systems. Examines traditional and contemporary practices, the processes of culture change, and the application of cultural anthropology to practical society problems. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

ANTH 198 Research Topics*(1 class hr/wk, 1 cr) As needed*

Offers topics of study in anthropology with individual research and/or field study. Prerequisite: WR 121 English Composition.

ANTH 210 Comparative Cultures*■ (3 class hrs/wk, 3 cr) As needed*

Examines the ethnographic process anthropologists use to study other cultures, the process of comparing two or more cultures in an ethnologic context, and the development of cultures over time to be what they are today. A methodology for engaging in culturally relative dialogue is introduced and then emphasized in all learning activities. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

ANTH 230 Time Travelers*■ (3 class hrs/wk, 3 cr) F/W*

Introduction to how the past is studied by archaeologists. The history of archaeology, archaeological theories, and archaeological methods will be discussed and explored in a variety of contexts. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

ANTH 232 Native North Americans*■ (3 class hrs/wk, 3 cr) F/Sp*

Focuses on Native American cultures and their ancestors in prehistoric, historic, and contemporary contexts. Anthropological evidence, including archaeology and ethnography, and indigenous evidence, including precontact customs and oral histories and traditions, are used to create holistic perspectives on early Native American cultures and cultures today. Later changes resulting from contact, westernization, and assimilation are investigated. Native American cultures in today's world are also explored. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

ANTH 280 CWE Anthropology/Archaeology*(6–42 class hrs/wk, 2–14 cr) As needed*

Gives students practical experience in supervised employment related to anthropology/archaeology. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

APR: APPRENTICESHIP

Courses with the APR prefix are accepted for transfer to the Oregon Institute of Technology (OIT). Other four-year institutions may or may not accept them for transfer credit.

APR 101 Introduction to Electricity and Circuit Components*(6 class hours/wk, 6 cr) F*

Introductory electricity course, emphasizing electron theory, electrical terminology, magnetism, and electro-magnetism. Ohm's Law will be introduced and applied to series, parallel, and series-parallel circuits. A study of AC circuits and the associated reactive components (capacitors & inductors) will necessitate an introduction to trigonometry and vector analysis. Prerequisite: Employment in the trade and MTH 60, or instructor's approval.

APR 102 Alternating Current Components and Uses*(6 class hours/wk, 6 cr) W*

Introduces students to the practical application of resistors, capacitors, inductors and transformers to AC electrical circuits. AC resonant circuits, including RL, RC, & RLC will be studied in both series and parallel configurations. The components involved with the distribution of AC power as well as lighting, heating and wiring applications will be covered. Students will learn troubleshooting skills and proper use of test equipment as they apply to AC circuits. Prerequisite: Employment in the trade and APR 101, or instructor's approval.

APR 103 Electric Generators, Motors and Controls*(6 class hours/wk, 6 cr) Sp*

Introduces students to AC and DC generators and alternators. The study of the theory, design and construction of both single phase and three phase generators & alternators is included. Students are also introduced to semiconductor control devices and PLC programming. Prerequisite: Employment in the trade and APR 102, or instructor's approval.

APR 201 Electric Motors*(6 class hours/wk, 6 cr) F*

Introduces students to various aspects of electric motors including types & applications, factors governing proper selection, effective protection and troubleshooting. Additional topics include hand bending of conduit, correct strapping and proper wire selection. Prerequisite: Employment in the trade and APR 103, or instructor's approval.

APR 202 Electric Motor Controls*(6 class hours/wk, 6 cr) W*

Provides an introduction to the design of control circuits and the electrical components that comprise these circuits. Students will design, troubleshoot and demonstrate a motor control training circuit in the context of a team environment. Prerequisite: Employment in the trade and APR 201, or instructor's approval.

APR 203 Motor Circuit Design*(3 class hours/wk, 3 cr) Sp*

Familiarizes the student with the National Electrical Code (NEC) as it relates to Motors, Motor Circuits, and Controllers (Article 430). Prerequisite: Employment in the trade and APR 202, or instructor's approval.

APR 205 Introduction to Programmable Logic Controllers*(6 class hours/ 6 cr) F*

A hands-on introduction to Programmable Logic Controllers (PLCs). Students will learn to convert common industrial control circuits to PLC ladder logic as well as designing programs from narrative description. Emphasis is given to interfacing the PLC with a selection of electro-pneumatic control devices. A systemic approach to testing and troubleshooting PLC programs will also be covered. Prerequisite: Employment in the trade and APR 203, or instructor's approval.

APR 206 Advanced Programmable Logic Controllers*(6 class hours/6 cr) W*

Presents advanced concepts associated with Programmable Logic Controllers (PLCs). Students will expand up prior programming experience. Programming topics include creating subroutines, cascading timers & counters, and incremental encoder-counter applications. Implementing effective program control, data manipulation, math and sequencer & shift instructions will also be covered. Students will learn proper PLC installation practices, preventive maintenance and advanced troubleshooting concepts. Special emphasis will be given to Process Control and Data Acquisition systems as well as computer-controlled machines and processes. Prerequisite: Employment in the trade and APR 205, or instructor's approval.

APR 207 Instrumentation & Industrial Process Control*(6 class hours/6 cr) Sp*

Provides an introduction to Instrumentation & Industrial Process Control. Fundamentals of automated control loops and control loop dynamics will be presented in the context of industrial control variables such as pressure, level, flow, and temperature. Prerequisite: Employment in the trade and APR 206, or instructor's approval.

APR 208 Industrial Electrical Code I*(6 class hours/6 cr) F*

Designed for students preparing to take examinations based on The National Electrical Code (NEC). The course includes a comprehensive study of the sections of the NEC relating to "Wiring & protection" and "Wiring Methods and Materials." Strategies for finding and applying information found in these sections to real life situations are emphasized. Prerequisite: Employment in the trade and APR 207, or instructor's approval.

APR 209 Industrial Electrical Code IA*(3 class hours/3 cr) F*

Designed for students preparing to take examinations based on The National Electrical Code (NEC). The course includes a comprehensive study of the sections of the NEC relating to "Wiring & protection" and "Wiring Methods and Materials." Strategies for finding and applying information found in these sections to real life situations are emphasized. Prerequisite: Employment in the trade or instructor's approval.

APR 210 Industrial Electrical Code II*(6 class hours/6 cr) W*

Designed for students preparing to take examinations based on The National Electrical Code (NEC). The course includes a comprehensive study of the sections of the NEC relating to "Equipment for General Use" and "Special Occupancies." Strategies for finding and applying information found in these sections to real life situations are emphasized. Prerequisite: Employment in the trade and APR 208, or instructor's approval.

APR 211 Industrial Electrical Code IIA*(3 class hours/3 cr) W*

Designed for students preparing to take examinations based on The National Electrical Code (NEC). The course includes a comprehensive study of the sections of the NEC relating to "Equipment for General Use" and "Special Occupancies." Strategies for finding and applying information found in these sections to real life situations are emphasized. Prerequisite: Employment in the trade or instructor's approval.

APR 212 Industrial Electrical Code III*(6 class hours/6 cr) Sp*

Designed for students preparing to take examinations based on The National Electrical Code (NEC). The course includes a comprehensive study of the chapters of the NEC relating to "Special Equipment," "Special Conditions," "Communication Systems" and "Tables." Strategies for finding and applying information found in these sections to real life situations is emphasized. Prerequisite: Employment in the trade and APR 210, or instructor's approval.

APR 213 Industrial Electrical Code IIIA*(3 class hours/3 cr) Sp*

Designed for students preparing to take examinations based on The National Electrical Code (NEC). The course includes a comprehensive study of the chapters of the NEC relating to "Special Equipment," "Special Conditions," "Communication Systems" and "Tables." Strategies for finding and applying information found in these sections to real life situations is emphasized. Prerequisite: Employment in the trade or instructor's approval.

APR 251 Safe Rigging Practices*(3.5 hours/wk, 3 cr) F*

Introduction to safe rigging procedures relating to personnel and equipment. Prerequisite: Employment in the trade or instructor's approval.

APR 252 Industrial Fluid Power I*(5 hours/wk, 4 cr) F*

Basic theory of industrial and hydraulics; component familiarization; circuit construction and troubleshooting techniques. Prerequisite: Employment in the trade or instructor's approval.

APR 253 Industrial Fluid Power II*(5 hours/wk, 4 cr) W*

A continuation of Industrial Fluid Power I to cover the mechanics and design as applied to fluid power systems. Will cover components such as cylinders, valves and pumps, their design, application, operation and maintenance. Prerequisite: Employment in the trade or instructor's approval.

APR 254 Industrial Lube Fundamentals*(3 hours/wk, 3 cr) W*

Lubrication and bearing fundamentals. Prerequisite: Employment in the trade or instructor's approval.

APR 255 Practical Maintenance Metallurgy*(5 hours/wk, 4 cr) Sp*

A study of metals as they are used in the fabrication and maintenance of tools, equipment, and structures in industry. Metals will be classified according to alloy composition, structural properties and service performance. Structures and tools will be fabricated to examine types of possible defects and causes of metal failure. Prerequisite: Employment in the trade or instructor's approval.

APR 256 Industrial Electricity*(5 hours/wk, 4 cr) F/W*

This course provides the student with a hands-on survey of electricity/electronics. Topics include CD and AC electricity, Ohm's Law, series and parallel circuits, electrical sources, semiconductor electronics and motors. The student will have an opportunity to construct various electrical circuits and test the electrical parameters associated with them, thereby confirming theoretical predictions and gaining knowledge in the proper use of electrical test equipment. Prerequisite: Employment in the trade or instructor's approval.

APR 257 Math for Apprenticeship*(5 hours/wk, 5 cr) W*

This course covers the mathematics needed for the industrial apprenticeship programs. The course emphasized applications and problem solving. Prerequisite: Employment in the trade or instructor's approval.

APR 258 Machinery Alignment*(3 hours/wk, 3 cr) Sp*

To gain an understanding of the procedures and practices of machinery shaft alignment, including manual, laser, and precision measurement methods. Prerequisite: Employment in the trade or instructor's approval.

AREC: AGRICULTURE AND RESOURCE ECONOMICS

AREC 211 Management in Agriculture*(4 class hrs/wk, 4 cr) F/W*

Covers agriculture as a business; the decision-making process; tools of decision making; acquiring, organizing and managing land, labor and capital resources; and reasons for success and failure. Students learn teamwork, cooperation and leadership skills through classroom simulation, group activities and assignments.

AREC 213 Starting an Agricultural or Horticultural Business*(4 class hrs/wk, 4 cr) Sp*

An introduction to starting a business in agriculture or horticulture. Skills, models, decision making tools, and strategic alternatives analysis will be discussed. Students become familiar with business planning including business structure selection, market assessment, risk analysis and mitigation, financial and tax planning, and Federal programs and incentives. Resources for the entrepreneur are discussed. Agricultural and horticultural case studies and examples are emphasized.

AREC 221 Marketing in Agriculture*(3 class hrs/wk, 3 cr) F/W*

Covers all aspects of sales and marketing of agricultural products, including fruits and vegetables, cereal grains, milk and dairy products, commercial and purebred livestock. The commodities futures market and other specialized outlets are also included.

ART: ART AND PHOTOGRAPHY**ART 102 Understanding Art***> (3 class hrs/wk, 3 cr) F/W/Sp*

Surveys the basic elements of visual form. Traditional and contemporary visual arts from around the world are examined in ways designed to provide a framework for meaningful responses to form and content.

ART 115 Basic Design I: Composition*> (6 class hrs/wk, 4 cr) F/Sp*

Introduction to theory and studio practice in using the principles and elements of design to articulate visual ideas. Focus will be on concepts relating to 2-D design structure. Students will be exposed to art historical references as they relate to concepts as well as being encouraged to write and think critically about art and design. Emphasis will be on instilling sound foundational information in the traditional aspects of design as well as encouraging thoughtful exploration of contemporary design potential.

ART 116 Basic Design II: Color*> (6 class hrs/wk, 4 cr) W/Sp*

Explore basic color theory and systems for organizing color harmonies. Students are exposed to art historical references and simple physics/optics as they relate to color, and encouraged to think and write critically about color as a form of expression. Students also will develop a critical awareness of color in studio practice, learn historical and cultural context of color usage, and discuss color as a means of visual communication. Prerequisite: ART 115 recommended, but not required.

ART 117 Basic Design: 3-Dimensional*(6 class hrs/wk 4 cr) Sp*

A beginning course in the principles of 3-dimensional design. Emphasis will be on creative problem solving in a variety of media. Studio work explores basic elements of space, planes, mass, texture. Fundamental course for students interested in ceramics, sculpture, architecture and other 3-D design fields. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ART 131 Drawing I*> (6 class hrs/wk, 4 cr) F/Sp*

Emphasizes the development of perceptual and technical skills needed to describe 3-D objects on 2-D surfaces. Exposes students to conceptual and technical art references and encourages students to think critically about art and expression as an integral part of learning to draw.

ART 132 Drawing II*> (6 class hrs/wk, 4 cr) W*

Advanced study in the development of composition, drawing technique, and perceptual and technical skills. Exposes students to more challenging art processes and encourages students to think critically about art and expression as their practice regarding drawing is broadened. Prerequisite: ART 131 Drawing I or instructor's approval.

ART 133 Drawing III*> (6 class hrs/wk, 4 cr) Sp*

Students will solve advanced problems of depicting observed and invented form in a variety of media. Creativity and experimentation are emphasized. Prerequisite: ART 132 Drawing II or instructor's approval.

ART 154 Ceramics I*> (6 class hrs/wk, 4 cr) F/W/Sp*

Introduces clay as an expressive material. Emphasis on throwing skills on the wheel with attention to form and function of pots. Clay, glaze and firing techniques included. Note: Offered only at LBCC Benton Center in Corvallis.

ART 181 Introduction to Painting*> (6 class hrs/wk, 4 cr) W*

Explores visual expression on a two-dimensional surface. Uses oil or acrylic paints for spatial development of color, shape and surface. Drawing and design experience recommended. Prerequisite: ART 131 Drawing I or instructor's approval.

ART 198 Independent Studies*(3–6 class hrs/wk, 1–4 cr) F/W/Sp*

A special studies class tailored to explore individually arranged projects within a discipline. May include fine arts portfolio preparation and other professional concerns. Prerequisite: Previous studio experience in the chosen area or instructor's approval.

ART 204 History of Western Art*> (3 class hrs/wk, 3 cr) F*

Studies the history of Western visual art prehistory up to Middle Ages and its significance and relationship to humanity. (Recommended, but not required, that courses be taken in sequence.) Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ART 205 History of Western Art*> (3 class hrs/wk, 3 cr) W*

Studies the history of Western visual art of the Middle Ages, Renaissance and Baroque and its significance and relationship to humanity. (Recommended, but not required, that courses be taken in sequence.) Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ART 206 History of Western Art*> (3 class hrs/wk, 3 cr) Sp*

Studies the history of Western visual art of the 17th, 18th, 19th and 20th centuries and its significance and relationship to humanity. (Recommended, but not required, that courses be taken in sequence.) Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ART 234 Figure Drawing*> (6 class hrs/wk, 4 cr) F/Sp*

An introductory course in drawing the nude figure. Emphasis is on basic anatomical structures, surface topography, foreshortening, composition, and form. Students are exposed to art historical references as they relate to the human form, as well as being encouraged to write and think critically about art and expression. May be repeated for credit. Prerequisite: ART 131 Drawing I or instructor's approval. College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ART 254 Ceramics II*> (6 class hrs/wk, 4 cr) F/W/Sp*

Provides instruction in clay construction for the experienced student, with advanced throwing and handbuilding, glazing and firing techniques. Note: Offered only at the LBCC Benton Center, Corvallis. Prerequisite: ART 154 Beginning Ceramics or instructor's approval.

ART 261 Introduction to Photography*(3 class hrs/wk, 3 cr) F/W*

Introduces color theory and practice, including image making using both film and digital cameras; color balance and composition, characteristics and qualities of light; critiquing methodology; color printing; and the history and practice of color photography in the fine arts.

ART 262 Color Photography*(4 class hrs/wk, 3 cr) Sp*

Introduces color theory and practice, including image making using both film and digital cameras; color balance and composition; characteristics and qualities of light; critiquing methodology; color printing; and the history and practice of color photography in the fine arts. Prerequisite:

ART 261 Introduction to Photography with a "B" grade or better or instructor's approval.

ART 263 Digital Photography I*(4 class hrs/wk, 3 cr) W*

Introduces digital imaging as an expressive medium. Covers the capture, editing and printing of photographic images in the digital environment, including scanning, image manipulation software, and photo quality output. Emphasis on technique, composition and creative expression. Computer lab work included. Prerequisite: ART 261 Introduction to Photography with grade "B" or better or instructor's approval.

ART 264 Intermediate Black-and-White Photography*(4 class hrs/wk, 3 cr) Sp*

Studies black-and-white printing techniques, including archival processing and fine print controls, and the Zone System and other fine art photography techniques, including integrating traditional and digital darkroom processes. Continues the study of the history of photography and its connections to art and social issues of the times, including the Pictorialist, Modernist and West Coast periods. Considerable attention is paid to the critique and understanding of images. Lab work included. Prerequisite: ART 261 Introduction to Photography with a grade "B" or better or instructor's approval.

ART 266 Photography: Art and Technique*(4 class hrs/wk, 3 cr) F*

Designed to bridge the gap between traditional photography and the newer techniques of electronic imaging. The student will explore hand-constructed imagery based on the photograph. Includes study of the relationships between hand-applied techniques and processes and contemporary images produced on the computer. This class is intended for the non-photographer as well as the photographer.

ART 280 CWE Fine Arts*(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su*

An instructional program to give students experience in supervised employment related to fine arts. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

ART 281 Painting II*> (6 class hrs/wk, 4 cr) W*

Explores visual expression on a two-dimensional surface. Uses oil or acrylic paints for spatial development of color, shape and surface. Drawing and design experience recommended. Prerequisite: ART 181 Introduction to Painting or instructor's approval. May be repeated for credit.

AS: AEROSPACE STUDIES**AS 111 The Air Force Today***(1 class hr/wk, 1 cr) F*

Provides an overview of the Air Force Reserve Officer Training Program and the Air Force. Topics include officership, professional appearance, military customs and courtesies, Air Force Core Values, basic communication concepts, and identification and understanding of military chain-of-command. Leadership Lab (AS 120) is also a required course for all cadets and complements this course with followership experience.

AS 112 The Air Force Today*(1 class hr/wk, 1 cr) W*

Provides an overview of the Air Force Reserve Officer Training Program and the Air Force. Topics include officership, professional appearance, military customs and courtesies, Air Force Core Values, basic communication concepts,

and identification and understanding of military chain-of-command. Leadership Lab (AS 120) is also a required course for all cadets and complements this course with followership experience.

AS 113 The Air Force Today*(1 class hr/wk, 1 cr) Sp*

Provides an overview of the Air Force Reserve Officer Training Program and the Air Force. Topics include officership, professional appearance, military customs and courtesies, Air Force Core Values, basic communication concepts, and identification and understanding of military chain-of-command. Leadership Lab (AS 120) is also a required course for all cadets and complements this course with followership experience.

AS 120 Aerospace Studies Leadership Laboratory*(2 class hr/wk, 1 cr) F/W/Sp*

Includes a study of Air Force customs and courtesies, drill and ceremonies, and military commands. Also studies the environment of an Air Force officer and learning about areas of opportunity available to commissioned officers.

AS 211 Development of Air Power*(1 class hrs/wk, 1 cr) F*

Surveys the development of air power as well as introducing leadership and ethics. It is not a content course, but an introduction. The history of powered flight is still young and rich in excitement, glamour and mystery. The development of aviation is a multifaceted tale of technological breakthrough, politics, controversy and achievement. AS 211 examines the origins of military aviation and its development through World War II.

AS 212 Development of Air Power*(1 class hrs/wk, 1 cr) W*

Surveys the development of air power as well as introducing leadership and ethics. It is not a content course but an introduction. The theory of powered flight is still young and rich in excitement, glamour and mystery. The development of aviation is a multifaceted tale of technological break-through, politics, controversy and achievement. AS 212 examines the development of military aviation from the end of World War II through the Vietnam War.

AS 213 Development of Air Power*(1 class hrs/wk, 1 cr) S*

Examines the general aspects of air and space power through a historical perspective. Covers a time period from the first balloons and dirigibles to the space-age global positioning systems of the Persian Gulf War. Historical examples are provided to extrapolate the development of Air Force capabilities (competencies), and missions (functions) to demonstrate the evolution of what has become today's USAF air and space power. Furthermore, the course examines several fundamental truths associated with war in the third dimension: e.g. Principles of War and Tenets of Air and Space Power. As a whole, this course provides cadets with a knowledge level understanding for the general element and employment of air and space power, from an institutional, doctrinal and historical perspective. In addition, students will continue to discuss the importance of the Air Force Core Values, through the use of operational examples and historical Air Force Leaders, and will continue to develop their communication skills.

AS 220 Aerospace Studies Leadership Lab*(2 class hrs/wk, 1 cr) F/W/Sp*

Includes a study of Air Force customs and courtesies, drill and ceremonies, and military commands. Also studies the environment of an Air Force officer and learning about areas of opportunity available to commissioned officers.

AT: ANIMAL TECHNOLOGY

Courses with the AT prefix are career and technical courses that have a primary purpose of meeting requirements for the Associate of Applied Science degree. Four-year institutions may or may not accept them for transfer credit.

AT 147 Livestock Selection Techniques*(6 class hrs/wk, 4 cr) F*

Concentrates on techniques, selection and comparative judging of beef, sheep and swine and intensive work on developing oral reasons and terminology. Designed for first-year students interested in livestock judging.

AT 149 Livestock Judging*(4 class hrs/wk, 4 cr) W*

Provides an in-depth application of principles necessary for the successful comprehensive analysis of beef, sheep and swine. Prerequisite: Instructor's approval.

AT 152 Livestock Fitting and Showing*(4 class hrs/wk, 2 cr) W*

Provides students with practical, hands-on experience in modern fitting and showing techniques. Current showmanship styles and showing etiquette also are covered.

AT 153 Livestock Events Practicum*(4 class hrs/wk, 2 cr) Sp*

Offers students the opportunity to help organize and participate in diverse activities such as the LBCC Steer and Heifer Show, FFA Livestock Judging Contest, Agricultural Sciences Awards Banquet, and showing at various jackpot shows.

AT 154 Equine Business Management*(3 class hrs/wk, 3 cr) Sp*

Covers the basic concepts of equine business management. The decision-making process, tools of decision making, and types of business organization are covered. Organizing, acquiring and managing land, labor and capital resources are taught. Students learn teamwork, cooperation and leadership skills through classroom activities and assignments.

AT 155 Equine Diseases and Parasites*(3 class hrs/wk, 3 cr) F*

Covers the nature of equine diseases and parasites including common infectious and noninfectious diseases, diagnosis, treatment and prevention. Modern drugs and medications, immunology and basic microbiology are also included. Also covers common unsoundnesses of the foot and leg.

AT 156 Livestock Diseases and Parasites*(3 class hrs/wk, 3 cr) Sp*

Covers the nature of livestock diseases caused by infectious and non-infectious organisms. Nutritional, metabolic and chemical-related diseases are studied as well as internal and external parasites. Emphasis is on diagnosis, control, treatment and prevention of economically important diseases and conditions. Note: Course is offered alternate years only. Offered Spring 2009.

AT 163 Schooling the Horse I*(7 class hrs/wk, 3 cr) W*

Provides hands-on horse training experience. The student learns the fundamentals of horse training, including longeing, working in the round pen, driving, biting, riding, rein aids, lateral work, and basic training techniques. Equipment, safety and horse "psychology" also are taught. Prerequisite: ANS 222 Young Horse Training or instructor's approval.

AT 164 Schooling the Horse II*(7 class hrs/wk, 3 cr) Sp*

Provides hands-on horse training experience. The student learns the fundamentals of horse training, including advanced arena and trail work. Equipment, safety and horse "psychology" also are taught. Prerequisite: AT 163 Schooling the Horse I or instructor's approval.

AT 248 Advanced Livestock Selection*(6 class hrs/wk, 4 cr) F*

Advanced course in developing judging skills and techniques. Emphasizes oral reasons, market and breed type and characteristics, and performance data. Prerequisite: AT 147 Livestock Selection Techniques.

AT 263 Schooling the Horse III*(7 class hrs/wk, 3 cr) W*

Advanced training techniques for horses are emphasized. Introduces reining, dressage and jumping. Prerequisite: AT 164 Schooling the Horse II or instructor's approval.

AT 264 Schooling the Horse IV*(7 class hrs/wk, 3 cr) Sp*

Advanced training techniques for horses are emphasized. Introduces reining, dressage and jumping. Prerequisite: AT 263 Schooling the Horse III.

AT 277A Horse Breeding Management*(2 class hrs/wk, 2 cr) W*

Familiarizes students with all aspects of reproductive management of the horse. Reproductive physiology, estrous cycles, breeding management, mare and foal care, stallion handling and recordkeeping are covered. Prerequisite: ANS 222 Young Horse Training or instructor's approval.

AT 277B Horse Breeding Management Lab*(4.5 class hrs/wk, 2 cr) Sp*

Exposes students to "hands on" aspects of breeding management, including teasing, semen collection and processing, stallion handling, artificial insemination, foaling, foaling management and mare care. Prerequisite: AT 277A Horse Breeding Management.

AU: AUTOMOTIVE TECHNOLOGY**AU 3.295 Power Train Systems***(20 class hrs/wk, 1-10 cr) F*

Studies the complete power train system, with emphasis on the theory, application and servicing of clutch systems, manual transmissions, transfer cases, drive lines, universal joints and differential assemblies. All students must pass online safety and pollution prevention tests to receive credit for this course. Prerequisites: Placement Test scores for RD 090 Strategies for Effective Reading and MTH 020 Basic Mathematics or equivalent.

AU 3.296 Steering, Suspension and Braking Systems*(20 class hrs/wk, 1-10 cr) Sp*

Covers the theory of operation and repair for steering, suspension, alignment and braking systems. Diagnosis and service techniques are taught with the use of components and vehicles. Learning strategies include multimedia presentations, discussion, research and lab practice. All students must pass online safety and pollution prevention tests to receive credit for this course. Prerequisites: Placement Test scores for RD 090 Strategies for Effective Reading and MTH 020 Basic Mathematics or equivalent.

AU 3.297 Electrical and Electronic Systems*(20 class hrs/wk, 1-10 cr) W*

Introduces the theory, application and diagnosis of the electrical and electronic control systems for modern vehicles. Emphasis is placed on batteries, starting, charging, lighting, accessories and driver information systems. Preparation for ASE certification in electrical/electronic systems. All students must pass online safety and pollution prevention tests to receive credit for this course. Prerequisites: Placement Test scores for RD 090 Strategies for Effective Reading and MTH 020 Basic Mathematics or equivalent.

AU 3.298 Engine Performance*(20 class hrs/wk, 1-10 cr) Sp*

Problem-solving course designed to develop knowledge and skills in auto tune-up. Emphasizes selection and use of equipment, including electrical test equipment, scan tools, the oscilloscope, emission test equipment and the dynamometer, to find malfunctions and make necessary repairs for optimum engine performance. Prerequisite: AU 3.297 Electrical and Electronic Systems or instructor's approval.

AU 3.299 Automotive Engines*(20 class hrs/wk, 1-10 cr) W*

Develops knowledge and skills in understanding and rebuilding automotive engines. Emphasizes the use of equipment for repairing and reconditioning all engines back to OEM specifications. Prerequisite: Major in automotive technology with sophomore standing or instructor's approval.

AU 3.300 Automatic Transmissions and Transaxles*(20 class hrs/wk, 1–10 cr) F*

Develops knowledge and skills in automatic transmissions/transaxles. Emphasizes selection and use of equipment, including electrical test equipment, scan tools, transmission/transaxle rebuilding specialty tools, and transmission dynamometer, to find malfunctions and make necessary repairs for correct shift timing, feel and operation. Prerequisite: AU 3.297 Electrical and Electronic Systems or instructor's approval.

AU 3.301 Automotive Service and Repair Practices*(7 class hrs/wk, 1–3 cr) F/W/Sp*

Provides a simulated workplace environment to gain experience with the diagnosis and repair of vehicles. Comparing actual repair time to a professional flat-rate time standard will challenge your use of tools and service literature. Improves your performance as a professional automotive technician. All personal, vehicle and environmental safety precautions will be practiced. Prior experience or instruction for repair projects is required. Prerequisite: Major in automotive technology or instructor's approval.

AU 3.303 Mobile Air Conditioning and Comfort Systems I*(5 class hrs/wk, 3 cr) W*

Theoretic principles of mobile heating and air conditioning systems with emphasis on design, function, adjustment, service and testing of components. Prerequisite: AU 3.297 Electrical/Electronic Systems or instructor's approval.

AU 3.304 Mobile Air Conditioning and Comfort Systems II*(5 class hrs/wk, 3 cr) Sp*

Students learn theory and service practices in maintenance and repair of automotive comfort systems. Covers inspection, testing, repair and/or replacement of control units and computer control systems. Prerequisites: AU 3.303 Mobile Air Conditioning and Comfort Systems I or instructor's approval.

AU 3.312 Alternate Fuels*(2 class hrs/wk, 2 cr) Sp*

Discuss the advantages of different fuels used in current automotive vehicles and look at what the future will bring. We will start by discussing hybrid vehicles then progress to fuel cells. Prerequisite: AU 3.297 Electrical and Electronic Systems or vehicle electronic diagnostic experience.

AU 3.314 Introduction to Engine Performance*(4 hrs/wk, 3 cr) F*

A required course for automotive technology students covering electrical, ignition and compression systems theory with an emphasis on the use of diagnostic equipment. Prerequisites: Placement Test scores for RD 090 Strategies for Effective Reading and MTH 020 Basic Mathematics or equivalent.

AU 3.315 Lab Scope Diagnostics*(4 hrs/wk, 3 cr) F*

Learn to test computer sensors and actuators found on modern automobiles. We begin with learning to capture and understand a simple sensor waveform. By the end of the course you will learn to evaluate fuel and ignition systems using a lab scope. In this hybrid course, 50 percent of instruction occurs online. For maximum efficiency, practice at least four days per week with online activities and one day per week in the classroom/lab. Prerequisite: AU 3.297 Electrical and Electronic Systems or vehicle electrical diagnostic experience.

AU 3.321 Anti-lock Brakes Systems (ABS)*(4 class hrs/wk, 3 cr) F*

Covers the theory of operation and repair for advanced brakes and anti-lock braking systems. Diagnosis and service techniques are taught with the use of components and vehicles. Participants will use service literature and tools to diagnose and repair the anti-lock braking systems found on modern vehicles. Prerequisites: AU 3.296 Steering, Suspension and Braking Systems and AU 3.297 Electrical and Electronic Systems or instructor's approval.

AU 3.643 Customer Service*(2 class hrs/wk, 2 cr) W*

Develop customer communication skills, customer satisfaction skills, and verbal and nonverbal communication skills in various technical job settings. Prerequisite: Placement test scores at RD080 Developing Reading Skills, MTH 020 Basic Mathematics, and instructor's approval required.

BA: BUSINESS**BA 101 Introduction to Business***(4 class hrs/wk, 4 cr) F/W/Sp*

Provides a general survey of the functional and interdependent areas of business management, marketing, accounting and finance, and management information systems. Includes business trends, operation and management of a business, ethical challenges, environmental responsibility, change, global perspectives and the dynamic roles of management and staff. Incorporates aspects of team interaction and continuous process improvement. Provides the opportunity to explore the Internet and information technology relating to business operations. Prerequisite:

WR 095 College Writing Fundamentals with a minimum "C" grade.

BA 206 Principles of Management*(3 class hrs/wk, 3 cr) F/W/Sp*

An overview of the processes involved in managing a business, including business planning, organizing, controlling, staffing and leading. Covers various theories of management with emphasis on managing a business in the local, national or international marketplace. Prerequisite: BA 101 Introduction to Business with a minimum "C" grade.

BA 211 Principles of Accounting: Financial*(4 class hrs/wk, 4 cr) F/W/Sp*

Presents financial accounting concepts and the use of accounting information in decision making. Includes an overview of the accounting cycle. Prerequisite: MTH 095 Intermediate Algebra. Strongly recommend CIS 125 Introduction to Software Applications.

BA 213 Principles of Accounting: Managerial*(4 class hrs/wk, 4 cr) F/W/Sp*

Demonstrates the use of accounting information to meet organization goals. Methods of extracting accounting information for decision making, management of resources, planning, and product and service costing are covered. Prerequisite: BA 211 Principles of Accounting: Financial or equivalent.

BA 215 Survey of Accounting*(4 class hrs/wk, 4 cr) F/Sp*

Introduces financial accounting techniques, measuring and recording transactions, preparing financial statements, managerial decision making, and planning and control devices, such as budgeting, cost accounting, capital budgeting and break-even analysis. Prerequisite: MTH 065 Elementary Algebra.

BA 217 Financial Accounting for Accounting Majors*(2 class hrs/wk, 2 cr) Sp*

Presents a complete review of the accounting cycle, use of debits and credits in recording transactions, and preparing financial statements. Intended to prepare accounting majors, pursuing a baccalaureate degree, for the Intermediate Accounting sequence. May also be useful to others who desire a review course in accounting procedures. Prerequisite: BA 211 Principles of Accounting: Financial.

BA 221 Production and Operation Management*(3 class hrs/wk, 3 cr) W*

Presents ideas in which managers and supervisors can implement strategic, tactical and operational planning in a business environment and its relationship to the success of business. Prerequisites: BA 101 Introduction to Business with a "C" or better, BA 206 Principles of Management, CIS 125 Introduction to Software Applications.

BA 222 Financial Management*(3 class hrs/wk, 3 cr) Sp*

Covers topics dealing with financing a business, analysis of financial statements, working capital management, short- and long-term financial planning, budgeting and control. Prerequisite: BA 2.596 Professional Accounting II with a minimum "C" grade or BA 211 Principles of Accounting: Financial.

BA 223 Principles of Marketing*(4 class hrs/wk, 4 cr) W*

Provides a general survey of the nature, significance and scope of marketing. Emphasizes customers (marketing analysis and strategy); business marketing decisions in promotion, distribution and pricing; and control of marketing programs. Prerequisite: BA 101 Introduction to Business with a minimum "C" grade or instructor's approval.

BA 224 Human Resource Management*(3 class hrs/wk, 3 cr) F/W/Sp*

Explores the basics of human resource management within a culturally diverse workplace. Covers origins of cultural difference and how discrimination issues impact the workplace. Also covers current HR issues, such as workplace violence and drug abuse, equitable processes for selection and hiring, performance appraisal, compensation, staff planning, and job analysis.

BA 226 Business Law*(3 class hrs/wk, 3 cr) F/W/Sp*

Introduces the framework of the law as it affects a business, including the origins of the American legal system, how the law operates and how it is enforced. Covers legal regulation of business, including civil and criminal law, formation of contracts, employment law, environmental regulation, real estate and consumer rights.

BA 249 Retail Management*(3 class hrs/wk, 3 cr) As needed*

Introduces students to retailing and provides an understanding of the types of businesses, strategies, operations, formats and environments through which retailing is carried out. The course takes a multi-disciplinary approach to consider the process and structure of retailing. Retailing topics to be covered will include: planning, research, consumers' behavior, store design, merchandising strategy, management strategy, promotional strategy and pricing strategy. The global dimensions of retailing as well as the relationship between retailing and our society will be stressed throughout the course.

BA 256 Income Tax Accounting*(3 class hrs/wk, 3 cr) W*

Introduces the basics of income tax accounting for individuals and business organizations. Develop an understanding of basic tax calculations and of how the Internal Revenue Code impacts individuals and businesses. Explore methods of incorporating and extracting income tax information from an organization's existing financial accounting system. Prerequisite: BA 2.596 Professional Accounting II with a minimum "C" grade.

BA 260 Entrepreneurship & Small Business Management*(4 class hrs/wk, 4 cr) F/Sp*

Presents focused information on small businesses and entrepreneurship and their importance in the growth of the economy. Prerequisite: BA 101 Introduction to Business with a minimum "C" grade, BA 271 Information Technology in Business and CIS 125 Introduction to Software Applications.

BA 271 Information Technology in Business*(4 class hrs/wk, 3 cr) F/W/Sp*

Uses information technology as a personal productivity tool within a business environment. Covers the integration of various software packages, presentation graphics and online services. Team process is stressed throughout the course. Prerequisite: CIS 125 Introduction to Software Applications with a minimum "C" grade.

BA 275 Business Quantitative Methods*(4 class hrs/wk, 4 cr) F/W/Sp*

Presents statistical analysis and quantitative tools for applied problem solving and making sound business decisions. Gives special attention to assembling statistical description, sampling, inference, regression, hypothesis testing, forecasting and decision theory. Prerequisite: CIS 125 Introduction to Software Applications, MTH 241 Calculus for Biological/Management/Social Science, MTH 245 Math for Biological/Management/Social Science, and sophomore standing.

BA 280B CWE Business Management*(6-42 class hrs/wk, 2-14 cr) F/W/Sp/Su*

Gives students practical experience in supervised employment related to business management. Students identify job performance objectives, work a specified number of hours during the term and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

BA 280C CWE Business Marketing*(3-42 class hrs/wk, 1-14 cr) F/W/Sp/Su*

Gives students practical experience in supervised employment related to business marketing. Students identify job performance objectives, work a specified number of hours during the term and attend related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

BA 285 Business Relations in a Global Economy*(4 class hrs/wk, 4 cr) F/W*

Examines culture and cultural diversity and their impact on organizations. Examines issues such as motivation, communication, value development, prejudice and discrimination. Focuses on understanding how and why cultures develop differently, including the impact of economic and political influences on culture. Also focuses on helping students develop an understanding of their own culture and gain an appreciation for and understanding of other cultures.

BA 291 Business Process Management*(4 class hrs/wk, 4 cr) Sp*

This course integrates management information systems with operations management and introduces a process-oriented view of the flows of materials, information, products and services through/across functions within an organization. Prerequisite: BA 101 Introduction to Business, CIS 125 Introduction to Software Applications, and MTH 245 Math for Biological/Management/Social Sciences.

BA 2.108 Customer Service*(3 class hrs/wk, 2 cr) As needed*

Designed to help students develop the customer interaction skills needed in many work settings.

BA 2.127 Governmental Accounting*(3 class hrs/wk, 3 cr) F*

Covers accounting theory and procedures for governmental and not-for-profit entities, including budgetary and expenditure control. Prerequisite: BA 211 Principles of Accounting: Financial or BA 2.532 Practical Accounting III with a minimum "C" grade.

BA 2.530 Practical Accounting I*(4 class hrs/wk, 4 cr) F/W/Sp*

Covers the fundamental principles of double-entry accounting, general journals and ledgers, business forms, simple financial statements and the completion of the accounting cycle. Emphasizes cash receipts and payments, payroll accounting, purchases and sales.

BA 2.531 Practical Accounting II*(4 class hrs/wk, 4 cr) F/W/Sp*

Continues BA 2.530 Practical Accounting I, with an explanation of the accounting cycle. Covers special journals, ledgers and business forms, including the voucher system. Emphasizes accounting for a partnership. Prerequisite: BA 2.530 Practical Accounting I.

BA 2.532 Practical Accounting III*(4 class hrs/wk, 4 cr) F/W/Sp*

Third course in the Practical Accounting series. Includes entries requiring analysis and interpretation, unearned and accrued items, depreciation of assets, manufacturing accounting and other managerial accounting procedures. Prerequisite: BA 2.531 Practical Accounting II.

BA 2.534 Cost Accounting*(3 class hrs/wk, 3 cr) W*

Relates theory to practical problems in analysis and control of material, labor and overhead costs in manufacturing. Emphasizes the job cost system. Prerequisite: BA 211 Principles of Accounting: Financial or BA 2.595 Professional Accounting I with a minimum "C" grade.

BA 2.535 Payroll Accounting*(3 class hrs/wk, 2 cr) W/Sp*

Designed to reinforce and supplement payroll skills in both manual formats and computerized formats. Prerequisite: BA 2.530 Practical Accounting I, BA 211 Principles of Accounting: Financial, or instructor's approval.

BA 2.569 First Course in Computers*(3 class hrs/wk, 2 cr) F/W/Sp/Su*

Designed to help a beginning computer user feel comfortable operating a personal computer and its peripherals.

BA 2.595 Professional Accounting I*(3 class hrs/wk, 3 cr) F*

Provides an advanced study of accounting theory and practice for measurement of income and valuation of assets in financial statement presentation. Reviews accounting concepts and alternative approaches to various problems. Prerequisite: BA 2.532 Practical Accounting III with a minimum "C" grade or BA 211 Principles of Accounting: Financial and BA 213 Principles of Accounting.

BA 2.596 Professional Accounting II*(3 class hrs/wk, 3 cr) W*

Continues the Professional Accounting sequence. Covers concepts and procedures of valuation for various types of assets and liabilities, including special problems related to investments; plant, property and equipment; consolidations; and corporate accounting. Prerequisite: BA 2.595 Professional Accounting I with a minimum "C" grade.

BA 2.597 Professional Accounting III*(3 class hrs/wk, 3 cr) Sp*

Continues the Professional Accounting sequence. Emphasizes fund flow analysis, financial ratios, preparing statements from incomplete data, correcting errors in prior year statements and price level changes. Job search skills are emphasized also. Prerequisite: BA 2.596 Professional Accounting II with a minimum "C" grade.

BA 2.684 Computerized Accounting*(4 class hrs/wk, 3 cr) W/Sp*

Provides hands-on computer experience in accounting applications, including general ledger, accounts receivable, accounts payable and financial statements. Prerequisite: BA 2.531 Practical Accounting II or BA 211 Principles of Accounting: Financial.

BI: BIOLOGY**BI 4.210 Preparation for Anatomy and Physiology***(1 class hr/wk, 1 cr) As needed*

Combines instruction in study skills with basic biological content to prepare students for the three-term Anatomy and Physiology sequence. The course is appropriate for students planning to take the Anatomy and Physiology sequence in the near future.

BI 4.220 Survey of the Human Body*(3 class hr/wk, 3 cr) F*

Designed especially for students in the Dental Assisting Program. This course presents a survey of the human body from the tissue to the system level, including the head and neck.

BI 101 General Biology*● (5 class hrs/wk, 4 cr) F/W/Sp/Su*

An introductory lab science course intended for majors in disciplines other than the biological sciences. Topics presented include ecological principles, biodiversity, and impact of human activities on the environment. Different sections of this course may emphasize different themes as indicated by the subtitles. Examples include: Aquatic Biology, Environmental Issues, Birds of Oregon, Oregon Ecology, Marine Biology, Marine Biology for Education Majors or General Biology. Students may select the theme that interests them most, but the course may be used only once to meet graduation requirements. Biology 101, 102, and 103 need not be taken in numerical order. Prerequisite: MTH 060 Introduction to Algebra. This course includes a laboratory component.

BI 102 General Biology*● (5 class hrs/wk, 4 cr) F/W/Sp/Su*

An introductory lab science course intended for majors in disciplines other than the biological sciences. Provides non-science majors an introduction to scientific methods and the limitations of scientific methods. Introduces knowledge that extends from atoms and molecules to DNA analysis, including genetic analysis of human and plant traits, as well as providing an historical perspective on the evolution of major theories and ideas. Additionally the course is designed to help students discover the applications of science to their everyday lives, as well as provide elements of critical thinking. Different sections of this course may emphasize different themes as indicated by the subtitles. An example would be Forensic Biology. No previous science background is required. Students may select the theme that interests them most, but the course may be used only once to meet graduation requirements. Biology 101, 102 and 103 need not be taken in numerical order. Prerequisite: MTH 060 Introduction to Algebra. This course includes a laboratory component.

BI 103 General Biology*● (5 class hrs/wk, 4 cr) F/W/Sp/Su*

An introductory lab science course intended for majors in disciplines other than the biological sciences. Topics presented include plant anatomy and physiology, human anatomy and physiology, and human diseases. Different sections of this course may emphasize different themes as indicated by the subtitles. Examples include: Nutrition and Health, Human Body, Plant and Animal Systems, Dynamic Plant, and General Biology. Students may select the theme that interests them most, but the course may be used only once to meet graduation requirements. Biology 101, 102 and 103 need not be taken in numerical order. Prerequisite: MTH 060 Introduction to Algebra. This course includes a laboratory component.

BI 112 Cell Biology for Health Occupations*(4 class hrs/wk, 4 cr) F/W/Sp/Su*

Introduces the Health Occupations student to the generalized human cell, including its structure, function, basic genetics and reproduction. The chemical and physical processes that affect the cell and its components will be examined throughout the course. This course covers the basic principles and vocabulary to prepare students for the study of human organ systems that occur in BI 231, BI 232 and BI 233 Human Anatomy and Physiology.

BI 200 Principles of Ecology: Field Biology*● (5 class hrs/wk, 4 cr) As needed*

Provides an introduction to the concepts of ecology. The broad concepts of ecology are emphasized in a field setting using natural ecosystems as a model. The classroom lecture component will cover concepts of ecology and diversity of life and the field component allows the surveying of the plants and animals in their interaction with the environment. Ecological concepts are examined in detail using student-collected field data. This course includes a laboratory component.

BI 211 Principles of Biology*● (6 class hrs/wk, 4 cr) F*

An introduction to the study of living things, intended for science majors heading for degrees in the biological sciences or related fields. Part of a three-term biology sequence, BI 211-212-213. BI 211 surveys the diversity of life: Major groups of organisms and their evolutionary relationships, principles of classification, and key structural/functional characteristics and relationships of major groups of organisms. Corequisite: CH 121 College Chemistry or CH 221 General Chemistry. This course includes a laboratory component.

BI 212 Principles of Biology

● (6 class hrs/wk, 4 cr) W

An introduction to the study of living things, intended for science majors heading for degrees in the biological sciences or related fields. Part of a three-term biology sequence, BI 211-212-213. BI 212 focuses on biochemistry, cell biology, and the basic concepts of animal and plant structure and function: The properties of biological molecules, cell structure and function, enzymes and metabolism, and the anatomy and physiology of animals (focusing on vertebrates) and plants (focusing on flowering plants). Corequisite: CH 121 College Chemistry or CH 221 General Chemistry. This course includes a laboratory component.

BI 213 Principles of Biology

● (6 class hrs/wk, 4 cr) Sp

An introduction to the study of living things, intended for science majors heading for degrees in the biological sciences or related fields. Part of a three-term biology sequence, BI 211-212-213. BI 213 focuses on genetics, evolution, and ecology: Cell division, principles of heredity, molecular genetics, DNA technology, evolution, ecology of populations, community interactions, nutrients and energy in ecosystems, conservation biology, and principles of animal behavior. Corequisite: CH 121 College Chemistry or CH 221 General Chemistry. This course includes a laboratory component.

BI 231 Human Anatomy and Physiology

● (6 class hrs/wk, 5 cr) F/W

The first term of an introduction to the structure and function of the human body. This course is of particular benefit to students in the health professions and physical education, but is valuable to others interested in the anatomy and physiology of the body. Focuses on the structure and function of the cell, basic biochemistry, tissues, skin, skeleton and muscles. Prerequisites: MTH 065 Elementary Algebra; BI 112 Cell Biology for Health Occupations with a grade "C" or better or BI 212 Principles of Biology with a grade "C" or better. This course includes a laboratory component.

Students who are currently enrolled in BI 231 or BI 232 will be allowed to register for the next sequence course (BI 232 or BI 233) before priority registration for continuing students. Current BI 231 and BI 232 faculty will announce the day, time and restrictions for this special registration day. Students will be permitted to register for only the Anatomy and Physiology class at this time. All holds on student accounts must be resolved prior to this registration day. Students must earn a "C" or better in BI 231 or BI 232 to move to the next sequence course. The week after grades are submitted, students who earned less than a "C" in BI 232 or BI 233 will be dropped from the pre-registered sequence course.

BI 232 Human Anatomy and Physiology

● (6 class hrs/wk, 5 cr) W/Sp

The second term of an introduction to the structure and function of the human body. This course is of particular benefit to students in the health professions and physical education, but is valuable to others interested in the anatomy and physiology of the body. Focuses on the nervous system, endocrine system, and cardiovascular system. Prerequisite: BI 231 Human Anatomy and Physiology. This course includes a laboratory component.

Students who are currently enrolled in BI 231 or BI 232 will be allowed to register for the next sequence course (BI 232 or BI 233) before priority registration for continuing students. Current BI 231 and BI 232 faculty will announce the day, time and restrictions for this special registration day. Students will be permitted to register for only the Anatomy and Physiology class at this time. All holds on student accounts must be resolved prior to this registration day. Students must earn a "C" or better in BI 231 or BI 232 to move to the next sequence course. The week after grades are submitted, students who earned less than a "C" in BI 232 or BI 233 will be dropped from the pre-registered sequence course.

BI 233 Human Anatomy and Physiology

● (6 class hrs/wk, 5 cr) F/Sp

The third term of an introduction to the structure and function of the human body. This course is of particular benefit to students in the health professions and physical education, but is valuable to others interested in the anatomy

and physiology of the body. Focuses on the lymphatic system, respiratory system, urinary system, fluid and electrolyte balance, digestive system and reproductive system. Prerequisite: BI 232 Human Anatomy and Physiology. This course includes a laboratory component.

BI 234 Microbiology

● (7 class hrs/wk, 4 cr) F/W/Sp/Su

An introductory lecture/laboratory course covering all microbial life, with emphasis on bacterial forms. We will focus on examining bacterial cell structure, metabolism, microbial genetics and growth. We also will investigate host-pathogen relationships that lead to disease and health. In the laboratory, students learn basic microscope and culture procedures and will investigate the occurrence and behavior of microorganisms in our environment. This course includes a laboratory component.

BI 280 CWE Biology

(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su

Gives students practical experience in supervised employment related to biology. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

CA: CULINARY ARTS**CA 8.301 Culinary Arts Career Planning**

(2 class hrs/wk, 1 cr) Sp

Prepares the student for entering the culinary work force. Students create a résumé for use in a mock interview. They prepare a five-year career plan and explore different career opportunities using resources such as the Internet, industry periodicals, and employment department career information.

CA 8.309 Purchasing for Chefs

(2 class hrs/wk, 2 cr) W

Through lecture, role-playing, research and written assignments, students learn to write specifications for projects and skills needed for working with purveyors. All reports, menus and projects will be completed using a word processing program. Students will also learn standard storeroom procedures.

CA 8.321 Advanced Cooking Management I

(20 class hrs/wk, 7 cr) F

From the fundamental skills attained in Practicum I, II & III, students refine and advance their culinary skill to include a la carte, front line cookery, advanced baking and pastry, advanced garde manger and dining room management skills. Students are directly involved in running a "working restaurant," giving them a realistic experience while honing work habits and awareness of production demands. Prerequisite: "C" or higher grade in CA 101 Culinary Arts Practicum I, CA 102 Culinary Arts Practicum II, and CA 103 Culinary Arts Practicum III.

CA 8.322 Advanced Cooking Management II

(20 class hrs/wk, 7 cr) W

From the fundamental skills attained in Practicum I, II & III, students refine and advance their culinary skill to include a la carte, front line cookery, advanced baking and pastry, advanced garde manger and dining room management skills. Students are directly involved in running a "working restaurant," giving them a realistic experience while honing work habits and awareness of production demands. Prerequisite: "C" or higher grade in CA 103 Culinary Arts Practicum III and CA 8.321 Advanced Cooking Management I.

CA 8.323 Advanced Cooking Management III

(20 class hrs/wk, 7 cr) Sp

From the fundamental skills attained in Practicum I, II & III, students refine and advance their culinary skill to include a la carte, front line cookery, advanced baking and pastry, advanced garde manger and dining room management skills. Students are directly involved in running a "working restaurant," giving them a realistic experience while honing work habits and awareness of production demands. Prerequisites: "C" or higher grade in CA 8.322 Advanced Cooking Management II.

CA 8.341 Soups and Sauces*(8 class hrs/wk, 3 cr) F*

Students study and practice the art of classical and modern sauce and soup making from varied national and ethnic cuisines. Hands-on lab activities stress both large scale and a la carte production techniques. Prerequisite: "C" or higher grade in CA 103 Culinary Arts Practicum III.

CA 8.346 Culinary Fundamentals*(3 class hrs/wk, 3 cr) F*

Students learn the fundamentals of classical culinary techniques, sanitation and safety through lectures, demonstrations and hands-on projects. Proper use of tools, equipment, flavoring ingredients and garnish will be covered.

CA 8.347 Beverage Server Training*(1 class hr/wk 1 cr) F*

Provides the student with an understanding of alcohol as a drug and its effects on the body, behavior and, in particular, on the driving skills of those who consume alcohol. Also helps equip students with skills and strategies for dealing with the day-to-day challenges of serving alcohol in a commercial establishment.

CA 8.348 Wine Analysis and Theory*(3 class hrs/wk, 3 cr) W*

Students learn the skills of tasting and analyzing wine. Traditional terminology, tasting techniques and methods are used. Components of wine, production techniques, wine regions, and grape varieties are covered with emphasis on local wines and wine industry. Must be 21 years of age.

CA 8.349 Cooking with Wine (Sauces)*(3 class hrs/wk, 3 cr) W*

Explore the use of wine in the preparation of sauces. Learn technology skills by preparing a spreadsheet containing an inventory of tasting notes and preparing a paper using a word processing program. Includes experimentation and tasting in a hands-on environment. Also learn to identify the character of sauces and match them with complementary wines. Prerequisite: CA 8.346 Culinary Fundamentals. Must be at least 21 years of age.

CA 8.350 Banquets and Buffet Lab A*(3 class hrs/wk, 1 cr) F/W/Sp*

Provides students the opportunity to participate in actual banquet and buffet functions, from small caterings to very large banquets. Set up, production load, banquet and catering plans, service techniques, organizational skills, costs and breakdown systems are presented.

CA 8.351 Banquets and Buffet Lab B*(4 class hrs/wk, 2 cr) F/W/Sp*

Provides students the opportunity to participate in actual banquet and buffet functions, from small caterings to very large banquets. Set up, production load, banquet and catering plans, service techniques, organizational skills, costs and breakdown systems are presented.

CA 8.352 Banquets and Buffet Lab C*(3 class hrs/wk, 1 cr) F/W/Sp*

Provides students the opportunity to participate in actual banquet and buffet functions, from small caterings to very large banquets. Set up, production load, banquet and catering plans, service techniques, organizational skills, costs and breakdown systems are presented. Prerequisite: CA 8.350 Banquets and Buffet Lab A and CA 8.351 Banquets and Buffet Lab B.

CA 8.353 Banquets and Buffet Lab D*(4 class hrs/wk, 2 cr) F/W/Sp*

Provides students the opportunity to participate in actual banquet and buffet functions, from small caterings to very large banquets. Set up, production load, banquet and catering plans, service techniques, organizational skills, costs and breakdown systems are presented.

CA 8.354 Banquets and Buffet Lab E*(3 class hrs/wk, 1 cr) F*

Covers the planning and execution of a banquet, buffet or catering as a member of a team. Students evaluate food for taste arrangement, adherence to theme, cost, etc. Students learn set-up, service and clean up procedures for a large food function. Prerequisite: Instructor's approval.

CA 8.355 Banquet/Buffer Planning*(2 class hrs/wk, 2 cr) W*

To be taken in conjunction with CA 8.352 and CA 8.353 Banquet and Buffet Lab C and D. Students participate in the planning and execution of winter and spring term banquets, food show and other special events. Prerequisites: CA 8.350 Banquets and Buffet Lab A and CA 8.351 Banquets and Buffet Lab B.

CA 8.360 Cooking with Wine (Entrees)*(3 class hrs/wk, 3 cr) Sp*

Students explore the use of wine in the preparation of main entrees. Students learn through experimentation and tasting in a hands-on environment. Emphasis placed on identifying the distinguishing characteristics of foods and dishes and matching them with complementary wines. Prerequisite: CA 8.346 Culinary Fundamentals and CA 8.349 Cooking with Wine (Sauces). Must be at least 21 years of age.

CA 8.361 Food and Wine Pairing*(4 class hrs/wk, 4 cr) F*

Students apply their knowledge of food and wine characteristics to the pairing of food and wine in a series of tastings. Generally accepted standards for pairing food and wine are presented. Students learn how to pair wines with new food trends. Particular emphasis is placed on varietal wines. Prerequisite: VMW 131 Wine Appreciation (Chemeketa), VMW 232 Sensory Evaluation of Wine Varietals (Chemeketa) and CA 8.346 Culinary Fundamentals. Must be 21 years of age.

CA 8.364 Banquet and Buffet Sommelier Lab*(4 class hrs/wk, 2 cr) Sp*

Provides students the opportunity to participate in actual banquet and buffet functions. Students choose wines to complement the banquet menu and then present and serve the wine(s) at the actual banquet. Emphasizes how to describe, open and pour wine. Prerequisite: Must be 21 years of age.

CA 8.368 Creating the Menu*(2.5 class hrs/wk, 2 cr) F*

Students are expected to create a menu and support documentation for a restaurant or other food operation using the skills and concepts presented in this class. Throughout the term students will work on components of the final project. Prerequisite: CA 8.373 Costing.

CA 8.373 Costing*(2.5 class hrs/wk, 1 cr) Sp*

Teaches theory and practice of determining food cost for restaurant and institutional cooking.

CA 8.409 Meats*(6 class hrs/wk, 3 cr) F*

Addresses fabricating primal and sub-primal cuts of beef, pork and lamb for profitable use in restaurants. Includes knife techniques, portion cutting, and safe and sanitary meat handling and storage. Proper cooking procedures and techniques also are presented. Handling and tasting of meat products is an integral and required part of this class. Prerequisite: CA 103 Culinary Arts Practicum III.

CA 8.414 Presentation/Garde Manger*(4 class hrs/wk, 2 cr) Sp*

Traditional and contemporary presentation techniques are presented and practiced as part of this hands-on class. Charcuterie, hors d'oeuvres, appetizers and patés are explored.

CA 8.418 Beverage Operations and Services*(4 class hrs/wk, 2 cr) F*

Covers the art and science of beverage production, classifications, standards of identity, taste and characteristics, service and merchandising, costing and controls, standard glassware, sanitation, and federal and state ordinances.

CA 8.419 Nutrition and Special Diets*(2 class hrs/wk, 1 cr) F*

Practical use of food and menus to assure a proper balance of both macronutrients (carbohydrates, fats, and proteins) and micronutrients. Meeting nutritional needs through the use of "new" and varied products is stressed. Main emphasis is placed on hands-on activities to expand students' ability to identify and use a variety of ingredients.

CA 8.421 International Cuisine*(4 class hrs/wk, 2 cr) Sp*

Through lecture, projects, research and demonstration, students learn about the styles and flavoring components of a variety of national and regional cuisines. All reports, menus and projects will be completed using a word processing program.

CA 101 Culinary Arts Practicum I*(24 class hrs/wk, 7 cr) F*

Practicum classes I, II, and III provide a comprehensive hands-on sequence designed to develop, through practice, the basic skills and attitudes necessary for a successful career in Food Service. Stations include Baking, Pantry, Garde Manger, Soups and Sauces, Entree Cookery, Vegetable Cookery, Healthy and Natural Foods, and Dining Room. High professional standards and attitudes are stressed. These practicums are designed for the serious career-oriented individual. Prerequisites: CA 111 Food Service Safety and Sanitation; CA 112 Stations, Tools and Culinary Techniques; and CA 113 Service Techniques.

CA 102 Culinary Arts Practicum II*(24 class hrs/wk, 8 cr) W*

Practicum classes I, II, and III provide a comprehensive hands-on sequence designed to develop, through practice, the basic skills and attitudes necessary for a successful career in Food Service. Stations include Baking, Pantry, Garde Manger, Soups and Sauces, Entree Cookery, Vegetable Cookery, Healthy and Natural Foods, and Dining Room. High professional standards and attitudes are stressed. These practicums are designed for the serious career-oriented individual. Prerequisite: CA 101 Culinary Arts Practicum I.

CA 103 Culinary Arts Practicum III*(24 class hrs/wk, 8 cr) Sp*

Practicum classes I, II, and III provide a comprehensive hands-on sequence designed to develop, through practice, the basic skills and attitudes necessary for a successful career in Food Service. Stations include Baking, Pantry, Garde Manger, Soups and Sauces, Entree Cookery, Vegetable Cookery, Healthy and Natural Foods, and Dining Room. High professional standards and attitudes are stressed. These practicums are designed for the serious career-oriented individual. Prerequisite: CA 102 Culinary Arts Practicum II.

CA 111 Food Service Safety and Sanitation*(10 class hrs/wk, 1 cr) F*

Helps students gain an awareness of the hazards of poor sanitation and safety practices and how to properly address those issues. Through lecture, assigned reading and case study, students learn the essentials of food handling, proper personal hygiene, equipment handling and facilities management as they relate to the food service industry.

CA 112 Stations, Tools and Culinary Techniques*(20 class hrs/wk, 3 cr) F*

A program orientation course providing students a thorough first exposure to the history of food service; the identification and use of common ingredients; professional work habits and attitudes; and to a basic understanding of equipment, knife handling techniques and culinary terms and methods. Note: Two-week class.

CA 113 Service Techniques*(10 class hrs/wk, 1 cr) F*

Teaches the skills of dining room service by a combination of lecture, demonstrations and role playing. In addition, students learn the fundamentals of building customer relations.

CA 201 Culinary Arts Career Planning*(2 class hours/ 1 credit) Sp*

Prepare for entering the culinary workforce. Organize a search for work including preparation of a résumé for use in a mock interview, writing a letter of application, and completing a standard application form. Includes preparing a five year career plan and exploring different career opportunities using resources such as the Internet, industry periodicals, and employment department career information.

CE: CIVIL ENGINEERING TECHNOLOGY**CE 6.422 Introduction to GIS***(3 class hrs/wk, 2 cr) Sp*

An introductory course in geographic information systems (GIS). Uses ArcGIS software to display and work with spatial data, work with attributes, query databases, and present data. Prerequisite: Knowledge of computer and Windows operation.

CE 6.444 Civil Design Lab*(2 class hrs/wk, 1 cr) F*

A course in civil engineering design. Emphasizes the design of roads, waterlines, sanitary sewer lines and storm drains. Prerequisites: EG 4.456 Civil Drafting Lab; WW 6.167 Water Distribution and Collections Lab.

CE 6.488 Advanced Surveying and Land Development*(6 class hrs/wk, 4 cr) F*

Advanced course in surveying and land development. Emphasizes land and construction surveying and the process of developing land. Prerequisite: EG 4.456 Civil Drafting Lab; CEM 263 Plane Surveying.

CEM: CONSTRUCTION ENGINEERING MANAGEMENT**CEM 263 Plane Surveying***(4 class hrs/wk, 3 cr) Sp*

Basic course in surveying techniques. Includes distance measuring, leveling, cross sectioning, traversing, topographic surveying, use of surveying instruments and office procedures. Prerequisite: MTH 111 College Algebra.

CG: COLLEGE SKILLS**CG 111 College Learning and Study Skills***(3 class hrs/wk, 3 cr) F/W/Sp/Su*

Assists students in developing the academic strategies necessary for being successful in a community college or four-year college. Teaches skills for learning from lectures and textbooks, applying memory strategies, preparing for and taking tests, and managing student responsibilities. Prerequisite: Appropriate reading competence as indicated by the Computerized Placement Test.

CH: CHEMISTRY**CH 112 Chemistry for Health Occupations***● (6 class hrs/wk, 5 cr) F*

Introductory topics in inorganic, organic and biological chemistry selected to prepare students entering Nursing, Emergency Medical Technician and related Health Occupations programs. Prerequisite: High school algebra or equivalent, or MTH 60 Introduction to Algebra. This course includes a laboratory component.

CH 121 College Chemistry*● (7 class hrs/wk, 5 cr) F*

The first of a three-term sequence for students in science-related fields, including health occupations, agriculture, animal science, fisheries and wildlife, life sciences, education, general science and earth sciences. Topics include measurement; chemical calculations; chemical formulas and equations; chemical reactions; atomic structure; periodicity; ionic and covalent bonding; molecular geometry. Prerequisites: MTH 065 Elementary Algebra or equivalent; high school physical science or equivalent. All prerequisites must be completed with a "C" or better. This course includes a laboratory component.

CH 122 College Chemistry

- (7 class hrs/wk, 5 cr) W

The second of a three-term sequence for students in science-related fields, including health occupations, agriculture, animal science, fisheries and wildlife, life sciences, education, general science and earth sciences. Topics include bonding, molecular geometry, properties of solids, liquids, and gases, solutions, rates of reaction, and chemical equilibrium. Prerequisites: MTH 095 Intermediate Algebra and CH 121 College Chemistry. All prerequisites must be completed with a "C" or better. This course includes a laboratory component.

CH 123 College Chemistry

- (7 class hrs/wk, 5 cr) Sp

The third of a three-term sequence for students in science-related fields, including health occupations, agriculture, animal science, fisheries and wildlife, life sciences, education, general science and earth sciences. Topics in CH 121, 122 and 123 include: measurement; chemical calculations; chemical formulas and equations; chemical reactions; atomic structure; periodicity; ionic and covalent bonding; molecular geometry; properties of solids, liquids and gases; solutions; chemical equilibrium; acids and bases; solubility; thermodynamics; electrochemistry; nuclear chemistry and organic chemistry; thermochemistry; and rates of reactions. Prerequisite: CH 122 College Chemistry with a grade of "C" or better. This course includes a laboratory component.

CH 150 Preparatory Chemistry

- (3 class hrs/wk, 3 cr) As needed

Introduces chemistry for science, engineering and the professional health occupations. Designed to meet the prerequisite for CH 221, this fast-moving curriculum covers the basic tools offered in a one-year high school chemistry course. A good selection for students who need a refresher in chemistry or have little or no background in chemistry and need to meet the prerequisite for CH 221. Topics emphasized include chemical calculations and problem-solving techniques encountered in both inorganic and organic chemistry. There is no lab with CH 150. Corequisite: MTH 095 Intermediate Algebra.

CH 199 Special Studies

- (2–6 class hrs/wk, 1–3 cr) As needed

Allows a student to investigate, with supervision from a faculty member, a topic of his/her interest at an individualized pace. Credits and projects are determined by the instructor and student.

CH 201 Chemistry for Engineering Majors I

- (7 class hrs/wk, 5 cr) W

The first of a two-term sequence designed specifically to provide engineering majors a fundamental understanding of chemical reactions and scientific measurement. This course will introduce students to principles, laws and equations that govern our understanding of chemical combination. Prerequisites: CH 150 Preparatory Chemistry or CH 121 College Chemistry or high school chemistry or equivalent; MTH 095 Intermediate Algebra. Pre- or corequisite: MTH 111 College Algebra. This course includes a laboratory component.

CH 202 Chemistry for Engineering Majors II

- (7 class hrs/wk, 5 cr) Sp

The second of a two-term sequence designed specifically to provide engineering majors with a fundamental understanding of chemical reactions and scientific measurement. This course will introduce students to principles, laws and equations that govern our understanding of chemical combination. Prerequisites: CH 201 Chemistry for Engineering Majors I, MTH 111 College Algebra with a grade of "C" or better. This course includes a laboratory component.

CH 221 General Chemistry

- (7 class hrs/wk, 5 cr) F

The first of a three-term sequence for students in science, engineering and the professional health programs. Topics include measurement, chemical calculations, chemical formulas and equations, chemical reactions, gas laws and thermochemistry and atomic structure. Prerequisite: Completion of high school chemistry with a grade of "C" or better, or CH 150 Preparatory

Chemistry with a grade of "C" or better, or CH 121 College Chemistry with a grade of "C" or better; MTH 095 Intermediate Algebra. Corequisite: MTH 111 College Algebra. This course includes a laboratory component.

CH 222 General Chemistry

- (7 class hrs/wk, 5 cr) W

The second term of a three-term sequence for students in science, engineering and the professional health programs. Topics include quantum theory and atomic structure, molecular geometry, states of matter (solids, liquids and gases), solutions and organic compounds. Prerequisites: CH 221: General Chemistry with a grade of "C" or better; MTH 111 College Algebra with a grade of "C" or better. This course includes a laboratory component.

CH 223 General Chemistry

- (7 class hrs/wk, 5 cr) Sp

The third term of a three-term sequence for students in science, engineering and the professional health programs. Topics include rates of reactions, chemical equilibrium, acids and bases, solubility and complex ion formation, thermodynamics, electrochemistry, and an introduction to organic chemistry. Prerequisite: CH 222 General Chemistry with a grade of "C" or better; MTH 111 College Algebra with a grade of "C" or better. This course includes a laboratory component.

CH 241 Organic Chemistry

- (6 class hrs/wk, 4 cr) F

The first term of a three-term sequence for students in the sciences and professional health programs. Topics include nomenclature, structural bonding, stereochemistry, reactivity and synthesis of alkanes, alkenes and alkynes. Prerequisite: CH 121, 122 and 123 College Chemistry or CH 221, 222 and 223 General Chemistry with grades of "C" or better. This course includes a laboratory component. This course may be eligible for upper division credit. For details, please see the program description for an Associate of Science with an emphasis in Chemistry.

CH 242 Organic Chemistry

- (6 class hrs/wk, 4 cr) W

The second of a three-term sequence for students in the sciences and professional health programs. Topics include nucleophilic substitution and elimination reactions, spectroscopy and aromaticity. Prerequisite: CH 241 Organic Chemistry with a grade of "C" or better. This course includes a laboratory component. This course may be eligible for upper division credit. For details, please see the program description for an Associate of Science with an emphasis in Chemistry.

CH 243 Organic Chemistry

- (6 class hrs/wk, 4 cr) Sp

The third term of a three-term sequence for students in the sciences and professional health programs. Topics include properties and reactions of phenols, aryl halides, aldehydes, ketones, carboxylic acids, and amines, and oxidation and reduction in organic chemistry. Prerequisite: CH 242 Organic Chemistry with a grade of "C" or better. This course includes a laboratory component. This course may be eligible for upper division credit. For details, please see the program description for an Associate of Science with an emphasis in Chemistry.

CH 280 CWE Chemistry

- (6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su

Designed to give students practical experience through supervised employment related to chemistry. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

CH 299 Special Studies

- (2–6 class hrs/wk, 1–3 cr) As needed

Allows a student to investigate, with supervision from a faculty member, a topic of his or her interest at an individualized pace. Credits and projects are determined by the instructor and student.

CIS: COMPUTER INFORMATION SYSTEMS

Courses with the CIS prefix are career and technical courses that have a primary purpose of meeting requirements for the Associate of Applied Science degree. Four-year institutions may or may not accept them for transfer credit.

CIS 125 Introduction to Software Applications

(4 class hrs/wk, 3 cr) F/W/Sp/Su

Learn and use the basics of operating system and application software programs to manage files, directories, and desktop functions; Internet and e-mail; word processing for formatting business correspondence, creating tables, multipage documents, graphical elements; and spreadsheet software for basic functions and formulas, charts and data calculations. Prerequisite: MTH 060 Introduction to Algebra with a minimum "C" grade.

CIS 125D Introduction to Databases

(3 class hrs/wk, 1 cr) F/W/Sp

Introduces database software and how it is utilized in business and personal applications to organize information, produce reports, prepare data entry forms, and store data in retrievable format using filters and queries available in the software. Note: Five-week course. Prerequisite: Completion of CIS 1250 Introduction to Windows with a minimum "C" grade or equivalent computer experience as determined by a Computer Systems Department advisor.

CIS 1250 Introduction to Windows

(3 class hrs/wk, 1 cr) F/W/Sp/Su

Provides an introduction to the Windows operating system. Covers basic concepts for using menus, dialog boxes, and the help system; working with applications and documents; Internet and e-mail; and managing files and folders. Discusses ways to customize the Windows environment and describes a few "built in" accessories.

CIS 125P Introduction to Presentations

(3 class hrs/wk, 1 cr) W/Sp

Learn to make and give effective electronic slide show presentations using presentation software. Emphasizes designing effective presentation slides using the tools available through this program. Students prepare a slide show and present to the class. Note: Five-week course. Prerequisite: CIS 1250 Introduction to Windows with a minimum "C" grade.

CIS 125S Introduction to Spreadsheets

(3 class hrs/wk, 1 cr) F/W/Sp/Su

Introduces spreadsheet software and how it is utilized in business and personal applications. Covers basic worksheet concepts, such as formatting, formulas and charts. Note: Five-week course. Prerequisite: CIS 1250 Introduction to Windows with a minimum "C" grade; MTH 060 Introduction to Algebra with a minimum "C" grade or OA 2.515 Business Math with a minimum "C" grade.

CIS 135S Advanced Spreadsheets

(4 class hrs/wk, 3 cr) W/Sp

Provides advanced techniques and features of spreadsheet software for business applications and financial analysis. Uses the applications expected in the business environment, including but not limited to an operating budget, and following a company's stock price and other information. New concepts to be introduced include break-even analysis, financial projections, statistical analysis, and data and pivot tables to summarize data. Prerequisite: CIS 125S Introduction to Spreadsheets with a minimum "C" grade or CIS 125 Introduction to Software Applications with a minimum "C" grade.

CIS 151 Networking Essentials

(7 class hrs/wk, 4 cr) F

The first course of a four-part sequence in a Cisco curriculum directed toward the Cisco Certified Network Associate certification (CCNA). Provides students with classroom and laboratory experience in current networking technology, and includes network terminology, protocols, network standards, LANs, WANs, OSI model, cabling, cabling tools, safety, network topology, and IP addressing. Corequisites: CIS 125 Introduction to Software Applications or equivalent computer experience as determined by a Computer Systems advisor, and MTH 095 Intermediate Algebra.

CIS 152 Network Router Configurations

(7 class hrs/wk, 4 cr) W

The second course of a four-part sequence in a Cisco curriculum directed toward the Cisco Certified Network Associate certification (CCNA). Emphasizes experience in current networking technology, and includes network terminology and protocols. Topics include LANs network topology, IP addressing, routers, router programming, and application of routing and router protocols. Prerequisite: CIS 151 Networking Essentials with a minimum "C" grade.

CIS 153 LANs and Internetwork Design

(7 class hrs/wk, 4 cr) Sp

The third course of a four-part sequence in a Cisco curriculum directed toward the Cisco Certified Network Associate certification (CCNA). Emphasizes experience in current networking technology that includes LAN segmentation, using bridges, routers, and switches to control network traffic. Includes advanced router configuration, LAN switching theory, and VLANs. Note: Five-week course. Prerequisite: CIS 152 Network Router Configurations with a minimum "C" grade.

CIS 154 WAN Design

(7 class hrs/wk, 4 cr) Sp

The fourth course of a four-part sequence in a Cisco curriculum directed toward the Cisco Certified Network Associate certification (CCNA). Introduces WAN services. Covers ISDN, ATM, frame relay, and dial-up services. Note: Five-week course. Prerequisite: CIS 153 LANs and Internetwork Design with a minimum "C" grade.

CIS 195 Web Development I

(5 class hrs/wk, 4 cr) F

Introduces Web design through an examination of (X)HTML, CSS and relevant computer graphic file formats. Students will learn to create standards-compliant, accessible Web pages using modern design techniques. An emphasis will be placed on learning to write (X)HTML and CSS script without the help of advanced Web design software.

CIS 295 Web Development II

(5 class hrs/wk, 4 cr) Sp

Introduces students to advanced Web design techniques through an in-depth examination of (X)HTML, CSS JavaScript. Students will learn to manipulate the Document Object Model (DOM) of a web page and to use advanced, industry-standard Web page and graphic design/creation software packages. Asynchronous JavaScript and XML (Ajax) programming techniques and related toolkits will also be examined.

CJ: CRIMINAL JUSTICE

CJ 100 Survey of Criminal Justice Systems

■ (3 class hrs/wk, 3 cr) As needed

Introduction to how the criminal justice system operates. Explores how someone enters the criminal justice system and how the various subcomponents of this system operate together.

CJ 101 Introduction to Criminology

■ (3 class hrs/wk, 3 cr) As needed

Presents an overview of criminology, research, data gathering and analysis. Introduces theoretical perspectives on the nature of crime, criminals and victimization and identifies current trends and patterns of crime. Development and conceptualization of crime, including historical perspectives, social and legal definition and classifications.

CJ 110 Introduction to Law Enforcement

■ (3 class hrs/wk, 3 cr) As needed

Introduces students to the law enforcement profession. The historical development of policing in America, the police role, and the various branches and divisions of law enforcement are examined, as well as corruption and stress. The social dimensions of policing in America are also examined so students will know the hazards of the profession, yet gain a broader perspective of the professional requirements in their chosen field.

CJ 112 Police Field Operations

■ (3 class hrs/wk, 3 cr) *As needed*

Introduces the nature and purpose of patrol activities, including routine and emergency procedures, types of patrol, arrest procedures and field interviews. Covers equipment, technology and vehicle operation. Emphasizes report documentation, courtroom testimony and police tactical communications.

CJ 120 Introduction to the Judicial Process

■ (3 class hrs/wk, 3 cr) *As needed*

Surveys the process of justice from arrest through rehabilitation; the jurisdiction of city, county, state and federal police agencies, and the constitutional rights of individuals using the medium of the mock trial. Students study, investigate and present a criminal trial, acting as “lawyers,” witnesses and investigators.

CJ 130 Introduction to Corrections

■ (3 class hrs/wk, 3 cr) *As needed*

Examines the total correctional process from law enforcement through administration of justice, probation, prisons and correctional institutions, and parole. History and philosophy oriented.

CJ 132 Introduction to Parole and Probation

(3 class hrs/wk, 3 cr) *As needed*

Introduces the use of parole and probation as a means of controlling felons. Covers contemporary functioning of parole and probation agencies.

CJ 140 Criminalistics

(3 class hrs/wk, 3 cr) *As needed*

Criminalistics, also called “forensic science,” applies the knowledge and technology of science to the solution of crime. This course includes a review of the principles and techniques used to collect and analyze physical evidence found at a crime scene, fingerprints, voice and bodily fluid identification, forensic entomology and autopsies. Also includes an examination of the legal and ethical issues associated with forensic work.

CJ 198 Research Topics

(1 class hr/wk, 1 cr) *As needed*

Students examine in depth a selected criminal justice topic. Develops skills in independent research. Corequisite: WR 123 English Composition: Research Paper.

CJ 201 Juvenile Delinquency

■ (3 class hrs/wk, 3 cr) *As needed*

Explores delinquency in American society. Theories, families, gangs, and a study of youth violence help provide students with an understanding of the social and institutional context of delinquency. Students work cooperatively as team members to teach others in the class about a research topic related to a juvenile delinquency issue.

CJ 202 Violence and Aggression

■ (3 class hrs/wk, 3 cr) *As needed*

Explores and analyzes violence and aggression from biological, psychological and sociological perspectives. Includes topics such as homicide, suicide, rape, assault, mob violence, terrorism, violence within the family and related phenomenon, which are presented from a human relations perspective.

CJ 203 Crisis Intervention Seminar

(1 class hrs/wk, 1 cr) *As needed*

An overview of the techniques and approaches to crisis intervention for entry-level criminal justice professions. Covers initial intervention, defusing and assessment, resolution and/or referral, with emphasis on safety. Includes personal effectiveness, recognition of threat levels, voluntary compliance, verbal and nonverbal communication, active listening and mediation.

CJ 210 Introduction to Criminal Investigation

(3 class hrs/wk, 3 cr) *As needed*

Introduces the fundamentals of criminal investigation theory and history, from the crime scene to the courtroom. Emphasizes techniques appropriate to specific crimes.

CJ 211 Ethical Issues in Law Enforcement

(3 class hrs/wk, 3 cr) *As needed*

The law enforcement community has an established code of ethics embedded in all professional activities. This course provides an overview of ethics theory as it applies to the criminal justice professional. This course also focuses on practical and ethical solutions to common dilemmas experienced by those working in law enforcement.

CJ 220 Introduction to Substantive Law

■ (3 class hrs/wk, 3 cr) *As needed*

Surveys the historical development and philosophy of law and constitutional provisions; the definition and classification of crimes and their application to the system of administration of justice; and the legal research, case law and concepts of law as a social force.

CJ 222 Procedural Law

(3 class hrs/wk, 3 cr) *As needed*

Reviews the evolution and status of U.S. case law relating to search and seizure, warrants, arrests, self-incrimination, right to counsel, Miranda, and other issues arising out of the U.S. Constitution relevant to the function of law enforcement professionals.

CJ 226 Constitutional Law

(3 class hrs/wk, 3 cr) *As needed*

Focuses on the study of the fundamentals of the U.S. Constitution, including the separation of power; the structure of the federal court system; preemption; the Bill of Rights and subsequent amendments; U.S. case law and its relation to law enforcement; and the effects of constitutional limitations on police power.

CJ 230 Introduction to Juvenile Corrections

(3 class hrs/wk, 3 cr) *As needed*

Designed to introduce students to the profession of juvenile corrections, the history of juvenile corrections, juvenile court philosophy and treatment modalities. Provides students with an understanding of the political, social, and economic environment operating within the juvenile correctional system. Students will also gain knowledge on how to complete a professional job search process.

CJ 232 Introduction to Corrections/Counseling/Casework

(3 class hrs/wk, 3 cr) *As needed*

Reviews the corrections system today combined with an overview of basic counseling techniques.

CJ 233 Community-Based Corrections

(3 class hrs/wk, 3 cr) *As needed*

Explores philosophy and programs of juvenile and adult probation supervision, after-case parole, halfway homes, work- and educational-release furlough, as well as executive clemency and interstate compact practices. Examines the dilemma of surveillance — custody/control factors vs. supervision/treatment.

CJ 280A CWE Corrections

(6–42 class hrs/wk, 2–15 cr) *F/W/Sp/Su*

Gives students practical experience in supervised employment related to corrections. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator’s approval.

CJ 280B CWE Law Enforcement

(6–42 class hrs/wk, 2–14 cr) *F/W/Sp/Su*

Gives students practical experience in supervised employment related to law enforcement. Students identify job performance objectives, work a specified number of hours during the term and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator’s approval.

CR: COLLISION REPAIR

CR 3.511 Collision Repair and Refinishing Basics

(20 class hrs/wk, 1–12 cr) F

Introduces repairing of minor collision damage, basic collision repair tools, refinishing materials, refinishing equipment and vehicle surface preparation. Also included are environmental hazards and safety procedures. Safety procedures include accident and injury prevention and personal safety and health protection from workplace hazards.

CR 3.512 Collision Repair and Refinishing Procedures

(20 class hrs/wk, 1–12 cr) W

Reviews environmental hazards and safety procedures. Introduces analyzing various types of automobile damage, reading an estimate and writing an estimate manually. Students learn auto glass replacement theory and bolt-on panel replacement and adjustment. Course also teaches plastic panel repair and refinishing procedures. Students learn how to look up a paint code using a computer, print out a paint formula, and mix and apply automobile refinishing materials. Students work together as teams on project vehicles, review work orders and communicate with customers. Prerequisite: CR 3.511 Collision Repair and Refinishing Basics or instructor's approval.

CR 3.513 Shop Procedures

(20 class hrs/wk, 1–12 cr) Sp

Reviews environmental hazards and safety procedures. Covers paint problems and final detailing. Also covers power tools, welded panel replacement and restoring corrosion protection. Prepares students for job search, interviews and writing a résumé. Students continue team learning, reviewing work orders and customer relations. Prerequisite: CR 3.512 Collision Repair and Refinishing Procedures or instructor's approval.

CR 3.518 Collision Repair Welding I

(4 class hrs/wk, 2 cr) F

Students learn basic Gas Metal Arc Welding (GMAW), also called MIG. Welds on thin gauge sheet metal are inspected for penetration, defects, bead height and bead width.

CR 3.519 Collision Repair Welding II

(4 class hrs/wk, 2 cr) W

Students learn vertical and overhead Gas Metal Arc Welding (GMAW), also called MIG. Welds on thin gauge sheet metal are inspected for penetration, defects, bead height and bead width. Students will learn oxyacetylene safety, flames and cutting. Theory on aluminum welding will be covered. Prerequisite: CR 3.518 Collision Repair Welding I or instructor's approval.

CS: COMPUTER SCIENCE

CS 133J JavaScript

(5 class hrs/wk, 4 cr) W

For the Web developer who knows how to create Web pages but would like to learn JavaScript to add event procedures. Prerequisite: CS 161 Introduction to Computer Science I Java or CS 133V Visual Basic I and CIS 195 Web Development I with a minimum "C" grade or equivalent HTML experience as determined by a Computer Systems Department instructor.

CS 133U Programming in C++

(5 class hrs/wk, 4 cr) Sp

Introduces problem analysis and programming to solve computation problems. Introduces C++ for those with previous programming experience. Prerequisites: CS 161 Introduction to Computer Science I Java with a minimum "C" grade or equivalent experience as determined by a Computer Systems Department advisor; MTH 095 Intermediate Algebra or higher.

CS 133V Visual Basic I

(5 class hrs/wk, 4 cr) F

An intensive introductory course in the design and implementation of programs for Microsoft Windows® using Visual Basic.Net®. Equivalent to Oregon State University course BA 272. Prerequisite: CS 160 Orientation to Computer Science with a minimum "C" grade or equivalent as determined by the instructor. A Readiness Assessment Quiz will be given at the first class

session to verify that each student has a sufficient understanding of algorithmic logic to succeed in the course.

CS 140U Fundamentals of UNIX/Linux

(5 class hrs/wk, 4 cr) Sp

A laboratory-intensive course which provides new users with an introduction to the Linux® operating system. Students will install and administer their own Linux® systems, primarily using professional command-line tools. Topics will include file system navigation and permissions, text editors, shell scripting and network-oriented utilities. The course provides partial preparation for the Linux+® exam. Prerequisite: MTH 095 and CIS 151 Networking Essentials, both with a minimum "C" grade.

CS 145 Hardware/Software Selection and Support

(3 class hrs/wk, 3 cr) W

Systematically presents evaluation criteria for selection of microcomputer hardware, software, service and support, including assessment of needs, compatibility of hardware and software, and reliability of dealership support. Extends knowledge of command line interface. Prerequisite: CIS 125 Introduction to Software Applications with a minimum "C" grade or equivalent experience as determined by a Computer Systems Department advisor.

CS 160 Orientation to Computer Science

(5 class hrs/wk, 4 cr) F/W/Sp

Introduces the field of computer science and programming. Covers binary encoding of data, digital logic, computer organization, operating systems, programming languages, algorithms, control structures, and software engineering. Intended for students who wish to investigate a career in computer science and related fields. Corequisite: MTH 095 Intermediate Algebra and CIS 125 Introduction to Software Applications.

CS 161 Introduction to Computer Science I (Java)

(5 class hrs/wk, 4 cr) F/W/Sp

Introduces the principles of computer programming using an object-oriented language. Includes problem-solving concepts, verification and validation, representation of numbers, sources of errors, debugging techniques, conditionals, loops, and arrays. The Java programming language is used. Corequisites: CS 160 Orientation to Computer Science. Prerequisite: MTH 095 Intermediate Algebra or higher with a minimum "C" grade.

CS 162 Introduction to Computer Science II (Java)

(5 class hrs/wk, 4 cr) W/Sp

Covers software engineering principles, basic data structures and abstract data types (arrays, strings, stacks, queues and graphics). Introduces analysis of algorithms, sorting and searching. Expands on Graphical User Interfaces, Swing components, layout managers and event-driven programming. Also covers polymorphism, inheritance, recursion and exceptions. The Java programming language is used. Prerequisite: CS 161 Introduction to Computer Science I (Java) with a minimum "C" grade.

CS 180 Supervised Computer Practicum

(4 class hrs/wk, 2 cr) W

Provides an opportunity to gain experience consulting with end-users in a setting such as a campus computer lab. Complete before the off-campus CWE experience. Consulting experiences include troubleshooting and problem-solving skills similar to those used in many business and software environments. Designed for Computer User Support majors in their second year of coursework. Prerequisite: Instructor's approval.

CS 225 End-User Computing Support

(4 class hrs/wk, 4 cr) Sp

Prepares the student for training and supporting end-users in a variety of organizational settings. Includes the organization necessary to deliver support; techniques for developing and delivering training modules; and strategies for providing ongoing technical support to end-users to include: on-site visits, Web tools, call management, and use of third party vendors. Emphasizes solving problems and the soft skills (appropriate communication, dress, grooming and social skills) required to interact with users. Prerequisite: CS 145 Hardware/Software Selection and Support with a minimum "C" grade.

CS 227H Systems Support: Hardware*(4 class hrs/wk, 3 cr) W*

A survey of current PC hardware designs and components. Emphasizes troubleshooting, problem solving, and building skills in hardware support. Assists students in preparing for the CompTIA A+ certification. Prerequisite: CS 227S Systems Support: Software with a minimum "C" grade.

CS 227S Systems Support: Software*(4 class hrs/wk, 3 cr) F*

A workbench course that provides experience with common computer application software problems. Emphasizes troubleshooting, problem solving and building skills in computer user support. Includes registry patches, tech support Web site, and installations such as printer sharing and voice recognition. Prerequisite: BA 271 Information Technology in Business with a minimum "C" grade.

CS 240A Microsoft Windows® Server Administration I*(5 class hrs/wk, 4 cr) W*

The first of two courses in the administration of Microsoft Windows® client/server networked operating systems. The courses CS 240A and CS 240B are laboratory-intensive courses that provide hands-on experience in the planning, installation and administration of Microsoft Windows® client/server networks. The combination of courses provides partial preparation for the MCSA® and, eventually, MCSE® exams. Prerequisites: CIS 151 Networking Essentials, CS 140U Fundamentals of UNIX/Linux, CS 279 Network Management or equivalent, all with minimum "C" grades.

CS 240B Microsoft Windows® Server Administration II*(5 class hrs/wk, 4 cr) Sp*

The second of two courses in the administration of Microsoft Windows® client/server networked operating systems. The courses CS 240A and CS 240B are laboratory-intensive courses that provide hands-on experience in the planning, installation, and administration of Microsoft Windows® client/server networks. The two courses provide partial preparation for the MCSA® and, eventually, MCSE® exams. Prerequisite: CS 240A Microsoft Server Administration I with a minimum "C" grade.

CS 244 Systems Analysis and Project Management*(5 class hrs/wk, 4 cr) W*

A practice-oriented course with examples, applications and proven techniques that demonstrate, project management, systems analysis and design. Actual organization, business settings, and project management software are used to show how systems concepts can apply to many different types of enterprises.

CS 260 Data Structures (Java)*(5 class hrs/wk, 4 cr) F*

Includes the topics of complexity analysis, sorting, searching, trees, binary search trees, heaps, and hash tables. Prerequisite: CS 162 Introduction to Computer Science II with a minimum "C" grade.

CS 271 Computer Architecture and Assembly Language*(4 class hrs/wk, 4 cr) Sp*

Introduces functional organization and architecture of digital computers. Topics include interconnection structures, bus connection, Cache memory design, Disk access, I/O modules memory management and RAID architecture. Coverage of assembly language: addressing, stacks, argument passing, arithmetic operations, decisions, macros, and modularization. Prerequisites: CS 160 Orientation to Computer Science with a minimum "C" grade.

CS 275 Database Systems: SQL and Oracle*(5 class hrs/wk, 4 cr) W*

Introduces the design, purpose and maintenance of a database system. Covers the entity-relationship model, relational systems, data definition, data manipulation, query language (SQL) and the Oracle database management environments. Prerequisites: CS 160 Orientation to Computer Science with a minimum "C" grade and at least one programming class.

CS 279 Network Management*(5 class hrs/wk, 4 cr) F*

Through the use of lectures, reading, and hands-on practice, students learn to administer a Network Operating System. Topics Include creating Directory objects, Domain Name System assigning permissions, network file systems, network printer setup, and router/firewall setup. Prerequisite: CIS 125 Introduction to Software Applications, CIS 151 Networking Essentials, CS 140U Fundamentals or UNIX/Linux, all with minimum "C" grades.

CS 280 CWE Computer Systems*(3–42 class hrs/wk, 1–14 cr) F/W/Sp/Su*

Gives students practical experience in supervised employment related to computer systems. Students identify job performance objectives, work a specified number of hours during the term and attend a related CWE seminar. Minimum of 24 credit hours in the program. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

CS 284 Introduction to Computer Security and Information Assurance*(5 class hrs/wk, 4 cr) Sp*

This introductory course deals with the fundamental basic principles and surveys modern topics in computer security. It covers privacy concerns, policies and procedures, hardware security, software security, network security, and data security. Multi-level security, Public Key Infrastructure (PKI) and access control are discussed along with an introduction to cryptography. Prerequisite: MTH 095 Intermediate Algebra with a minimum "C" grade and CS 160 Orientation to Computer Science with a minimum "C" grade. With Instructor Approval, CS 145 Hardware/Software Selection and Support with a minimum "C" grade may be substituted for CS 160.

CS 2.589 Reading and Conference: Computer Systems*(1–20 class hrs/wk, 1–10 cr) As Needed*

Individualized course covering subject areas of particular interest to the student or areas where additional work is needed. Note: Number of credits is determined by amount of time spent and agreed upon in advance by instructor. Prerequisite: Instructor's approval.

CSS: CROP SCIENCE**CSS 105 Soils and Man***(3 class hrs/wk, 3 cr) Sp*

Explores soil resources in relation to environmental planning and sound ecological principles of land use. Includes examples and case studies involving soil problems and limitations in land use, pollution control and ecological aspects of production. Independent project required. Student teams make presentation regarding land-use issues based on soil survey data.

CSS 200 Crop Ecology and Morphology*(3 class hrs/wk, 3 cr) F*

The class offers an introduction to the concepts of agricultural ecology and crop morphology. It serves as a foundation for other crop science classes. Examines the dynamics and function of crop communities, and the biotic and environmental interactions that influence crop productivity. Fundamentals of the developmental morphology of crop seeds, seedlings, and plants are covered as well as morphological features of seeds and plants in relation to the identification of crop families and species of economic importance.

CSS 205 Soils: Sustainable Ecosystems*(6 class hrs/wk, 4 cr) F*

Explores the soil ecosystems as a medium for plant and crop growth, the cycling of nutrients, supply and purification of water, and a habitat for diverse population of soil organisms. Also studies the relationship of human activities to the sustainability of soil ecosystems.

CSS 210 Forage Crops*(4 class hrs/wk, 3 cr) Sp*

Emphasizes practices that produce maximum economic returns for land devoted to hay, pasture or range. Includes establishment and management, fertilization, pest control, rotations, irrigations and renovation. Note: This is a career and technical course that may not be accepted by four-year institutions.

CSS 215 Soil Nutrients and Plant Fertilization*(4 class hrs/wk, 3 cr) W*

An introduction to the essential soil nutrients and their use in agronomic and horticultural crops. Processes in the soil nutrient supply and plant nutrient uptake are discussed. Students become familiar with common synthetic and organic fertilizers and soil amendments and learn how to apply fertilizers using various application methods. Environmentally sound use and holistic management of agricultural nutrients are emphasized.

CSS 240 Pest Management*(4 class hrs/wk, 4 cr) F*

An introduction to the classification, structure, growth, life cycles, recognition, and control principles of selected weeds, insects, disease, and other pests of plants. The principles and applications of Integrated Pest Management are emphasized.

CT: CONSTRUCTION & FORESTRY EQUIPMENT TECHNOLOGY

CT 3.123 Fundamental Shop Skills*(4 class hrs/wk, 3 cr) F*

This course will give the student practical working knowledge of safety in the trade areas of employment. It uses safety regulatory agencies as a foundation, and also includes fork lift training. Prerequisite: Placement test scores at RD 080 Developing Reading Skills and instructor's approval required.

CT 3.129 Heavy Equipment/Diesel Engines*(12 class hrs/wk, 1–7 cr) W*

This section of our program pertains to the operating principles, maintenance, repair and overhaul of various types and sizes of diesel engines. Diesel engines, their component parts, and related accessories are studied in depth. In conjunction with this is the study of manufacturer's specifications as they pertain to correct engine operation, performance and emissions. Prerequisite: Placement test scores at RD 080 Development Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

CT 3.130 Heavy Equipment/Diesel Tune-Up*(20 class hrs/wk, 1–10 cr) Sp*

A capstone class that introduces diesel tune-up and techniques for optimum engine performance, including diagnostic troubleshooting, engine break-in procedure through use of the dynamometer. The student will use all of the critical thinking skills they have learned in past classes to solve real world problems on mechanical and computer managed engine and truck. This class also includes the ITS Diesel Club. Prerequisite: Placement test scores at RD 080 Developing Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

CT 3.132 Advanced Mobile Hydraulics*(8 class hrs/wk, 5 cr) Sp*

This course covers advanced hydraulic theory along with service and repair of valves, pumps, motors, and connectors used in mobile equipment hydraulic systems. Systems design and modification will be covered. Machine systems will be learned using hydraulic schematic drawings. Common customer concerns with specific heavy equipment and their solutions will be learned. Operational check-out and laptop computer testing of heavy equipment will be performed in labs, as well as repair and adjustment and electronic controls. Prerequisite: Placement test scores at RD 080 Developing Reading Skills, CT 3.134 Basic Hydraulics and instructor's approval required.

CT 3.134 Basic Hydraulics*(5 class hrs/wk, 3 cr) W*

This course covers hydraulic theory along with pump, actuator application, and valve design and theory. Prerequisite: Placement test scores at RD 080 Developing Reading Skills and instructor's approval required.

CT 3.140 Industrial Diesel Engine Fuel Systems*(4 class hrs/wk, 1–3 cr) W*

This course covers the theory, repair, testing and calibration of diesel fuel injection pumps, governors, and injector assemblies. The class will be taught giving as much time for hands-on work as possible. Prerequisite: Placement test scores at RD 080 Developing Reading Skills and instructor's approval required.

CT 3.146 Pneumatic Brakes and Controls*(10 class hrs/wk, 1–5 cr) W*

This course acquaints the student with the theory and application of pneumatic braking systems. The student will learn to service, diagnosis and repair ABS, foundation, accessory and safety air systems. Prerequisite: Placement test at RD 080 Developing Reading Skills and MTH 020 Basic Mathematics and instructor's approval required.

CT 3.295 Power Train Systems*(20 class hrs/wk, 1–10 cr) F*

Studies include power train terminology, theory and operation, driveshaft function and construction, maintenance practices, power train schematics, troubleshooting and failure analysis, and component rebuild and replacement. Students will use electronic resources such as John Deere Service Advisor and CAT SIS technical manuals to perform required tasks. Prerequisite: Placement test scores at RD 080 Developing Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

CT 3.296 Steering, Suspension and Brakes*(10 class hrs/wk, 1–5 cr) Sp*

Covers the theory and operation of heavy duty steering and suspension systems, alignment and brakes. Diagnostic and service techniques are taught with the use of components and vehicles. Learning strategies include multimedia presentations, discussion, research and lab practice. Prerequisite: Placement test scores for RD 080 Developing Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

CT 3.297 Electrical and Electronic Systems*(20 class hrs/wk, 1–10 cr) F*

Introduces the theory, application and diagnosis of the electrical and electronic control systems for modern vehicles. Emphasis will be placed on batteries, starting, charging, lighting, accessories and driver information systems. Preparation for ASE certification in electrical/electronic systems. Prerequisite: Placement test scores for RD 080 Developing Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

CT 3.303 Mobile AC and Comfort Systems I*(5 class hrs/wk, 3 cr) Sp*

Principles of mobile heating and air conditioning systems with an emphasis on design, function, adjustment, service and testing of components. Prerequisite: Placement test scores at RD 080 Developing Reading Skills, CT 3.297 Electrical and Electronic Systems and instructor's approval required.

CT 3.643 Customer Service*(2 class hrs/wk, 2 cr) F*

This course is designed to help students develop outstanding customer service skills in a dealership setting serving clients/customers. Students will learn how to interact with customers (communicating in person), resolve conflicts, maintain records, understand the importance of customer satisfaction/retention, actively participate as a member of a team, and develop time management skills. Prerequisite: Placement test scores for RD 080 Developing Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

CT 3.644 Deere Level 1 Certifications*(1 class hrs/wk, 1 cr) Sp*

Students will pass all John Deere level one certification tests. Prerequisite: Construction and Forestry Equipment Technology students only, instructor's approval, and placement test scores at RD 080 Developing Reading Skills.

CT 3.645 Deere Level 2 Certifications*(1 class hrs/wk, 1 cr) Sp*

Students will pass all John Deere level two certification tests. Prerequisite: Construction and Forestry Equipment Technology students only, and placement test scores at RD 080 Developing Reading Skills.

DA: DENTAL ASSISTANT

DA 5.453 Dental Pathology/Pharmacology

(2 class hrs/wk, 2 cr) Sp

The study of oral pathology will cover the recognition of gross symptoms of oral disease, the treatment procedure and the prevention of oral disease to include the drugs and medications most commonly associated with treatment. An in-depth study of pathological diseases, normal and injured tissues, developmental anomalies, dental caries, abscesses and cysts will be discussed. Prerequisites: DA 5.500 Dental Anatomy and Histology and BI 4.220 Survey of the Human Body.

DA 5.461 Dental Radiology I

(4 class hrs/wk, 3 cr) F

An introduction to the principles and hazards of radiation, exposing and processing films, visual identification of anatomical landmarks, operation of X-ray equipment, including safety factors for patient and operator. Prerequisite: Admission to the Dental Assistant Program.

DA 5.462 Dental Radiology II

(4 class hrs/wk, 3 cr) W

A continuation of DA 5.461. An in-depth study of X-ray and patient considerations, increased skills including exposures of X-rays on mannequins and patients. Students will participate in exposing, processing and mounting dental radiographs. Other radiographic methods will include extraoral, panoramic, endodontic, pedodontic, occlusal and disto-oblique techniques. Prerequisites: DA 5.461 Dental Radiology I.

DA 5.463 Dental Radiology III

(4 class hrs/wk, 3 cr) Sp

Advanced X-ray clinical application of dental radiographic procedures and skills proficiency for periapical and bitewing X-rays. Students will expose radiographs on patients in the radiology labs. Emphasis is placed on identification of errors and corrective techniques. Prerequisite: DA 5.462 Dental Radiology II.

DA 5.484 Dental Materials I

(4 class hrs/wk, 3 cr) F

An introduction to laboratory applications in the handling and manipulating of dental materials is designed to improve proficiency and efficiency at chairside procedures, emphasis on principles of physical and chemical properties of gypsum, impressions materials, waxes, custom trays and basic principles and asepsis of laboratory procedures, including fixed prosthetic materials and gold products. Precautions and safe handling of dental laboratory materials will be presented through use of Material Safety Data Sheets (MSDS). Prerequisite: Admission to the Dental Assistant Program.

DA 5.485 Dental Materials II

(4 class hrs/wk, 3 cr) W

An introduction to the diverse materials used in the dental office. The physical and chemical properties of bases, adhesives, cements, anticario-genic agents, and restorative materials in reference to manipulation and usage. Precautions and safe handling of dental materials will be presented through the use of Material Safety Data Sheets (MSDS). Prerequisites: DA 5.500 Dental Anatomy and Histology, DA 5.494 Introduction to Dentistry, DA 5.484 Dental Materials I.

DA 5.488 Expanded Duties I

(3 class hrs/wk, 2 cr) W

A study of procedures beyond the scope of general chairside assisting. The Oregon Dental Practice Act allows for instruction in placement and removal of matrix retainers, placement of temporary restorations, coronal polishing and fluoride treatments, and methods of fitting and adjusting permanent crowns. Prerequisites: DA 5.494 Introduction to Dentistry, DA 5.500 Dental Anatomy and Histology.

DA 5.489 Expanded Duties II

(3 class hrs/wk, 2 cr) Sp

A continuation of DA 5.488. This course will complete the remaining expanded function duties that are approved by the Oregon Dental Practice Act. An in-depth study with major emphasis on student practical application

and fabrication of temporary crowns, cement removal techniques, placement of temporary soft denture relines, pit and fissure sealants, and amalgam polishing. Use of correct hand and motion techniques, selection of armamentarium, recognition of polishable amalgam restorations, and safety precautions for patient comfort are emphasized. Prerequisite: DA 5.488 Expanded Duties I.

DA 5.491 Dental Office Records

(2 class hrs/wk, 2 cr) Sp

Basic office principles as related to their application in a dental office. Patient reception, communication, and telephone techniques, appointment scheduling, office record maintenance, financial arrangements and coordination. Purchasing and supply control, management of office equipment, scheduling of meetings/conferences and preparing written communications. Billing insurance companies, collection procedures and computerized billing systems are covered in depth. Prerequisite: Third-term status in program.

DA 5.492 Dental Office Emergencies

(2 class hrs/wk, 2 cr) Sp

Provides familiarization with various emergency situations that may occur in a dental office and the primary first aid choice. The signs and symptoms of a medical emergency, the equipment, treatments, and drugs are discussed. Emphasis is placed on the responsibility of the dental health team to be prepared for an emergency. CPR recertification will be included within the course if needed. Prerequisite: Third-term status in program.

DA 5.494 Introduction to Dentistry

(4 class hrs/wk, 3 cr) F

An introduction to clinical dentistry. Emphasis is placed on dental health team members, historical developments, introductory terminology, office communications, ethics and jurisprudence, dental practice acts, work ethics and patient management. Treatment room preparation, health history data collection, dental equipment identification, asepsis and disinfection, preset trays, operator positioning, basic instruments, instrument transfer, oral charting, general office routine, productivity, marketing and performance appraisals are covered in detail. A brief introduction to dental specialties will be presented to include all aspects of dental care available to the public. Prerequisite: Admission to Dental Assisting Program.

DA 5.495 Clinical Practice

(6 class hrs/wk, 4 cr) W

A continuation of DA 5.494. Principles of operative dentistry and fixed prosthetics are covered in detail, the order of procedure, hand and rotary instrumentation, anesthesia, handpieces, isolation and control of the operative field and post operative instructions are acutely emphasized. Prerequisite: DA 5.494 Introduction to Dentistry.

DA 5.496 Dental Specialties

(4 class hrs/wk, 3 cr) Sp

Dental specialties, role of dental auxiliaries, specialized instrumentation, materials and equipment will be encompassed to demonstrate a thorough knowledge of the following Dental Specialty Practices: Endodontics, Pedodontics, Prosthodontics, Periodontics, Oral Surgery, Orthodontics and Implant Surgery. The student will participate in two separate specialty practices during this term.

DA 5.497 Dental Health Education

(1 class hr/wk, 1 cr) F

Development of concepts and principles of plaque related diseases, fluoride therapy, brushing and flossing techniques, patient education, including oral hygiene, preventative dentistry, and motivational techniques. Student community projects stress the principles of communication and preventative dentistry. Prerequisite: Admission to the Dental Assistant program.

DA 5.498 Dental Health/Nutrition

(1 class hr/wk, 1 cr) W

Nutritional information applied to good oral health, including the food pyramid, nutrients, food diaries, and nutritional deficiencies as they relate to dental conditions. Basic principles of prevention of oral disease through patient and public education are stressed. Prerequisite: DA 5.497 Dental Health Education.

DA 5.500 Dental Anatomy and Histology*(2 class hrs/wk, 2 cr) F*

An in-depth study of dental terminology as it relates to normal anatomy, physiology and histology of the teeth and associated structures, their embryological development and histological characteristics, the function of oral structures. The universal numbering system for individual teeth is used in extensive detail, surfaces and comparison of similarities and differences of all teeth. Prerequisite: Admission to the Dental Assistant Program.

DA 5.501 Dental Infection Control and Sterilization*(2 class hrs/wk, 2 cr) F*

An in-depth study of principles in dental infection control, decontamination, disinfection and sterilization. This course will provide basic requirements for OSHA's blood borne pathogens, hazard communication and general safety standards in a dental environment, and includes sterilization principles, machines and techniques. Students will be eligible to take the infection control examination (ICE) administered by the Dental Assisting National Board (DANB) upon successful completion of this course. Prerequisite: Admission to the Dental Assistant Program.

DA 5.510 Office Practicum*(32 class hrs/wk, 8 cr) Su*

The dental assisting student is provided with work experience that places practical application of all clinical skills in community dental offices. A total of 256 hours in two separate general dentistry offices. Emphasis is placed on the individual's ability to work in a dental health team setting with minimal direction. Prerequisite: Completion of all required Dental Assistant Program courses with a high level of competency, as set by the Dental Assistant Department.

DA 5.515 Office Practicum Seminar*(2.5 class hrs/wk, 2 cr) Su*

A series of weekly seminars in which students share work related experiences with the instructor and peers. Information regarding employment, skills improvement, job applications, résumé formats and interviewing techniques are covered as well as preliminary reviewing and testing for the national certification examination. Prerequisite: Fourth-term status in program.

DA 5.525 Intermediate Dental Assisting*(2 class hrs/wk, 1 cr) W*

A study of dental assisting chairside procedures beyond basic skills. This intermediate course will include techniques to acquire skills for placing and removing rubber dams, taking alginate impressions, and taking bite registrations for study model articulation. Emphasis is on patient care and postoperative instructions. Prerequisites: DA 5.494 Introduction to Dentistry and Winter Term status in program.

DA 5.550 Human Relations in Dentistry*(2 class hrs/wk, 2 cr) Sp*

An introduction to human relations as they pertain to success in a dental setting (as well as personal lives) utilizing methods of dealing with stress, motivation, behavioral management and problem solving for personal growth. In addition, social perception, emotions and historical elements of psychology of interpersonal relationships, including self-concept, emotion, gender, culture and cultural diversity issues of everyday living will be addressed. This course will aid in developing patient/customer service skills through team participation and communication in respect to professional/personal encounters affecting work values, ethics and leadership skills. Prerequisite: Third-term status in program.

EC: ECONOMICS**EC 115 Outline of Economics***■ (4 class hrs/wk, 4 cr) F/Sp/Su*

Provides an overview of micro- and macroeconomics. The U.S. economic system is discussed from both national and individual perspectives. Discusses topics such as supply and demand, national accounting, monetary policy, fiscal policy, productivity, market models, income, wealth and taxation.

EC 201 Introduction to Microeconomics*■ (4 class hrs/wk, 4 cr) F/W/Sp/Su*

Introduces the theory of relative prices in a market system, consumer choice, marginal analysis, and the allocation of productive resources among alternative uses in a market economy. Other topics may include market power and price discrimination, public finance, the labor market and environmental policy. Prerequisite: MTH 111 College Algebra.

EC 202 Introduction to Macroeconomics*■ (4 class hrs/wk, 4 cr) W/Sp/Su*

Introduces the determination of levels of national income, employment and prices, and the basic causes of fluctuations in the business cycle, the banking system, monetary policy and financial intermediation. Other topics may include international trade and international finance. Prerequisite: MTH 111 College Algebra.

EC 215 Economic Development of the U.S.*■ (4 class hrs/wk, 4 cr) F/Sp*

Provides historical study and understanding of the sources of economic growth and change in the United States. Discussions about how changes in industry, agriculture, commerce, transportation, labor, and finance have affected the speed of change of American lifestyles and the increased economic well-being of society.

EC 220 Contemporary U.S. Economic Issues: Discrimination*■ (3 class hrs/wk, 3 cr) W/Sp*

Focuses on discrimination in the U.S. and its impact within our market economy. Primary focus is inequities for women and minorities in the labor market.

ED: Education**ED 101 Observation and Guidance***(7 class hrs/wk, 3 cr) F/W/Sp/Su*

An introductory practicum experience focusing on methods of interacting with young children in classroom or child care settings. Students work with children individually and in small groups.

ED 101A Observation and Guidance*(7 class hrs/wk, 3 cr) F/W/Sp*

Students observe children and teachers in an elementary or secondary classroom setting and assist the teacher as appropriate. Students spend six hours each week in the classroom and one hour each week in seminar. Appropriate for students with limited prior experience with children or in a structured teaching setting. Must be arranged one term in advance. Recommended: ED 216 Purpose, Structure and Function of Education in a Democracy or HDFS 233 Professional Foundations in Early Childhood.

ED 102 Education Practicum*(7 class hrs/wk, 3 cr) F/W/Sp/Su*

Students gain experience by working with young children in an educational setting. Students increase their knowledge of child development and learning environments, begin planning and implementing curricula, and develop skills in guidance and discipline. Prerequisite: ED 101 Observation and Guidance. Recommended: HDFS 225 Child Development or HDFS 248 Learning Experiences for Children or ED 152 Creative Activities/Dramatic Play or ED 179 Literature, Science and Math or ED7.730 Early Childhood Ages and Stages.

ED 102A Education Practicum*(7 class hrs/wk, 3 cr) F/W/Sp*

Students assist the teacher in providing learning activities for children in an elementary or secondary classroom. In cooperation with teachers, students develop and deliver at least one lesson during the quarter. Students spend six hours each week in the classroom and one hour each week in seminar. Must be arranged one term in advance. Prerequisite: Experience working with children in a structured setting. Recommended: ED 216 Purpose, Structure and Function of Education in a Democracy or HDFS 233 Professional Foundations in Early Childhood.

ED 103 Extended Education Practicum*(7 class hrs/wk, 3 cr) F/W/Sp/Su*

Field experience in a classroom or child care setting with young children. Students apply in-depth knowledge, methods and skills gained from education courses. Includes one full-day teaching experience. Prerequisite: ED 102 Education Practicum. Recommended: HDFS 225 Child Development, ED 7.710 Principles of Observation; HDFS 248 Learning Experiences for Children or ED 152 Creative Activities/Dramatic Play or ED 179 Literature, Science and Math.

ED 104 Advanced Practicum*(34 class hrs/wk, 12 cr) F/W/Sp/Su*

Pre-professional internship in a toddler, preschool or kindergarten classroom setting that closely resembles the duties of a teacher on a team. Provides comprehensive application of coursework in the program. Includes full-day work throughout the week and curriculum planning and implementation. Prerequisites: ED 103 Extended Education Practicum and HDFS 225 Child Activities Development and ED 7.710 Principles of Observation; HDFS 248 Learning Experiences for Children or ED 152 Creative Activities/Dramatic Play or ED 179 Literature, Science and Math.

ED 123 Reading Instruction*(4 class hrs/wk, 4 cr) W*

Introduces the essential skills needed to read and the primary approaches to teaching reading. Presents a systematic approach to teaching reading with instruction in informal assessment, readiness indicators, vocabulary skills, and comprehension, as well as motivation to learn to read. Students learn techniques for implementing reading lessons, practice assessment techniques, and research a reading instruction topic of their choice. Also, students examine current area reading adoptions and learn benchmarks for reading performance.

ED 124 Mathematics and Science Instruction*(4 class hrs/wk, 4 cr) Alternate years*

Course focuses on mathematics and science for instructional assistants. Covers a variety of instructional techniques that can be used with individual students or groups, how to cope with a variety of learning styles and special needs students, the prevention of accidents, injuries and illness at the worksite/in the classroom, and the use of technology in the classroom. Learning will include the Oregon Mathematics Teaching and Learning Standards, Benchmarks, and Essential Learning Skills for grades 3, 5 and 8, Scoring Guides for Mathematics Problem Solving, and student portfolios. Students examine currently adopted math programs. There is an emphasis on becoming more comfortable with mathematics and science throughout the entire course. Prerequisite: MTH 060 Introduction to Algebra.

ED 152 Creative Activities/Dramatic Play*(3 class hrs/wk, 3 cr) W*

Focuses on understanding and implementing a developmental approach to creative activities for young children. Involves hands-on experience with a wide variety of activities and mediums. Emphasizes art, music and movement, and creative dramatics. Includes methods of presentation and evaluation.

ED 179 Literature, Science and Math*(3 class hrs/wk, 3 cr) Sp*

Focuses on understanding and creating quality curricula for young children. Hands-on experience with a wide variety of activities in literature, science and math. Includes planning, implementing, and evaluating materials and learning experiences for young children.

ED 207 Beginning Leadership*(3 class hrs/wk, 3 cr) F/W*

Overviews leadership theory, styles and skills. Provides skill-building exercises, professional networking techniques, group process and teamwork methods, basic communication techniques, prioritizing, goal setting and other basic information necessary for those anticipating leadership roles.

ED 209A Theory and Practicum*(7 class hrs/wk, 3 cr) Sp*

Designed for students interested in teaching grades K-3 to gain experience by working with young children in a supervised laboratory setting. Students increase their knowledge of curriculum planning, learning environments, and guidance and discipline for young children. Skill development also includes observing children and planning developmentally appropriate activities. Prerequisites: HDFS 225 Child Development. Recommended: HDFS 248 Learning Experiences for Children.

ED 216 Purpose, Structure and Function of Education in a Democracy*(3 class hrs/wk, 3 cr) F/W/Sp*

Investigation of the purpose, structure and function of education in schools, communities and workplaces in Oregon, the United States and other countries, including: analyses of the historical, philosophical, social and political foundations of education; current issues and trends; factors affecting schooling, individual attainment, and reflection on one's own education.

ED 219 Multicultural Issues in Educational Settings*(3 class hrs/wk, 3 cr) F/W/Sp*

Examination of the context of working with students' schools, communities and workplaces. Students will consider the diversity of learners, and learning cultures (e.g. urban, suburban, rural). The diversity among learners within those different cultures, and the influence of culture on one's learning will also be explored.

ED 252 Behavior Management*(3 class hrs/wk, 3 cr) W*

Presents the principles of behavior management in order to maximize instructional potential. Attention is given to individual differences, developmental issues, learning and personality styles, and to positive communication techniques designed to develop prosocial competence.

ED 253 Learning Across the Lifespan*(3 class hrs/wk, 3 cr) Sp*

This course will explore how learning occurs at all ages from early childhood through adulthood. Students will consider the evolution of major and emerging learning theories over time, the interrelation between biology, psychology and social forces, and their application to human development. Focus will be on individual learning styles, including one's own, reflection on the implications of learning, and the impact of these issues on the development and delivery of instruction.

ED 280 CWE: Education*(3-42 class hrs/wk, 1-14 cr) F/W/Sp/Su*

Structured field experience in a teaching and learning setting. Working with a master teacher, students learn current educational strategies and techniques. Students identify job performance objectives, work a specified number of hours during the term and attend a related CWE seminar. Credits are based on identified objectives and number of hours worked. This is a supervised work experience that must be approved by the CWE coordinator prior to enrolling in the class.

ED 280S Service Learning Education*(3-42 class hrs/wk, 1-14 cr) F/W/Sp/Su*

An instructional program, using contextual learning, designed to promote critical thinking, citizenship and civic responsibility as students work with community partners in addressing real community needs. Students identify learning objectives, work a specified number of hours during the term, and engage in faculty-led guided reflection activities. Prerequisites: Students must have taken or must be currently taking appropriate course or courses in their major field of study. They must also have their service learning approved by the appropriate faculty coordinator.

ED 282 Working with Children with Special Needs*(3 class hrs/wk, 3 cr) F*

Overview of special education legislation and the role of family, school and community in educating and supporting individuals with disabilities. Class is tailored to meet the needs of students who enroll, with a focus on in-school special needs issues or community agency issues. Implementation of current legislation and its impact in the classroom are addressed.

ED 7.710 Principles of Observation*(3 class hrs/wk, 3 cr) W*

Observe children, teachers and classroom environment using a variety of techniques. Focuses on methods of interacting with young children in a classroom setting.

Non-Certificate/Non-Degree Courses Offered by the Family Resources and Education Division

9.930 Professional Issues in Child and Family Studies*(1 class hr /wk, 1 cr)*

Includes legal and ethical issues in working with children and families, e.g. health and safety standards, licensing, adult:child ratios and child abuse reporting. Emphasizes being family focused. Includes professional organizations, advocacy training and accreditation preparation.

9.931 Health, Safety, Nutrition*(1 class hr/wk, 0 cr)*

Provides basic information on health, safety issues and nutrition. Designed for practicing child care providers.

9.932 Child Development*(1 class hr/wk, 1 cr)*

Information on child development for practicing child care providers. Focuses on the development of children ages birth through 13 years and the implications for practice in a child care setting.

9.934 Organization and Administration*(1 class hr/wk, 1 cr)*

Information on enhancing child care as a business. Develop skills in professional planning, marketing, tax reporting, contracts and basic record keeping.

9.936 Curriculum Development*(1 class hr/wk, 1 cr)*

Child care providers learn components of high-quality programming for children. Enhances the provider's ability to plan appropriate activities, equip the environment and obtain resources to meet the needs of children birth to 13 years.

9.938 Infant and Toddler Care*(1–3 class hrs/wk, 1–3 cr)*

Family and center providers learn the elements of quality care for infants and toddlers. Emphasizes all areas of development: physical, social, emotional, cognitive and language. Includes group-care techniques, family/provider relationships and cultural diversity.

9.939 School Age Care*(1 class hr/wk, 1 cr)*

Overview of care and education for those caring for school-age children. Focuses on child and adolescent development, curriculum design, business practices, marketing and staff development.

ED 7.725 Job Search Skills*(1 class hr/wk, 1 cr) W*

Learn how to organize and conduct a search for work in the field of education. Develop your résumé, prepare for interviews, and go through the job application process.

ED 7.730 Early Childhood Ages and Stages*(3 class hrs/wk, 3 cr) F*

Focuses on understanding normative stages of children's development (ages 0–8 years) and introduces child development research and terminology. Application of concepts to daily interactions with young children.

ED 7.731 Positive Guidance for Young Children*(3 class hrs/wk, 3 cr) Alternate years*

Focuses on understanding and guiding behavior of young children (ages 0–8 years) in child care settings. Students look at the research supporting guidance practices, develop criteria for selection of strategies, evaluate popular guidance techniques and develop a toolbox of strategies that promote the healthy development of young children.

ED 7.732 Health, Safety and Nutrition in Early Childhood*(3 class hrs/wk, 3 cr) As Needed*

Focuses on the health, safety and nutritional needs of young children. Attention is given to a variety of topics with an emphasis on maintaining healthy and safe indoor and outdoor environments, providing nutrition education, understanding common diseases, and recognizing and reporting child abuse and neglect.

ED 7.733 Early Literacy: Speaking and Listening*(3 class hrs/wk, 3 cr) W*

Builds on the foundation of ED 7.753 and focuses in the area of oral language. Students will become familiar with stages of development and strategies to enhance vocabulary, phonological awareness, storytelling, shared reading and working with families. Recommended: ED 7.753 Foundations of Literacy.

ED 7.734 Early Literacy: Reading and Writing*(3 class hrs/wk, 3 cr) As Needed*

Builds on the foundation of ED 7.753 and focuses in greater depth in the areas of emergent reading and writing. Students will become familiar with stages of development and strategies to enhance alphabet knowledge, word recognition, comprehension, and links between oral language and print. Recommended: ED 7.753 Foundations of Literacy.

ED 7.735 Teaching with the Brain in Mind*(3 class hrs/wk, 3 cr) Sp*

Focuses on an understanding of typical brain development and research, and how to apply the information to develop appropriate classroom experiences for young children.

ED 7.736 Poverty, Diversity & Domestic Violence*(3 class hrs/wk, 3 cr) As Needed*

Focuses on the many facets of diversity and the issues of poverty and domestic violence. Students will become familiar with "isms" and our multicultural world.

ED 7.740 Introduction to School Libraries*(5 class hrs/wk, 3 cr) F*

Presents an overview of school librarianship within the context of the educational mission of the school. Includes the role of the library assistant, basic library terminology, procedures and services, and library materials.

ED 7.741 Circulation of Library Materials*(5 class hrs/wk, 3 cr) F*

Principles and practices of library circulation, print and electronic circulation systems, shelving, overdues, and interlibrary loan issues.

ED 7.742 Reference Materials and Services*(5 class hrs/wk, 3 cr) Sp*

Introduction to using print and electronic reference materials and providing information services to students. Includes information literacy skills, and working with teacher and student assignments.

ED 7.743 Collection Development*(5 class hrs/wk, 3 cr) W*

Presents an overview of the principles and practices of building and maintaining the library collection, including identifying the needs of the users and the elements and importance of a collection development policy in managing the collection. Students develop tools for dealing with library collection management issues.

ED 7.744 Organization of Library Materials*(5 class hrs/wk, 3 cr) Sp*

Introduction to classification and cataloging practices including the Dewey Decimal System, subject headings, filing rules, MARC records, and print and electronic systems.

ED 7.745 Online Information Literacy for Librarians*(5 class hrs/wk, 3 cr) F*

An introduction to using electronic resources in searching for information. Includes information literacy approaches to locating information for students and library patrons. Some library and computer experience helpful.

ED 7.746 Children's Literature and Reading Promotion*(5 class hrs/wk, 3 cr) W*

An overview of literature for use with elementary, middle, and high school students. Includes fiction and nonfiction in a variety of genre, reading levels and interests, techniques for sharing literature with students.

ED 7.747 Multicultural Literature K-12*(5 class hrs/wk, 3 cr) F*

An introduction to children's and young adult literature that respectfully depicts the range of cultures in the United States. Includes the selection, evaluation, and promotion of multicultural literature in library and classroom.

ED 7.748 Library Skill Curriculum*(5 class hrs/wk, 3 cr) W*

An overview of the educational mission of K-12 instruction, library skills instruction and strategies to support classroom educational activities. Prior library or classroom experience helpful.

ED 7.749 Global Literature K-12*(5 class hrs/wk, 3 cr) W*

An introduction to children's and young adult literature, fiction and nonfiction, set in countries around the world. Both contemporary and historical literature for use at the elementary and secondary school levels.

ED 7.751 Reading Promotion/Readers Advisory*(5 class hrs/wk, 3 cr) Sp*

An overview of approaches, activities and techniques for providing readers advisory services and promoting reading in school and public libraries.

ED 7.752 Design and Production of Library Resources*(5 class hrs/wk, 3 cr) Sp*

An overview of the design of the library and the use of library materials to respond to patron needs and interests. Includes the use of library space, signage, and visual communication of resources. Covers the creation and maintenance of print and electronic library and instructional materials.

ED 7.753 Foundations of Literacy*(3 class hrs/wk, 3 cr) F*

This class focuses on exploring the foundations of literacy: listening, speaking, reading and writing. Students will become familiar with emerging literacy in young children, strategies and curriculum for developing literacy skills.

EG: ENGINEERING GRAPHICS**EG 4.407 Introduction to CAD***(6 class hrs/wk, 4 cr) F/Sp*

A course for drafters, technicians and engineers in the application and functions of computer-aided drafting. Emphasizes hands-on operation of CAD systems. Prerequisites: Working knowledge of Windows, drafting experience and instructor's approval.

EG 4.409 Drafting I*(3 class hrs/wk, 2 cr) F*

Presents fundamentals of technical drawing. Emphasizes line language, geometric construction, sketching and layout procedures and multiview drawings.

EG 4.411 CAD I*(6 class hrs/wk, 4 cr) F*

An introduction to the application and functions of computer aided drafting. Emphasizes hands-on operation of CAD systems. Prerequisite: MTH 065 Elementary Algebra. Corequisite: CIS 125 Introduction to Software Applications or demonstrated working knowledge through competency test.

EG 4.416 Intermediate CAD*(6 class hrs/wk, 4 cr) W*

Teaches experienced AutoCAD users productivity enhancing tools and methodology to produce and edit drawings to ANSI standards using advanced commands. Includes advanced AutoCAD concepts and configuration. Prerequisite: EG 4.407 Introduction to CAD or instructor's approval.

EG 4.421 CAD II*(6 class hrs/wk, 4 cr) W*

Covers methods of technical drawing utilizing ANSI standards to produce two-dimensional technical drawings. Introduces more advanced techniques in drafting using AutoCAD's drawing and editing commands. Prerequisites: EG 4.411 CAD I and EG 4.409 Drafting I or instructor's approval.

EG 4.423 Architectural Design I*(6 class hrs/wk, 4 cr) W*

Introduces basic architectural drafting techniques and methods. Covers the fundamental concepts of residential building design with identification and use of professional architectural standards used in residential building drawings. Includes architectural symbols and construction methods used in residential and light commercial buildings. Prerequisites: EG 4.411 CAD I or instructor's approval.

EG 4.431 CAD III*(6 class hrs/wk, 4 cr) Sp*

Basic through advanced 3-D solids modeling using AutoCAD. Mechanical parts, assemblies, presentations and drawings to ANSI standards. Prerequisite: EG 4.421 CAD II or instructor's approval.

EG 4.443 Schematics*(6 class hrs/wk, 4 cr) F*

Covers methods for drawing electrical, mechanical and plumbing schematic diagrams and pictorial layouts. Includes logic diagrams, electronic component layout, printed circuit boards, schematics. Piping, plumbing and HVAC standards and practices also are studied. Prerequisite: EG 4.421 CAD II or instructor's approval.

EG 4.445 Plane Surveying*(4 class hrs/wk, 3 cr) Sp*

A basic course in surveying. Includes distance measuring, leveling, cross sectioning, traversing, topographic surveying, use of survey instruments, and office procedures. Prerequisites: MTH 097 Practical Geometry; EG 4.421 CAD II.

EG 4.446 Strength of Materials*(3 class hrs/wk, 3 cr) Sp*

An introduction to engineering mechanics, including force, force vectors, moments, resultants, centroids, moments of inertia, bending stress, shear and torsion. Prerequisite: MTH 065 Elementary Algebra.

EG 4.451 Solids I*(6 class hrs/wk, 4 cr) F*

This class explores basic parametric solid modeling, engineering design and rapid prototyping. Students will create solids, assemblies, and dimensioned drawings from the solids. Extrusions, Boolean operations and feature editing will also be covered. Prerequisite: EG 4.431 CAD III.

EG 4.452 Solids II*(6 class hrs/wk, 4 cr) W*

Explores advanced parametric solid modeling, collaborative engineering design and rapid prototyping. Students gain practical, hands-on experience in design and production using the most advanced tools and technologies available today. Students create animation for client presentation as well as use stress analysis tools to refine design. Prerequisite: EG 4.451 Solids I.

EG 4.453 Customizing CAD Systems*(6 class hrs/wk, 4 cr) W*

Customize the user interface of current CAD system focusing on increased productivity regardless of discipline. Includes keyboard and menu customization, editing toolbars, macros and programming. Prerequisite: EG 4.431 CAD III or instructor's approval.

EG 4.454 Applied Solids Design*(4 class hrs/wk, 3 cr) Sp*

Capstone class designed to challenge students with a team design project that is manufactured and tested, simulating a real world application of knowledge and skills. Prerequisites: EG 4.451 Solids I and EG 4.452 Solids II.

EG 4.455 Structural Drafting*(3 class hrs/wk, 2 cr) W*

Introduces structural drafting. Emphasizes framing plans, connections, fabrication details, foundation drawings, and other drawings required for structural steel, precast concrete, and poured-in-place concrete drawings. Prerequisites: EG 4.411 CAD I and EG 4.409 Drafting I.

EG 4.456 Civil Drafting Lab*(2 class hrs/wk, 1 cr) Sp*

A lab course covering basic civil drafting techniques. Designed for students concurrently enrolled in CEM 263 Plane Surveying who wish to include a civil drafting component in the surveying course. Includes drafting survey maps, plats, plan and profile, and topo maps. Prerequisite: EG 4.421 CAD II.

EG 4.457 Workplace Survey*(3 class hrs/wk, 1 cr) Sp*

Introduction to actual workplace environments. Students experience workplace environments and end use of drawing efforts.

EG 4.463 Architectural Design II*(6 class hrs/wk, 4 cr) Sp*

Covers intermediate residential design principles including design of floor plans, elevations, 3-D presentation and working drawings using advanced 3-D architectural software. Prerequisite: EG 4.423 Architectural Design I.

EG 4.465 Civil Drafting II*(6 class hrs/wk, 3 cr) W*

Covers advanced topics in surveying and civil engineering drafting/design. Includes an introduction to Land Development Desktop. Prerequisites: Basic AutoCAD proficiency (EG 4.411 CAD I or equivalent) and Surveying (CEM 263 Plane Surveying or equivalent) and EG 4.456 Civil Drafting Lab.

EG 4.467 Technical Project*(2–6 class hrs/wk, 1–3 cr) F/W/Sp*

Advanced study in an area of student interest in the drafting trades. Develops skills in gathering, sorting and finding solutions to real life problems and procedures used in drafting.

EG 4.470 Geometric Dimensioning and Tolerancing*(4 class hrs/wk, 3 cr) Sp*

This intermediate-level course for drafters, technicians, and engineers covers the application and use of modern geometric dimensioning and tolerancing (GD&T). Utilizes the updated and expanded practices of the latest ANSI Y14.5M-1994 on dimensioning and tolerancing. Prerequisites: EG 4.411 CAD I; EG 4.421 CAD II; EG 4.431 CAD III; EG 4.451 Solids I; or equivalent or instructor's approval.

EG 4.475 3-D Parametric Modeling*(2 class hrs/wk, 2 cr) F*

Covers mechanical design considerations for producing technical drawings for manufactured parts. Students learn Boolean operations in conjunction with

parametric solids modeling in the creation of composite solid models. CIM data exchange files and formats are explored. Prerequisites: MTH 111 College Algebra or instructor's approval.

EL: EMERGENCY MANAGEMENT LEADERSHIP**EL 5.200 Introduction to Emergency Planning***(20 hrs, 2 cr) As needed*

Introduction to Emergency Planning. Introduction to community organizations and networks for the purpose of collaborative planning for emergency situations. Prerequisite: FEMA IS 700 course completion.

EL 5.205 Introduction to Critical Incident System*(20 hrs, 2 cr) As needed*

Prepares the student for multi municipal emergencies with a focus on transportation, communication, infrastructure, laws/regulations and public dissemination of information. Prerequisite: EL 5.200 Introduction to Emergency Planning.

EL 5.210 Public Response to Emergency Situations*(20 hrs, 2 cr) As needed*

Covers the history of public responses to emergency situations and disaster mythology and the implications/expectations of current planning. Prerequisite: EL 5.205 Introduction to Critical Incident System.

EL 5.215 Chemical Weapons and HAZMAT Incidents*(20 hrs, 2 cr) As needed*

Introduces HAZMAT chemicals and emergencies. Introduction to chemical weapons and how to detect, decontaminate and treat victims. Prerequisite: EL 5.210 Public Response to Emergency Situations.

EL 5.218 Nuclear and High Explosive Weapons*(20 hrs, 2 cr) As needed*

Introduces nuclear weapons types and categories. Introduction to high explosives, and terrorist uses. Prerequisite: EL 5.215 Chemical Weapons and HAZMAT Incidents.

EL 5.221 Biological Weapons and Disease Outbreaks*(30 hrs, 3 cr) As needed*

Introduction to biologic agents and diseases. Review of past historical epidemics, pandemics and biological weapons. Prerequisite: EL 5.218 Nuclear and High Explosive Weapons.

EL 5.225 Natural Disasters*(30 hrs, 3 cr) As needed*

Introduction to natural hazards and emergency management. Prerequisite: EL 5.221 Biological Weapons and Disease Outbreaks.

EL 5.230 Developing Resources and Plans for ICS*(20 hrs, 2 cr) As needed*

Introduction to partnership building and funding for ICS. Prerequisite: EL 5.225 Natural Disasters.

EL 5.240 Current Crisis Leadership Practices*(20 hrs, 2 cr) As needed*

Introduces management of crisis situations- past and current. Introduction to information, acquisition, communication and dissemination in emergency situations. Prerequisite: EL 5.230 Developing Resources and Plans for ICS.

EL 5.245 Introduction to Emergency Management Experience*(20 hrs, 2 cr) As needed*

Introduction to simulated emergency management scenarios and exercises. Prerequisite: EL 5.240 Current Crisis Leadership Practices.

EL 5.255 Capstone EM Experience*(20 hrs, 2 cr) As needed*

Simulated emergency management experiences, scenario/simulated based. Prerequisite: EL 5.245 Introduction to Emergency Management Experience.

EM: EMERGENCY MEDICAL TECHNICIAN

EM 5.801 Introduction to Emergency Medical Services

(3 class hrs/wk, 3 cr) As needed

Covers the role and responsibilities of the Emergency Medical Technician (EMT), emergency medical service systems, medical-legal considerations, major incident response, hazardous material awareness, and stress management, job search, resume writing, job application, career planning, moral and ethical issues of the EMT; public versus private ambulance service; emergency funding; multiple casualty incidents; leadership; and continued competence.

EM 5.810 EMT Basic Part A

(9 class hrs/wk, 3 cr) F/W

Introduced within a five-week portion of a term. EMT Basic Part A is the first part of a 15-week program, which is broken down into three five-week sessions. The focus is the theory and practice of procedural responsibilities delegated to the EMT-Basic. The course incorporates discussion, demonstration, and practical application of the following: roles and responsibilities, personal safety, OSHA regulations, patient medical assessment, oxygen administration, artificial ventilation, use of airway adjuncts and current field protocols. Successful completion of the EMT-Basic parts A, B, and C courses allow a student eligibility to sit for state certifying examinations. Prerequisite: Must be 18 years of age. Must have current/valid driver's license. CPT reading test score of 51 percent or completion of RD 103 or better. Current negative TB test. Proof of Measles, Mumps and Rubella immunization. Proof of Hepatitis Vaccine series. Current AHA Health Care Provider CPR certificate or ARC Professional Rescuer certificate.

EM 5.811 EMT Basic Part B

(9 class hrs/wk, 3 cr) F/Sp

Designed to be presented within a portion of a term. This course is the second part of a 15-week program. Covers theory and practice of procedural responsibilities related to the EMT-Basic by incorporating discussion, demonstration, and practical application of the following: pharmacology, cardiovascular emergencies, diabetic emergencies, altered mental status, allergic reactions, anaphylaxis, environmental emergencies, obstetrical and gynecologic emergencies, and vascular emergencies. Successful completion of the EMT-Basic Parts A, B, C courses allow a student eligibility to sit for state certifying examination. Prerequisite: Completion of EM 5.810 EMT Basic Part A.

EM 5.812 EMT Basic Part C

(11 class hrs/wk, 4 cr) W/Sp

Designed for presentation over a five-week portion of a term, this course covers theory and practice of procedural responsibilities delegated to the EMT-Basic. Incorporates discussion, demonstration, and practical application of the following: recognition and treatment of shock, MAST trousers, recognition and treatment of fractures, recognition and treatment of various emergency medical illnesses, use of automatic and semiautomatic defibrillators and current field protocols. Includes 10 hours of on site precepted clinical in a hospital emergency room. This is the third portion of the EMT-Basic program. Successful completion of the EMT-Basic parts A, B, C courses allow a student eligibility to sit for state certifying examinations. Prerequisite: Completion of EM 5.810 EMT Basic Part I and EM 5.811 EMT Basic Part B.

EM 5.820 Emergency Communication and Patient Transportation

(3 class hrs/wk, 3 cr) As needed

This course covers ambulance operation, laws regarding ambulance licensure, emergency response driving, vehicular inventory, maintenance and safety; emergency response driving and route planning; map book orientation, communication systems, radio systems, codes and correct radio techniques. Also covers utilization of the HEAR radio and dispatch systems.

EM 5.825 EMT Rescue

(3 class hrs/wk, 3 cr) As needed

This course covers the fundamentals of procedures used in rescue practices, the rescue system and the control of rescue operations. The course also covers basic methodology and equipment used during rescue operations. Topics include auto extrication, rapid extrication techniques, patient transport

devices, lift assist tools, traffic safety, rough terrain, water rescue and repelling techniques. Emphasis will be placed on traffic accidents.

EM 5.830 Crisis Intervention

(3 class hrs/wk, 3 cr) As needed

This course provides the theoretical background for understanding crisis and the ramifications of a major event. Practical guidelines in assessing and managing a variety of crisis events are covered. For example: How to manage death in the field, the dying patient, stress response of the friends, family members, yourself and other emergency workers. Critical Incident Stress Debriefing is introduced.

ENG: ENGLISH

ENG 104 Literature: Fiction

> (3 class hrs/wk, 3 cr) F/W/Sp

Examines fiction through selected literary works, such as the short story and the novel, and increases understanding of the conventions of fiction. Encourages exploration of the human experience through the reading of significant short stories and novels, with an emphasis on analysis, interpretation, and the fiction-writer's craft. Note: Need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 105 Literature: Drama

> (3 class hrs/wk, 3 cr) F/W/Sp

Introduces Western drama from its origin in ancient Greece to today's theater, stressing conventions of drama as both a literary and performing art. Note: Need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 106 Literature: Poetry

> (3 class hrs/wk, 3 cr) F/W/Sp

Studies poetry drawn from American, English and world literature, enhances understanding of the conventions of poetry and poetic forms, and encourages exploration of the human experience. Works are read in entirety when possible, with emphasis on elements such as form, style, imagery, figurative language and musical devices. Note: Need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 107 Western World Literature: Classical

> (3 class hrs/wk, 3 cr) F/Alternate years

Surveys the literature of three cultures of the ancient western world from 3000 BC to 100 AD. Students explore the themes, stories and ideas that concern our literary ancestors, in particular the Greeks, Romans and Hebrews. Note: Need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 108 Western World Literature: Middle Ages through Neoclassicism

> (3 class hrs/wk, 3 cr) W/Alternate years

Surveys European literature from the Middle Ages, Renaissance, and Neoclassical periods. Note: Need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 109 Western World Literature: Modern

> (3 class hrs/wk, 3 cr) Sp/Alternate years

Surveys European literature from NeoClassic, Romantic, Realist, Modern and Post-Modern writers. Note: Need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 110 Film Studies

> (3 class hrs/wk, 3 cr) F/W/Sp

Explores the power of film to shape and reflect culture and ideology; raises questions about film and its relationship to self, others, and social values. Studies film genres and styles; aesthetics; film history; film as a collaborative medium; Hollywood, independent and international cinema; techniques and grammar of film; and major film theories. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 121 Mystery Fiction

➤ (3 class hrs/wk, 3 cr) *As needed*

Explores the range and development of mystery fiction from pre-Poe to the present. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 201 Shakespeare

➤ (3 class hrs/wk, 3 cr) *F/Alternate years*

Studies major plays of Shakespeare, including the structure, character-ization, setting and imagery employed in selected comedies, tragedies, histories and poems. Note: Need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 202 Shakespeare

➤ (3 class hrs/wk, 3 cr) *W/Alternate years*

Studies major plays of Shakespeare, including the structure, characteriza-tion, setting and imagery employed in selected comedies, tragedies, histories and poems. Note: Need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 203 Shakespeare

➤ (3 class hrs/wk, 3 cr) *Sp/Alternate years*

Studies major plays of Shakespeare, including the structure, characterization, setting and imagery employed in selected comedies, tragedies, histories and poems. Note: Need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 204 English Literature: Early

➤ (3 class hrs/wk, 3 cr) *F/Alternate years*

Studies representative works in English literature for their inherent worth and for their reflection of the times in which they were written. Note: ENG 204, ENG 205 and ENG 206 need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 205 English Literature: Middle

➤ (3 class hrs/wk, 3 cr) *W/Alternate years*

Studies representative works in English literature for their inherent worth and for their reflection of the times in which they were written. Note: ENG 204, ENG 205 and ENG 206 need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 206 English Literature: Modern

➤ (3 class hrs/wk, 3 cr) *Sp/Alternate years*

Studies representative works in English literature for their inherent worth and for their reflection of the times in which they were written. Note: ENG 204, ENG 205 and ENG 206 need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 207 Non-Western World Literature: Asia

➤ (3 class hrs/wk, 3 cr) *F/Alternate years*

Surveys ancient and modern literature from India, China, and Japan. Note: Need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 208 Non-Western World Literature: Africa

➤ (3 class hrs/wk, 3 cr) *W/Alternate years*

Explores literary works of African writers from tribal, colonial and post-colonial eras. Note: Need not be taken in sequence. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 209 Non-Western World Literature: The Americas

➤ (3 class hrs/wk, 3 cr) *Sp/Alternate years*

Surveys Latin American literature, analyzing works by writers from Central America, South America and the Caribbean, from prior to the Spanish Conquest through the modern period. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 215 Latino/a Literature

➤ (3 class hrs/wk 3 cr) *As needed*

Examines the evolution of Latino/a literature beginning in the mid 16th Century when it originated through contact between European and pre-Columbian societies continuing through some of the most prominent modern day writers. Thematic issues to explore that have influenced and shaped the genre include historical events, cultural perspectives, stereotypes, multilingualism, gender, spirituality, cultural identity, immigration, assim-ilation into U.S. culture and society, as well as students' own perceptions of Latino/a culture. Readings may include works of history, memoirs, letters and essays, as well as fiction, poetry and drama by such authors as Christopher Columbus, Alvar Nuñez Cabeza de Vaca, Richard Rodriguez, Sandra Cisneros, Oscar Hijuelos, Gabriel García Márquea, Jose Martí, Rudolfo Anaya, and Luis Valdez. Prerequisite: College-level reading and writing skills (WR 212) are strongly recommended for success in this course.

ENG 220 Literature of American Minorities

➤ (3 class hrs/wk 3 cr) *F/W/Sp*

Features a selection of works by writers from ethnic minority cultures within the United States. The works of these cultures generally have not been well-represented in traditional literature courses, and the views from these cultures often are in contrast to the more familiar representations of mainstream literature. These works reflect historical and cultural examples of discrimination and difference across the society. This course will explore how humans have dealt with this discrimination and how these cultures enrich the patterns of the American experience despite their experiences as minorities. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 221 Children's Literature

➤ (3 class hrs/wk, 3 cr) *F/W/Sp*

This class is designed for all students who have an interest in Children's Literature and for education majors who are or will be working with children. The course covers the history and various genres of Children's Literature and focuses on defining, valuing, and evaluating. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 240 Native American Literature

➤ (3 class hrs/wk, 3 cr) *As needed*

This course features a selection of works by writers from native North American cultures within the United States and Canada. The works of these cultures have traditionally not been well-represented in literature courses, and the views from these tribal cultures are often in contrast to the more familiar representations of mainstream culture. These works reflect historical and cultural incidents of discrimination, warfare, and differences across the society. This course will explore how humans have dealt with survival after defeat in war, relocation, and discrimination and how these cultures enrich the patterns of the North American experience. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 253 American Literature: Early

➤ (3 class hrs/wk, 3 cr) *F Alternate years*

Focuses on the literary works of America through Native American stories, the African American vernacular (songs and tales), European exploration writings, the writings of Colonial America (1620 – 1776) and the Literature of the New Republic (1776 – 1836). Emphasis on the historical, social, and philosophical backgrounds. ENG 253 provides an understanding of and appreciation for American culture as expressed in literature. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 254 American Literature: Middle

➤ (3 class hrs/wk, 3 cr) *W/Alternate years*

Focuses on a century of fiction, poetry, and essays ("The Literature of the American Renaissance 1836 – 1865" and "The Literature of an Expanding Nation 1865 – 1912"). Questions how "American Literature" has been defined and how those definitions have been challenged and changed over the last century. Emphasis on long recognized "major" American authors as well as "minor" ones. Exploration of the literature in relation to literary and historical movements as well as on its own merit. ENG 254 provides an understanding of and appreciation for American culture as expressed in literature. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 255 American Literature: Modern

➤ (3 class hrs/wk, 3 cr) *Sp/Alternate years*

Focuses on a century of fiction, poetry, drama, and essays (The Literature of a New Century: 1912 – 1946 and The Literature Since Mid-Century, 1945 – Present). Questions how "American Literature" has been defined and how those definitions have been challenged and changed over the last century. Emphasis on long recognized "major" authors as well as "minor" ones. Exploration of the literature in relation to literary and historical movements as well as on its own merit. ENG 255 provides an understanding of and appreciation for American culture as expressed in literature. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 257 African-American Literature

➤ (3 class hrs/wk, 3 cr) *Sp As needed*

Focuses on African-American culture and tradition (social, political, historical) through an exploration of the literature by African-Americans. Studies works by African-American writers on their own terms, understanding the genres they created, the subjects they expressed, and their indelible voices in the American grain. This emphasis on African American voices, on their own terms, enriches understanding not only of these primary American authors, but also enriches our understanding of the rich cultural diversity of American literature. Prerequisite: WR 121 skill level suggested.

ENG 260 Women Writers

➤ (3 class hrs/wk, 3 cr) *As needed*

Introduces major works of literature by women authors, exploring women's literary history through poetry, short stories, essays, plays, novels and letters. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 261 Science Fiction

➤ (3 class hrs/wk, 3 cr) *As needed*

Explores science fiction, fantasy and speculative futures through popular fiction. Discusses content, styles, techniques and conventions of the genre. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 275 Bible as Literature

➤ (3 class hrs/wk, 3 cr) *W*

Surveys selected Biblical readings that acquaint students with literary forms, styles, and content of Biblical materials. Points out Western literary and artistic indebtedness to the Biblical heritage. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

ENG 280S Service-Learning English/Writing

(3-42 class hrs/wk, 1-14 cr) *F/W/Sp/Su*

An instructional program, using contextual learning, designed to promote critical thinking, citizenship and civic responsibility as students work with community partners in addressing real community needs. Students identify learning objectives, work a specified number of hours during the term, and engage in faculty-led guided reflection activities. Prerequisites: Students must have taken or must be currently taking appropriate course or courses in their major field of study. They must also have their service-learning approved by the appropriate faculty coordinator.

ENGR: ENGINEERING**ENGR 111 Engineering Orientation I**

(4 class hrs/wk, 4 cr) *F/W*

Covers engineering as a profession, historical development, ethics, curricula and engineering careers. Introduces design, problem analysis and solution, and the general skills necessary for success in the Engineering program.

ENGR 112 Engineering Orientation II

(6 class hrs/wk, 4 cr) *W/Sp*

Covers systematic approaches to problem solving using the computer. Includes logic analysis, flow charting, input/output design, introductory computer programming, and the use of engineering software. Prerequisite: Math 111 College Algebra.

ENGR 201 Electrical Fundamentals: DC Circuits

(6 class hrs/wk, 4 cr) *F*

Covers fundamentals of circuit analysis, including node and mesh analysis, superposition, and Thevenin and Norton's Theorem. Introduces op-amps, capacitors and inductors. Prerequisite: MTH 251 Differential Calculus.

ENGR 202 Electrical Fundamentals: AC Circuits

(6 class hrs/wk, 4 cr) *W*

Covers AC circuit analysis techniques; covers sinusoidal steady state and analysis of three-phase circuits; introduces mutual inductance and transformers; looks at resonant circuit; investigate filters and continue to look at op-amp circuits. Prerequisites: MTH 252 Integral Calculus; ENGR 201 Electrical Fundamentals.

ENGR 203 Electrical Fundamentals: Signals and Controls

(6 class hrs/wk, 4 cr) *Sp*

Covers transient circuit analysis-RL, RC, RLC. Introduces LaPlace Transform and its use in circuit analysis, the transfer function, Bode diagram and two port networks. Prerequisites: MTH 253 Calculus; ENGR 202 Electrical Fundamentals.

ENGR 211 Statics

(5 class hrs/wk, 4 cr) *F*

Includes an analysis of 2D and 3D force systems, moments, resultants, equilibrium, trusses, frames and machines, centroids, moment and product of inertia, shear and moment in beams, and friction. Prerequisites: Working knowledge of spreadsheets, MTH 252 Integral Calculus.

ENGR 212 Dynamics

(5 class hrs/wk, 4 cr) *W*

Includes particle and rigid body kinematics and kinetics, Newton's laws, work energy and impulse momentum. Prerequisites: ENGR 211 Statics; MTH 252 Integral Calculus; PH 211 General Physics with Calculus or PH 201 General Physics; and a working knowledge of spreadsheets.

ENGR 213 Strength of Materials

(5 class hrs/wk, 4 cr) *Sp*

Includes simple stress and strain, biaxial stress and strain, pressure vessels, torsion, shear and moment, shear and normal stresses in beams, deflection, column analysis, and analysis of statically indeterminate structures. Prerequisites: ENGR 211 Statics; MTH 252 Integral Calculus; and a working knowledge of spreadsheets.

ENGR 245 Engineering Graphics and Design

(6 class hrs/wk, 4 cr) *Sp*

Includes two-dimensional and three-dimensional graphics, sketching, multiview projection, dimensioning, descriptive geometry, engineering design and an introduction to AutoCad®. Prerequisite: Working knowledge of Windows, and MTH 111 College Algebra.

ENGR 271 Digital Logic Design

(4 class hrs/wk, 3 cr) *Sp*

Provides an introduction to digital logic and state machine design. Covers logic design, including logic gates, gate minimization methods and design with standard medium scale integration (MSI) logic circuits. Includes basic memory elements (flip-flops) and their use in simple-state machines. Prerequisites: MTH 231 Elements of Discrete Mathematics or MTH 251 Differential Calculus.

ENGR 272 Digital Logic Design Lab*(2 class hrs/wk, 1 cr) Sp*

A lab to accompany ENGR 271 Digital Logic Design. Illustrates the topics covered in ENGR 271 using computer-aided design, verification tools and prototyping hardware. Prerequisite: ENGR 112 Engineering Orientation II or ENGR 201 Electrical Fundamentals: DC Circuits. Corequisite: ENGR 271 Digital Logic Design.

FR: FRENCH**FR 101 First-Year French I***(4 class hrs/wk, 4 cr) F*

Introduces basic structures of French in order to help students communicate basic ideas in written and oral speech. The class stresses all language skills (listening, speaking, reading and writing) through a communicative approach, as well as cultural topics. The class provides a general understanding of the background of French speaking populations. This is not a conversation class, but there is an emphasis on oral communication. Students with previous knowledge of French are encouraged to take the placement examination.

FR 102 First-Year French II*(4 class hrs/wk, 4 cr) W*

Continues to build language proficiency and introduce new grammar structures, particularly those used to communicate about past events. This class augments students' ability to deal with different practical situations in French, and continues to explore the history and cultures of French speaking countries. Prerequisite: Complete FR 101 First-Year French I with a "C" or a higher grade, or instructor's approval.

FR 103 First-Year French III*(4 class hrs/wk, 4 cr) Sp*

Continues to build language proficiency and introduce new grammar structures, particularly those used to communicate about past events. This class augments students' ability to deal with different practical situations in French, and continues to explore the history and cultures of French speaking countries. Prerequisite: Complete FR 102 First-Year French II with a "C" or a higher grade, or instructor's approval.

FW: FISH AND WILDLIFE**FW 251 Principles of Wildlife Conservation***(3 class hrs/wk, 3 cr) W*

Introduces the interrelationships between the physical environment and wild animal populations. Examines the history of wildlife conservation and natural resource use, man's relationship to his natural environment, dynamics of animal populations, principles and practices of fisheries and wildlife management, and the role of wildlife biologists.

G: GEOLOGY**G 101 Introduction to Geology: The Solid Earth***• (5 class hrs/wk, 4 cr) F*

Introduces geology and the processes that shape the landscape. Includes a study of rocks and minerals, volcanic activity, plate tectonics, earthquake activity, and earth's geologic resources. Field trips highlight topics discussed. This course includes a laboratory component.

G 102 Introduction to Geology: Surface Processes*• (5 class hrs/wk, 4 cr) W*

Introduces geology and the processes that shape the landscape. Includes a study of mass wasting and landslides, river dynamics and morphology, ground water, glaciers, coastal processes, and an overview of environmental geology and geologic hazards. Field trips highlight topics discussed. This course includes a laboratory component.

G 103 Introduction to Geology: Historical Geology*• (5 class hrs/wk, 4 cr) Sp*

Introduces geology by studying Earth and life as interpreted through the fossil and rock record. Includes fossils, relative and numerical-age dating, stratigraphic principles, global change, and the geologic history of the North American continent. Field trips highlight topics discussed. This course includes a laboratory component.

GA: GRAPHIC ARTS

Note: Specific courses may be under revision. Please check with an advisor for the latest information.

GA 3.153 Digital Illustration I*(3 class hrs/wk, 3 cr) F*

Introduction to vector illustration applications. Adobe FreeHand MX is used to introduce shapes, paths, points, fills and gradients. There will also be class work on file management, printing and color. Corequisites: GA 3.156 Digital Page Layout I and GA 3.157 Digital Image Manipulation I.

GA 3.154 Digital Illustration II*(3 class hrs/wk, 3 cr) W*

Continues to expand understanding of vector applications. Introduces Adobe Illustrator for creating shapes, paths, points, fills and gradients. The goal is to become more proficient at editing paths, placing (importing) objects, modifying text and manipulating layers. Prerequisite: GA 3.153 Digital Illustration I. Corequisites: GA 3.160 Digital Page Layout II; GA 3.161 Digital Image Manipulation II.

GA 3.155 Digital Illustration III*(3 class hrs/wk, 3 cr) Sp*

Combines the use of both "industry standard" vector applications for creating original artwork. Students will gain a better understanding of vector illustration software and will learn to smoothly switch applications depending on current needs. Introduces the basic concepts of 3-D illustration using modeling. Discusses career opportunities. Coursework will include preparation of a portfolio for job searches or entry into the Graphic Arts program. Prerequisite: GA 3.154 Digital Illustration II, Corequisites: GA 3.168 Digital Page Layout III and GA 3.169 Digital Image Manipulation III.

GA 3.156 Digital Page Layout I*(3 class hrs/wk, 3 cr) F*

Studies the preparation of mechanical art for printing. Stresses graphic arts terminology, tools and page layout techniques. Preparation of mechanicals using traditional and current technology. Introduces Adobe InDesign as a layout tool. Corequisites: GA 3.153 Digital Illustration I and GA 3.157 Digital Image Manipulation I.

GA 3.157 Digital Image Manipulation I*(3 class hrs/wk, 3 cr) F*

Introduces Adobe Photoshop for image manipulation. Students will get an introduction to some of the many tools used in Photoshop. Investigates simple scanning techniques for different image types. There will be course work on manipulation of contrast, color file formats and file size management. Corequisites: GA 3.153 Digital Illustration I and GA 3.156 Digital Page Layout I.

GA 3.160 Digital Page Layout II*(3 class hrs/wk, 3 cr) W*

Continued exploration of Adobe InDesign for digital page assembly and introduces QuarkXPress for the same purpose. Emphasizes production of digital mechanical files prepared to industry standard. Introduces the concept of preflighting documents, font management and the use of Adobe Acrobat for producing PDFs. Prerequisites: GA 3.156 Digital Page Layout I. Corequisites: GA 3.154 Digital Illustration II; GA 3.161 Digital Image Manipulation II.

GA 3.161 Digital Image Manipulation II*(3 class hrs/wk, 3 cr) W*

Advances understanding of Photoshop controls and tools. Using clipping paths, adjustments, effects and layers to create high-end images. Class work includes filters, styles and automation. Prerequisites: GA 3.157 Digital Image Manipulation I. Corequisites: GA 3.154 Digital Illustration II and GA 3.160 Digital Page Layout II.

GA 3.162 Multimedia I*(3 class hrs/wk, 3 cr) F*

Introduction to Web page design. Using industry standard software for the development of HTML based Web sites. Explore site definition, page layout, graphic creation and optimization and implementation of Web sites. Prerequisites: GA 3.155 Digital Illustration III; GA 3.168 Digital Page Layout III; GA 3.169 Digital Image Manipulation III; or instructor's approval.

GA 3.163 Multimedia II*(3 class hrs/wk, 3 cr) W*

Continued discussion of Web design moving towards more complex and interactive software. Adding more powerful and dynamic elements to Web sites with animation and interactive software. An introduction to the development of interactive projects such as games, software and kiosks. Prerequisites: GA 3.162 Multimedia I or instructor's approval.

GA 3.168 Digital Page Layout III*(3 class hrs/wk, 3 cr) Sp*

Continued exploration of QuarkXPress for advanced page assembly. Emphasizes production of digital mechanical files prepared to industry standard. Continues emphasis of preflighting documents, font management, and the use of Adobe Acrobat for producing PDFs. Course objective includes assembly of portfolio for work searches or entry into the Graphic Arts program. Prerequisite: GA 3.160 Digital Page Layout II. Corequisites: GA 3.155 Digital Illustration III and GA 3.169 Digital Image Manipulation III.

GA 3.169 Digital Image Manipulation III*(3 class hrs/wk, 3 cr) Sp*

Culmination of image manipulation sequence. "Master" the tools of Adobe Photoshop for creating color correct, printable images. Introduction of Web optimization for Photoshop images and Adobe Bridge usage for file management. Students will use channels for color correction and spot color exportation to other applications. Course work will include use of digital cameras; there will also be extended periods of creative freedom. Objective of class is to aid in assembly of portfolio for employment or entry into the Graphic Arts program. Prerequisite: GA 3.161 Digital Image Manipulation II. Corequisites: GA 3.155 Digital Illustration III, GA 3.168 Digital Page Layout III.

GA 3.177 Introduction to Graphics and Printing Process*(3 class hrs/wk, 3 credits) F*

Course will focus on traditional printing process from creation to print. Class trips, vocabulary, lectures and presentations will be used to construct a solid "core" understanding of graphic production. There will be material on workplace safety in the printing industry.

GA 3.181 Special Projects*(2–10 class hrs/wk, 1–6 cr) F/W/Sp*

In coordination with the instructor, the student selects projects that provide practical experience within the major field. Note: May be taken for a maximum of six credits. Prerequisite: Instructor's approval.

GA 3.190 Basic Web Applications for Graphic Designers*(3 class hrs/wk, 3 cr) F*

An introduction to Adobe internet applications to include Dreamweaver, Fireworks and Flash. Class serves as a gateway to advanced usage of Adobe web applications in the industry. Discussions on web enterprise solutions and vocabulary will be a part of this course. We will discuss career opportunities, and job site safety.

GEOG: GEOGRAPHY**GEOG 121 Physical Geography***(5 class hrs/wk, 4 cr) F*

Provides liberal arts and non-science majors an introduction to the major physical subsystems of the planet earth. Topics studied include: weather, climate, climate change, climate classifications, plate tectonics, volcanism, earthquakes, erosion/deposition, glaciers, coastal processes, oceans, marine ecology. Maps and map use is introduced as an embedded skill. Prerequisite: College level reading and writing skills (WR 121) are strongly recommended for success in this course.

GEOG 202 World Geography: Latin America & Caribbean*(3 class hrs/wk, 3 cr) F*

Analysis of Latin America/Caribbean according to physical features, environments, political divisions, cultural factors, and human activities/economies—emphasis on effect of geography on human culture.

GEOG 203 World Geography: Asia*(3 class hrs/wk, 3 cr) W*

Analysis of Asia according to physical features, environments, political divisions, cultural factors, and human activities/economies—emphasis on effect of geography on human culture.

GEOG 204 World Geography: Africa & Middle East*(3 class hrs/wk, 3 cr) Sp*

Analysis of Africa and Middle East according to physical features, environments, political divisions, cultural factors, and human activities/economies—emphasis on effect of geography on human culture.

GS: GENERAL SCIENCE**GS 104 Physical Science: Principles of Physics**● *(5 class hrs/wk, 4 cr) W/Sp*

Survey course providing non-science majors a broad background in the fundamentals of physics. No previous science background required. May not be taken for credit if six or more hours of college-level physics have been completed. There is no restriction on the order in which the courses are taken. Prerequisite: MTH 065 Elementary Algebra or equivalent. This course includes a laboratory component.

GS 105 Physical Science: Principles of Chemistry● *(5 class hrs/wk, 4 cr) F/W/Sp*

Survey course providing non-science majors a broad background in the fundamentals of chemistry. No previous science background required. May not be taken for credit if six or more hours of college-level chemistry have been completed. There is no restriction on the order in which the courses are taken. Prerequisite: MTH 065 Elementary Algebra or equivalent. This course includes a laboratory component.

GS 106 Physical Science: Principles of Earth Science● *(5 class hrs/wk, 4 cr) F*

Survey course providing non-science majors a broad background in physical science. No previous science background required. Topics include atomic science, geology, atmospheric science and astronomy. Field trips highlight the topics discussed. There is no restriction on the order in which the courses are taken. This course includes a laboratory component.

GS 108 Oceanography● *(5 class hrs/wk, 4 cr) F/W*

Introductory lab science course in oceanography that examines the four major categories of oceanographic study: geological, physical, chemical and biological. Emphasizes the geological and geophysical aspects of the sea floor; physical and chemical properties of sea water, waves, tides, ocean circulation and currents; marine ecosystems; and ocean utilization. Prerequisite: MTH 065 Elementary Algebra or equivalent. This course includes a laboratory component.

GS 151 Energy in Society● *(3 class hrs/wk, 3 cr) Sp*

Surveys the nature, history and use of energy. Analyzes traditional and alternative energy sources and their scientific, technical, environmental and economic aspects. A weekend field trip is possible.

GS 152 Science, Technology and Society

● (3 class hrs/wk, 3 cr) F/W/Sp

Investigates the nature of scientific endeavors and analyzes specific science and technology issues that affect societies in the United States and globally.

GS 152G History of Medicine in the U.S.

● (3 class hrs/wk, 3 cr) F/W/Sp

This course examines the interplay of society and medicine in the United States from the colonial period to the present. The changing attitude of the public towards health and medicine, the effect of cultural biases and influences, the government's role in research and development and the influence of military conflicts on medical practices will be included. Historical documents and records will be studied to help understand the past and look at our present health care system.

GS 170 Field Ecology

● (1–12 class hrs/wk, 1–3 cr) As needed

A variety of courses on the biology and ecology of the Northwest. Emphasizes field study of plants, animals, land, water and climate. Includes courses such as Alvord Desert Ecology, Cascade and Crater Lake Ecology, Coastal Ecology and Oregon Old Growth. Note: Most courses involve a weekend trip with pre- and post-trip evening meetings. May be taken as electives by transfer students, but also generally valuable for learning more about the environment.

GS 199 General Science: Special Studies

(1–12 class hrs/wk, 1–4 cr) As needed

Allows a student to investigate, with supervision from a faculty member, a topic of his/her interest at an individualized pace. Credit and projects are determined by the instructor and student.

GS 280B CWE Physical Science

(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su

Designed to give students practical experience in supervised employment related to physical science. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

HD: HUMAN DEVELOPMENT**HD 100 College Success**

(4 class hrs/wk, 3 cr) F/W/Sp/Su

Focuses on personal development and behaviors that promote success in college. Topics include communication skills, time management, stress management, goal setting, learning styles and resources for students.

HD 100A College Success

(10 class hrs, 1 cr) F/W/Sp/Su

Focuses on the qualities, traits and behaviors that create success in school and in life.

HD 100B College Success

(10 class hrs, 1 cr) As needed

Development of personal skills and awareness that lead to success and college.

HD 110A Career Planning I

(1 class hr/wk, 1 cr) As needed

Presents all aspects of becoming a college student and relates this information to the student's chosen career area. Students learn about the physical, emotional and intellectual requirements of being a college student at LBCC. The goal is to provide students with information that will facilitate informed decision making as they negotiate the first quarter of college life. Prerequisite: Instructor's approval required.

HD 110B Career Planning II

(1 class hr/wk, 1 cr) As needed

This course gives students an opportunity to examine in some detail their chosen field of study and its demands. In addition, they will receive information about the work opportunities, wages, etc., that result from this field of study. These pieces of information will be paired with individual

student interest and aptitude inventory data to help students make an informed decision to continue in this major. Prerequisite: Instructor's approval required.

HD 114 Life Planning

(2 class hrs/wk, 2 cr) As needed

Presents skills in self-awareness, role alternatives, goal setting, plan implementation and development of resources. Includes theory, self-assessment and practical application.

HD 116 Human Potential

(2 class hrs/wk, 2 cr) As needed

Focuses on developing skills to become more self-determining, self-affirming and empathic towards others. Personal strengths, motivation and goals are an integral part of this process.

HD 190 Assertiveness Training

(1 class hr/wk, 1 cr) F/W/Sp

Facilitates the learning of communication skills based on a foundation of respect for self, respect for others and respect from others.

HD 204 Eliminating Self-Defeating Behavior

(3 class hrs/wk, 3 cr) F/W/Sp/Su

Covers making choices that enhance quality of life, becoming aware of our self-defeating behavior, deciding whether to continue the behavior or change it, and discovering reasons and benefits for choosing this way.

HD 206 Coping Skills for Stress

(2 class hrs/wk, 2 cr) F/W/Sp

Provides information about causes and cures of stress from the point of view of self-talk and the power of our minds to reduce the impact of stress. The class is support oriented and is conducted as part lecture and part group process.

HD 208 Career/Life Planning

(3 class hrs/wk, 3 cr) F/W/Sp

Explores values, interests and skills helpful to individuals desiring directions or change in professional, personal and/or educational goals. This class is grounded in theory and includes experiential exercises, career assessment and information resources.

HD 208A Career Planning

(10 class hrs, 1 cr) F/W/Sp/Su

Students investigate personal career paths using career assessment tools and techniques and create a career plan.

HD 280S Service Learning

(3–42 class hrs/wk, 1–14 cr) F/W/Sp/Su

An instructional program using contextual learning, designed to promote critical thinking, citizenship and civic responsibility as students work with community partners in addressing real community needs. Students identify work-related learning objectives, work a specified number of hours during the term, and engage in faculty-led guided reflection activities. Prerequisite: Approval by the appropriate faculty coordinator.

HDFS: HUMAN DEVELOPMENT AND FAMILY STUDIES**HDFS 200 Human Sexuality**

■ (3 class hrs/wk, 3 cr) W/Sp

Discusses the biological, social and psychological aspects of human sexual functioning, within a scientific context. Topics include sexual anatomy, sexual response, gender identity, gender roles, sexual orientation, love, contraception, sexually transmitted infections and sexual coercion. Prerequisite: College-level reading and writing skills. WR 121 is strongly recommended for success in this course.

HDFS 201 Contemporary Families in the U.S.

■ (3 class hrs/wk, 3 cr) F/W/Sp

An introduction to families with application to personal life. Focuses on diversity in family structure, social class, race, gender, work and other social institutions.

HDFS 209 Practicum: Community Agencies*(7 class hrs/wk, 3 cr) Alternate years*

Designed to provide students with practical experience in an agency or organization that serves children, youth, families and/or the elderly. Students participate in a weekly seminar and spend six hours per week working in a community agency.

HDFS 222 Partner and Family Relationships*(3 class hrs/wk, 3 cr) As needed*

Students become familiar with different family structures and key processes such as communication, power, roles, affection and commitment. They understand how these processes emerge and change over the family life cycle. Students also examine the interface of family processes and social and work relationships.

HDFS 225 Child Development**■** *(3 class hrs/wk, 3 cr) F/W/Sp*

Describes basic issues, theories, and current research on child development and development within a family context. Studies the stages of development from conception through early childhood (age 8).

HDFS 226 Child Development: Stepping Stones*(3 class hrs/wk, 3 cr) As needed*

A telecourse that explores how and why children grow and develop the way they do. Covers the interplay of biological factors, individual personality, the family and other environmental factors that shape the growing child. Topics include prenatal through adolescent development.

HDFS 229 School Age and Adolescent Development**■** *(3 class hrs/wk, 3 cr) F/W/Sp*

Focuses on the development of 5–18 year old children. All domains of development are covered: cognitive, emotional, language, moral, physical, social, spiritual and volitional. Includes topics for persons interested in working with children in this age range, e.g. curriculum design, school age care, building relationships and effective guidance.

HDFS 233 Professional Foundations in Early Childhood*(3 class hrs/wk, 3 cr) F/Sp*

Focuses on current issues in working with children and families, e.g. developmentally appropriate practice, ethical issues, service delivery models and assessment practices. Includes the role of professional organizations and resources, family support and philosophical approaches in early childhood programs.

HDFS 242 Balancing School, Work and Family*(1 class hr/wk, 1 cr) Sp*

Develop specific strategies for reducing stress in families by answering such questions as “What are my priorities? Do I spend my time and energy in satisfying ways? How can I make different choices regarding my roles as a worker and a family member?”

HDFS 248 Learning Experiences for Children*(3 class hrs/wk, 3 cr) F*

Focuses on understanding how children learn and develop and on creating quality, age-appropriate curricula. Includes experiences with planning, implementing and evaluating materials and activities that promote language, cognitive, motor and social/emotional development. Emphasizes how to integrate subject matter and access Internet sites for curriculum development.

HDFS 249 Infant and Toddler Care*(3 class hrs/wk, 3 cr) Alternate years*

Teaches the elements of quality care for infants and toddlers, including physical, social, emotional, cognitive, and language development, group care techniques and family/provider relationships.

HDFS 261 Working with Individuals and Families*(3 class hrs/wk, 3 cr) Sp/Alternate years*

Develops professional skills and strategies to use when working with individuals and families in a variety of settings. The course focuses on skill building in several areas (written and verbal communication with clients

and coworkers, workplace professionalism, identifying and accessing community resources) and explores issues relevant to student success in career goal achievement.

HDFS 280 CWE Child Development*(5–42 class hrs/wk, 2–14 cr) F/W/Sp/Su*

Provides practical experience in a child and/or family education and/or support program. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Credits are based on identified objectives and number of hours worked. This is a supervised work experience that must be approved by the CWE coordinator prior to enrolling in the class.

HE: HEALTH**HE 110 First Aid and CPR***(9 class hrs/wk, 1 cr) F/W/Sp/Su*

Prepares the student in basic first aid and adult CPR and provides information to properly administer the necessary immediate care to an injured or suddenly ill person. An emphasis is placed on early recognition of emergency medical situations and taking appropriate steps to stabilize the victim while activating the emergency medical services system.

HE 112 Emergency First Aid*(8 class hrs/wk, 1 cr) F/W/Sp/Su*

Covers basic first aid information in an attempt to prepare the student to properly administer the necessary immediate care to an injured or suddenly ill person.

Note: Full day or two evening classes.

HE 125 Occupational Safety and Health*(3 class hrs/wk, 3 cr) F/Sp*

Introduces the student to fundamentals of occupational health and safety in regard to accident causation theory and accident prevention, health and safety management, health and safety practices, hazard identification and control, safety history and legislation, workers' compensation practices, and practical aspects of complying with current safety regulations.

HE 151 Drugs in Society*(3 class hrs/wk, 3 cr) F/Sp*

Addresses the pharmacology of some popular drugs in Western society. Discusses contemporary issues involving the effects of drug use, misuse and abuse on the individual and society in general.

HE 204 Exercise and Weight Management*(3 class hrs/wk, 3 cr) F/W/Sp*

Provides students with scientifically based strategies for controlling and managing weight. Offers students an opportunity to design and monitor participation in a personal weight management program that includes individual assessments, nutritional awareness, emotional support, stress management and exercise. Students will explore social and cultural attitudes toward weight, obesity, eating and food disorders, food production and food marketing. Since exercise is one of the most crucial factors in healthy weight management, students are encouraged to register for a physical education activity class when they register for this class.

HE 205 Diet and Nutrition: Active Lifestyle*(3 class hrs/wk, 3 cr) F/W/Sp*

Students will take an in-depth look at their individual diet. Students will have the opportunity to analyze their current diet and prepare modifications that would improve it. Development of a diet that can improve physical performance and health will be emphasized.

HE 207 Stress Management*(3 class hrs/wk, 3 cr) F/W/Sp*

Students learn the theoretical and scientific basis for the various components of stress, the stress response and the relaxation response. Students learn how to recognize and cope appropriately with physical, occupational, social, school and environmental stressors. The course emphasizes achieving lifestyle balance and shows students how to develop and practice physiologic relaxation techniques and stress reduction methods.

HE 220 Introduction to Epidemiology and Health Data**Analysis***(3 class hrs/wk, 3 cr) F/W/Sp*

Introductory course in epidemiology and the use of elementary statistics for students in health-related studies. Designed to provide preparatory background for taking subsequent courses in epidemiology and health data analysis offered by the Department of Public Health. Introduces measure of disease frequency, analytical epidemiology, study designs, experimental design, and basic elements of descriptive statistics and inferential statistics.

HE 225 Social and Individual Health Determinants*(3 class hrs/wk, 3 cr) F/W/Sp*

Provides students with an understanding of how social and individual factors and personal choices and behaviors contribute to health, premature death, disease and disability. Existing and emerging health problems and public health strategies and policies are examined.

HE 252 First Aid*(3 class hrs/wk, 3 cr) F/W/Sp*

Provides first aid instruction and practice in skills that enable students to take care of themselves and to aid others in the event of an accident or illness.

HE 253 AIDS and Sexually Transmitted Diseases*(3 class hrs/wk, 3 cr) F/W/Sp*

Provides a fundamental understanding of HIV/AIDS and other sexually transmitted disease from a national and global perspective. The history, etiology, epidemiology and prevention strategies will be examined. The course will assist students in developing an understanding of diverse cultures, customs, attitudes, values and beliefs in the context of disease transmission and eradication.

HE 261 Cardiopulmonary Resuscitation (CPR)*(8 class hrs/wk, 1 cr) F/W/Sp/Su*

Designed to teach the skills of CPR and relief of foreign body airway obstruction (FBAO) for victims of all ages. It is intended for participants who may need to perform CPR or airway obstruction techniques in a wide variety of settings.

HE 261A CPR for Professional Rescuers*(8 hrs/wk, 1 cr) F/W/Sp/Su*

The Professional Rescuer course is designed to teach the skills of CPR for victims of all ages (including ventilation with a barrier device, a bag-mask device and oxygen), use of an automated external defibrillator (AED) and relief of foreign-body airway obstruction (FBAO). It is intended for participants who provide health care to patients in a wide variety of settings.

HE 263 Psychosocial Dimensions of Health*(3 class hrs/wk, 3 cr) W*

Provides an overview of the mind body relationship and its effects on health and illness. Examines the social, psychological, cultural, attitudinal, behavioral and environmental factors that influence individual and public health.

HE 270 History, Philosophy and Ethics of Health*(3 class hrs/wk, 3 cr) W*

Considers the historical, philosophical and ethical foundation of health issues. Students explore contemporary values, issues and controversies surrounding current bioethical issues as they relate to the individual and societal health. Topics include treatment decisions, euthanasia, organ transplants, research on human subjects, genetic engineering, patients' rights, environment and distribution of resources.

HE 280 CWE Health*(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su*

An instructional program designed to give students practical experience in supervised employment related to health. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

HORT: HORTICULTURE

See HT.

HS: HUMAN SERVICES**HS 205 Youth Addiction***(3 class hrs/wk, 3 cr) As needed*

Designed to assist students in working with youth who are chemically dependent. Includes prevention, intervention, assessment, individual, group and continuing recovery techniques.

HST: HISTORY**HST 101 History of Western Civilization****■** *(3 class hrs/wk, 3 cr) F*

Surveys the origins and development of western civilization from its beginning through the High Middle Ages. Includes the civilizations of Mesopotamia, Egypt, Greece, and Rome, and the emergence of Europe during the early Middle Ages. Prerequisite: College-level reading and writing (WR 121) are strongly recommended for success in this course.

HST 102 History of Western Civilization**■** *(3 class hrs/wk, 3 cr) W*

Surveys western civilization from the Middle Ages through the American and French Revolutions. Other topics are the Renaissance, the Scientific Revolution, and the Enlightenment. Prerequisite: College-level reading and writing (WR 121) are strongly recommended for success in this course.

HST 103 History of Western Civilization**■** *(3 class hrs/wk, 3 cr) Sp*

Surveys western civilization from the Industrial Revolution through the modern era. Also includes Romanticism, the Revolutions of 1830 and 1848, Imperialism, World Wars I and II and the Cold War. Prerequisite: College-level reading and writing (WR 121) are strongly recommended for success in this course.

HST 150 Science and Culture in Western Tradition*(3 class hrs/wk, 3 cr) F/W/Sp/Su*

Survey of Western European cultural heritage with emphasis on scientific and technology innovations since the middle ages. Emphasis on the interaction between scientific developments and cultural developments.

HST 157 History of the Middle East and Africa**■** *(3 class hrs/wk, 3 cr) As needed*

Surveys the cultural, social, economic and political development in the Middle East and Africa. Prerequisite: College-level reading and writing. WR 121 is strongly recommended for success in this course.

HST 158 History of Latin America**■** *(3 class hrs/wk, 3 cr) W*

Surveys the cultural, social, economic and political development of Latin America. Prerequisite: College-level reading and writing (WR 121) are strongly recommended for success in this course.

HST 159 History of Asia**■** *(3 class hrs/wk, 3 cr) As needed*

Surveys the cultural, social, economic and political development of Asia. Prerequisite: College-level reading and writing (WR 121) are strongly recommended for success in this course.

HST 198 Research Topics*(1 class hr/wk 1 cr) F/W/Sp*

Examines in-depth history topics for independent research. Prerequisite: Instructor's approval.

HST 201 U.S. History: Colonial and Revolutionary

■ (3 class hrs/wk, 3 cr) *W*

Provides an overview of the United States from pre-Columbian North American and European antecedents to colonization, Colonial America, Revolutionary America; development of U.S. government, economy and society to 1830. Prerequisite: College-level reading and writing (WR 121) are strongly recommended for success in this course.

HST 202 U.S. History: Civil War and Reconstruction

■ (3 class hrs/wk, 3 cr) *W*

Provides an overview of the history of the United States from 1830 to 1900. Includes national expansion, sectionalism, the Civil War and Reconstruction. Concludes with the second Industrial Revolution and its effects. Prerequisite: College-level reading and writing (WR 121) are strongly recommended for success in this course.

HST 203 U.S. History: Rise to World Power

■ (3 class hrs/wk, 3 cr) *Sp*

Provides an overview of the United States in the 20th century. Examines the rise to global power, World Wars I and II, civil rights, labor, women's rights and the Cold War. Prerequisite: College-level reading and writing (WR 121) are strongly recommended for success in this course.

HST 240 War and the Modern World

■ (3 class hrs/wk, 3 cr) *As needed*

The evolution of the conduct of war in the 19th and 20th centuries as a reflection of social, political and technological developments. Basic course offering for the Peace Studies Program.

HST 280 CWE History

(6–42 class hrs/wk, 2–14 cr) *F/W/Sp/Su*

An instructional program designed to give students practical experience in supervised employment related to history. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

HST 280S Service-Learning History

(3–42 class hrs/wk, 1–14 cr) *F/W/Sp/Su*

An instructional program, using contextual learning, designed to promote critical thinking, citizenship and civic responsibility as students work with community partners in addressing real community needs. Students identify learning objectives, work a specified number of hours during the term, and engage in faculty-led guided reflection activities. Prerequisites: Students must have taken or must be currently taking appropriate course or courses in their major field of study. They must also have their Service-Learning approved by the appropriate faculty coordinator.

HT and HORT: HORTICULTURE**HT 8.102 Career Exploration: Horticulture**

(1 class hrs/wk, 1 cr) *W*

Surveys career opportunities in horticulture. A report on a specific career position is required. Includes résumé writing and job search skills.

HT 8.115 Greenhouse Management

(4 class hrs/wk, 3 cr) *Sp*

Introduces greenhouse management emphasizing practical applications in the horticulture industry. Topics include growing structures and environment, root media containers, watering, plant nutrition, pest management and plant growth. Includes an interview with a greenhouse operator.

HT 8.132 Arboriculture I

(4 class hrs/wk, 3 cr) *W/Alternate Years Winter 2009*

Introduces ornamental horticulture, including how to plant, train, prune, protect and repair trees.

HT 8.133 Arboriculture II

(4 class hrs/wk, 3 cr) *Sp/Alternate Years Spring 2009*

An advanced course of study for students and practitioners of ornamental horticulture who need to know how to select, plant, train, protect, fertilize, and provide ongoing care for trees in the landscape. Class provides excellent preparation for the ISA Certified Arborist and Tree Worker certification exams. Students must sign an LBCC Liability Waiver before participating in the lab. Lab activities include actual tree care practices on campus. Prerequisite: Arboriculture I or instructor's approval.

HT 8.135 Turf Management

(4 class hrs/wk, 3 cr) *W/Alternate Years Winter 2010*

Introduces and develops the art and science of turf-grass culture. Grass identification and maintenance; fertilizer and water requirements; weed, insect and disease identification and control; and other turf problems are emphasized.

HT 8.137 Plant Propagation

(6 class hrs/wk, 4 cr) *W*

Introduces the principles, methods, techniques and facilities used to propagate ornamentals. Techniques covered include seeding, grafting, cuttings, divisions and tissue culture. Lab activities utilize the LBCC Greenhouse. Students are responsible for the annual plant sale.

HT 8.139 Arboriculture Practicum

(3 class hrs/wk, 2 cr) *Sp/Alternate Years Spring 2009*

Gives practical field experience in climbing and tree work. Taught by certified arborists, emphasizing safety and skill. Note: Limited enrollment. Requires personal protective equipment. Prerequisites: Instructor's approval.

HT 8.140 Landscape Maintenance

(5 class hrs/wk, 3 cr) *F/Alternate Years Fall 2009*

Introduces principles, methods, techniques and use of equipment for maintenance of landscape and turf areas.

HT 8.141 Landscape Planning

(5 class hrs/wk, 3 cr) *W/Alternate Years Winter 2009*

Surveys basic layout and design, site utilization and orientation of landscape facilities. Includes landscape contours, grading, trees, shrubs, plant selection and utilization. Prerequisite: HORT 228 Landscape Plant Materials or instructor's approval.

HORT 199 Horticulture: Special Studies

(1–9 class hrs/wk, 1–3 cr) *F/W/Sp*

Allows a student to investigate, with supervision from a faculty member, a topic of his/her interest at an individualized pace. Credits and projects will be determined jointly by the instructor and the student.

HORT 211 Horticulture Practicum

(9 class hrs/wk, 3 cr) *F/W/Sp*

Students learn various aspects of practical horticulture by working as a part of a team managing the LBCC greenhouse, organic garden and landscape areas. Students learn basic procedures of plant propagation, soil, water, fertilizer, and pest management. Seasonal projects parallel Horticulture classes.

HORT 226 Landscape Plant Materials

(4 class hrs/wk, 3 cr) *F/Alternate years Fall 2010*

Identification of trees, shrubs, vines and groundcovers used in landscape horticulture and their use in plant composition.

HORT 228 Horticulture: Landscape Plant Materials

(4 class hrs/wk, 3 cr) *Sp*

Includes identification of trees, shrubs, vines and ground covers used in landscape horticulture and their use in plant composition.

HORT 260 Organic Farming and Gardening

(4 class hrs/wk, 3 cr) *Sp*

Organic farming and gardening methods are discussed in class and practiced in the field. The philosophical background of organic farming as well as the biological, environmental and social factors involved in organic food production are covered. Emphasis is on hands-on application of scientific principles to create sustainable food production systems.

HUM: HUMANITIES

HUM 101 Introduction to Humanities: Prehistory, Medievalism and World Beyond

➤ (3 class hrs/wk, 3 cr) *F*

Examines creativity, ideas, and culture through study of selected works and artifacts from Western and non-Western cultures, drawn from art, architecture, literature, philosophy, drama, music, dance and theater, as reflections of and influences on social and cross-cultural change. Attendance at out-of-class activities is required. HUM 101: Prehistory, Medievalism and World Beyond; HUM 102 Renaissance, Faith and Reason in Global Encounter; HUM 103 Modernism, Globalism & Information Age. Courses may be taken individually and/or in any order. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

HUM 102 Introduction to Humanities: Renaissance, Faith and Reason in Global Encounter

➤ (3 class hrs/wk, 3 cr) *W*

Examines creativity, ideas, and culture through study of selected works and artifacts from Western and non-Western cultures, drawn from art, architecture, literature, philosophy, drama, music, dance and theater, as reflections of and influences on social and cross-cultural change. Attendance at out-of-class activities is required. HUM 101: Prehistory, Medievalism and World Beyond; HUM 102 Renaissance, Faith and Reason in Global Encounter; HUM 103 Modernism, Globalism & Information Age. Courses may be taken individually and/or in any order. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

HUM 103 Introduction to Humanities: Modernism, Globalism and Information Age

➤ (3 class hrs/wk, 3 cr) *Sp*

Examines creativity, ideas, and culture through study of selected works and artifacts from Western and non-Western cultures, drawn from art, architecture, literature, philosophy, drama, music, dance and theater, as reflections of and influences on social and cross-cultural change. Attendance at out-of-class activities is required. HUM 101: Prehistory, Medievalism and World Beyond; HUM 102 Renaissance, Faith and Reason in Global Encounter; HUM 103 Modernism, Globalism & Information Age. Courses may be taken individually and/or in any order. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

HV: HEAVY EQUIPMENT/DIESEL

HV 3.123 Fundamental Shop Skills

(4 class hrs/wk, 3 cr) *F*

Gives the student practical working knowledge of safety in the trade areas of employment. Uses safety regulatory agencies as a foundation, and also includes fork lift training. Prerequisite: Instructor's approval required.

HV 3.129 Heavy Equipment/Diesel Engines

(12 class hrs/wk, 1–7 cr) *W*

Covers the operating principles, maintenance, repair and overhaul of various types and sizes of diesel engines. Diesel engines, their component parts and related accessories are studied in depth. In conjunction with this is the study of manufacturers' specifications as they pertain to correct engine operation, performance and emissions. Prerequisite: Placement test scores at RD 080 Developing Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

HV 3.130 Heavy Equipment/Diesel Tune-Up

(20 class hrs/wk, 1–10 cr) *Sp*

Capstone class that introduces diesel tune-up and techniques for optimum engine performance including diagnostic troubleshooting, engine break-in procedure through use of the dynamometer. The student will use all of the critical thinking skills they have learned in the past classes to solve real world problems on mechanical and computer managed engines and trucks. This class also includes the ITS diesel club. Prerequisite: Placement test scores at RD 080 Developing Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

HV 3.132 Advanced Mobile Hydraulics

(8 class hrs/wk, 5 cr) *Sp*

Covers advanced hydraulic theory along with service and repair of valves, pumps, motors and connectors used in mobile equipment hydraulic systems. Systems design and modification will be covered. Machine systems will be learned using hydraulic schematic drawings. Common customer concerns with specific heavy equipment and their solutions will be learned. Operational check out and laptop computer testing of heavy equipment will be performed in labs, as well as repair and adjustment, and electronic controls. Prerequisite: HV 3.134 Basic Hydraulics and instructor's approval required.

HV 3.134 Basic Hydraulics

(5 class hrs/wk, 3 cr) *W*

Covers hydraulic theory along with pump, actuator application, and valve design and theory. Prerequisite: Instructor's approval required.

HV 3.140 Industrial Diesel Engine Fuel Systems

(4 class hrs/wk, 1–3 cr) *W*

Covers the theory, repair, testing and calibration of diesel fuel injection pumps, governors and injector assemblies. The class will be taught giving as much time for hands on as possible. Prerequisite: Instructor's approval required.

HV 3.146 Pneumatic Brakes and Controls

(10 class hrs/wk, 1–5 cr) *W*

Acquaints the student with the theory and application of pneumatic braking systems. The student will learn to service, diagnose and repair ABS, foundation, accessory and safety air systems. Prerequisite: Placement test scores at RD 080 Developing Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

HV 3.295 Power Train Systems

(20 class hrs/wk, 1–10 cr) *F*

Studies include power train terminology, theory and operation, driveshaft function and construction, maintenance practices, power train schematics, troubleshooting and failure analysis, and component rebuild and replacement. Prerequisite: Placement test scores at RD 080 Developing Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

HV 3.296 Steering, Suspension and Brakes

(10 class hrs/wk, 1–5 cr) *Sp*

Covers the theory and operation of heavy duty steering and suspension systems, alignment and brakes. Diagnostic and service techniques are taught with the use of components and vehicles. Learning strategies include multi-media presentations, discussion research and lab practice. Prerequisite: Placement test scores for RD 080 Developing Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

HV 3.297 Electrical and Electronic Systems

(20 class hrs/wk, 1–10 cr) *F*

Introduces the theory, application and diagnosis of the electrical and electronic control systems for modern vehicles. Emphasis is placed on batteries, starting, charging, lighting, accessories and driver information systems. Preparation for ASE certification in electrical/electronic systems. Prerequisite: Placement test scores for RD 080 Developing Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

HV 3.303 Mobile Air Conditioning and Comfort Systems I

(5 class hrs/wk, 3 cr) *Sp*

Principles of mobile heating and air conditioning systems with an emphasis on design, function, adjustment, service and testing of components. Prerequisite: HV 3.297 Electrical and Electronic Systems and instructor's approval required.

HV 3.643 Customer Service

(2 class hrs/wk, 2 cr) *F*

This course is designed to help students develop outstanding customer service skills in a dealership setting serving clients/customers. Students will learn how to interact with customers (communicating in person), resolve conflicts, maintain records, understand the importance of customer satisfaction/retention, actively participate as a member of a team, and develop time management skills. Prerequisite: Placement test scores for RD 080 Developing Reading Skills, MTH 020 Basic Mathematics and instructor's approval required.

IN: INDUSTRIAL TECHNICAL

IN 1.197 Introduction to Industrial Computers

(2 class hrs/wk, 1 cr) W

Introduces students to basic applications of computers in industry; a variety of applications including Windows, Word, Excel, AutoCAD, and PLC programming basics. Students will have hands-on opportunities with these applications and will be able to identify strengths and weaknesses.

JN: JOURNALISM

JN 134 Introduction to Photojournalism

(4 class hrs/wk, 3 cr) Sp

Introduces photojournalism techniques such as digital imaging, films, equipment, light and reproduction. Covers conventional and electronic darkroom techniques and issues. Students study the history of documentary photography and analyze the effect of image content on audiences. Includes lab work. Prerequisite: ART 261 Introduction to Photography with a grade of "B" or better or instructor's approval.

JN 201 Media and Society

(4 class hrs/wk, 4 cr) F/W

Studies the history, development, technology and social impact of the various mass media. Includes critical analysis of media practice and ethics, the study of significant figures and developments, and the examination of the media as channels of expression in popular culture.

JN 215A Journalism Lab

(2 class hrs/wk, 1 cr) F/W/Sp

Offers supervised editorial work on the college's student newspaper (The Commuter) in reporting and editing. Provides training and experience with computerized word processing. Note: Course serves as the lab for JN 216 News Reporting and Writing and JN 217 Feature Writing. May be taken independently from those courses. May be repeated for up to six credits.

JN 215B Design and Production Lab

(4 class hrs/wk, 2 cr) F/W/Sp

Offers supervised experience in newspaper page design, headline writing, computer pagination, digital imaging, photography, advertising and related newspaper production skills. Students apply skills in production lab for the college's student newspaper (The Commuter). May be repeated for up to six credits.

JN 216 News Reporting and Writing

(3 class hrs/wk, 3 cr) F/W

Introduces basics of reporting and journalistic writing, including news style, grammar and story structure. Students also study journalism history, literature, ethics, law and critical thinking as applied to information gathering. Corequisite: JN 215A Journalism Lab.

JN 217 Feature Writing

(3 class hrs/wk, 3 cr) Sp

Covers various forms of fiction writing, including profiles, human interest, travel and analysis, with emphasis on backgrounding, depth reporting, descriptive writing and free-lance marketing. Continues examination of issues in journalism history, literature, ethics and law. Special attention to the literary journalism form. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course. Corequisite: JN 215A Journalism Lab.

JN 280 CWE Journalism

(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su

An instructional program designed to give students practical experience in supervised journalism-related employment. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

MA: MACHINE TOOL

MA 3.396 Manufacturing Processes I

(12 class hrs/wk, 6 cr) F

Provides training in the skills necessary to pursue a career in the machinist's trade. The lecture portion of Manufacturing Processes I introduces students to the fundamentals of good machining practices; theory/practical considerations are covered. In the laboratory aspect of this course each student completes a series of projects that emphasize safe operation of machine tools. The safety aspect of the course includes:

- Prevention of accidents, injuries and illness at the work site.
- Measures that provide protection from exposure to hazards and hazardous materials.
- Legal obligations mandated by OR-OSHA that directly relate to future occupations.

MA 3.396B Manufacturing Processes I

(3 class hrs/wk, 2 cr) F/W/Sp

This course provides training and learning experiences in basic machining operations. Students will be using the lathe, milling machine and other machine tools to complete a project. The finished projects are used to participate in a contest; judging is based on performance, craftsmanship and technology utilization. Students are required to demonstrate some design responsibilities. Skills for successful employment are emphasized.

MA 3.397 Manufacturing Processes II

(12 class hrs/wk, 6 cr) W

Provides machine tool technology training and learning opportunities at an intermediate level. Instruction will be given in the safe and efficient operation of machine tools. Theory and practical considerations will be covered. Environmental awareness information is included in this course. Prerequisite: MA 3.396 Manufacturing Processes I or instructor's approval.

MA 3.397B Manufacturing Processes II

(3 class hrs/wk, 2 cr) F/W/Sp

This lecture/lab course provides machine tool technology training and learning opportunities at an intermediate level. Instruction will be given in the safe and efficient operation of machine tools. Theory and practical considerations will be covered. Environmental awareness information is included in this course. Prerequisite: MA 3.396B Manufacturing Processes I or instructor's approval.

MA 3.398 Manufacturing Processes III

(12 class hrs/wk, 6 cr) Sp

Focuses on advanced machine tool operation. Determining machine tool selection, set-up and planning for multi-tool projects will be covered. Shop math, including trigonometry and elementary algebra will be used to make calculations. Students will complete a series of advanced machining projects. A career specialist will deliver information about job search skills. Prerequisite: MA 3.397 Manufacturing Processes II.

MA 3.398B Manufacturing Processes III

(3 class hrs/wk, 2 cr) F/W/Sp

This lecture/lab course focuses on advanced machine tool operation. Determining machine tool selection, setup and planning for multi-tool projects will be covered. Shop math, including trigonometry and elementary algebra, will be used to make calculations. Students will complete a series of machining projects. This course includes instruction on basic computer numerical control (CNC) machining and turning. Prerequisite: MA 3.397B Manufacturing Processes II or instructor's approval.

MA 3.405 Inspection I

(2 class hrs/wk, 2 cr) F

This course provides training and learning opportunities in the science of measurement as it relates to manufacturing. The correct use of measuring tools to collect data at logical intervals throughout the manufacturing process will be covered. Students will be introduced to some of the practical considerations that relate to size, tolerance and other specifications. The measuring tools we will be studying include inch and metric rulers, micrometers, dial and digital calipers, the surface plate, sine bars, gage blocks and the combination set.

MA 3.406 Inspection II*(3 class hrs/wk, 3 cr) W*

This course provides training in measurement as it relates to manufacturing. We will also cover the following subjects: geometric dimensioning and tolerancing (GD&T), surface plate inspection methods, precision height gage, optical comparator, using gage pins and a micrometer to measure dovetails, portable surface roughness gage, hardness testing, and coordinate measuring machines. Prerequisite: MA 3.405 Inspection I or instructor's approval.

MA 3.407 Mathematics for NC Machinists*(1 class hr/wk, 1 cr) F*

Provides mathematics training for NC machinists and programmers. Scientific calculator functions, basic algebra, right angle trigonometry, geometry and the Cartesian coordinate system as it applies to CNC machining will be covered.

MA 3.409 Introduction to CNC*(2 class hrs/wk, 2 cr) F*

Introduces students to computer numerical control.

MA 3.412 Cam I*(4 class hrs/wk, 4 cr) W*

Provides training and learning experiences in Mastercam mechanical design automation application software. This software makes it possible for designers to quickly sketch out ideas, experiment with features and dimensions, and produce models and detailed drawings. This is the first course in the SolidWorks series.

MA 3.413 Lean Manufacturing and Productivity*(2 class hr/wk, 2 cr) F*

Provides training in lean manufacturing strategies and proven techniques for increasing output while reducing manufacturing costs.

MA 3.414 Tool Technology*(1 class hr/wk, 1 cr) F*

Helps meet the need in industry for machinists that are trained in carbide insert identification and applications.

MA 3.416 CNC: Special Projects*(2–6 class hrs/wk, 1–3 variable credit) Sp*

Provides advanced computer numerical control (CNC) training. Students will have some design responsibilities as well as design for manufacturing responsibilities as they complete projects. Careful planning, good machining practices, economic/business concerns, documentation and safety will be emphasized. Prerequisite: MA 3.420 CNC: Mill, MA 3.421 CNC: Lathe, MA 3.427 Introduction to Solid Design Manufacturing, MA 3.427 Solid Works I, equivalent experience, or instructor's approval.

MA 3.420 CNC: Mill*(6 class hrs/wk, 4 cr) W*

Provides training in the operation and part programming of the modern vertical machining center. Students learn safe manufacturing methods by completing a series of assignments using one of two Haas vertical machining centers. Students will gain experience reading, writing and editing part programs using industry standard G & M code programming.

MA 3.421 CNC: Lathe*(6 class hrs/wk, 4 cr) Sp*

Introduces students to a modern CNC turning center and part programming using industry standard ISO/EIA machine code for the Fanuc controller. Students turn aluminum parts to specifications on a Hitachi Seiki CNC Lathe. Safety procedures are emphasized. Prepares students for mastery of the two axis lathe coordinate plane. Prerequisite: MA 3.396 Manufacturing Processes I or instructor's approval.

MA 3.427 Solid Works I*(3 class hrs/wk, 3 cr) W*

Provides advanced training and learning experiences in Solid Works mechanical design automation application software. This software makes it possible for designers to quickly sketch out ideas, experiment with features and dimensions, and produce models and detailed drawings.

MA 3.428 Solid Works II*(3 class hrs/wk, 3 cr) Sp*

Provides advanced training and learning experiences in Solid Works mechanical design automation application software. This software makes it possible for designers to quickly sketch out ideas, experiment with features and dimensions, and produce models and detailed drawings. This course is the second in the series. Prerequisite: MA 3.427 Solid Works I or instructor's approval.

MA 3.431 Basic Print Reading: Metals*(2 class hrs/wk, 2 cr) F*

Provides training in interpreting blueprints.

MA 3.432 Introduction to Mastercam*(3 class hrs/wk, 3 cr) F*

Introduction to Mastercam provides training on the use of Mastercam CAD/CAM software to design parts and toolpaths for a modern CNC vertical machining center. Students complete a series of exercises that progress from designing a two-dimensional part and creating a contour toolpath to more advanced CNC mill applications. Safety and efficient machining will be stressed throughout the course.

MA 3.433 Mastercam II: Surfaces*(3 class hrs/wk, 3 cr) W*

Second course in the three-course Mastercam series. Students complete a series of exercises that include building more advanced surface toolpaths. Prerequisite: MA 3.432 Introduction to Mastercam or instructor's approval.

MA 3.434 Mastercam III: Solids*(3 class hrs/wk, 3 cr) Sp*

Third course in the mastercam series. Introduces students to solid modeling as it relates to CAD/CAM/CNC technology. Practical examples of current manufacturing methods are used for the exercises. Students are encouraged to assume design responsibility when working through projects. Prerequisite: MA 3.433 Mastercam II: Surfaces.

MA 3.437 Materials Science*(4 class hrs/wk, 3 cr) Sp*

This course investigates the relationships that exist between structures and the properties of materials. The study of atomic structure and chemical makeup provides the basis for material classification. The subjects of bonding forces and crystal structures are explored. Lecture topics include dislocations, strengthening mechanisms, slip systems, phase transformations and plastic deformation in polycrystalline materials. The mechanical properties of metals are a major focus in the lecture, demonstration and laboratory aspects of this course. Other topics include the applications and processing of metals, ceramics, polymers as well as composites. Students will use finite element analysis to create computer simulations to test various materials for suitability of specific applications. The emphasis is on ferrous and non-ferrous alloys. Prerequisite: MA3.396 Manufacturing Processes I, MTH 060 Introduction to Algebra or above, and reading level RD 090 Strategies for Effective Reading or above.

MO: MEDICAL OFFICE**MO 5.414 Drug Names and Classifications***(3 class hrs/wk, 3 cr) F/W/Sp*

Prepares student training to work as a member of a health care team to effectively communicate pharmaceutical information to a variety of health care professionals. Focuses on using correct spelling and pronunciations of selected pharmaceuticals, which help ensure patient safety in pharmaceutical usage. Prerequisite: MO 5.630 Medical Terminology and Body Systems I or equivalent experience.

MO 5.532 Medical Terminology/Phlebotomists*(2 cr) As needed*

Phlebotomy students will learn basic medical language in written and oral forms to communicate as members of a health care professional team and to understand the basics of physician's diagnosis and treatment that influence blood draws.

MO 5.550 Human Relations in Health Care*(3 class hrs/wk, 3 cr) F*

Prepares students to understand the mental process and behaviors of individuals in the medical office.

MO 5.625 Basic Clinical Office Procedures*(8 hrs/wk, 5 cr) F*

Students prepare patients, assist medical personnel, and provide aseptic environments in ambulatory care settings. Prerequisite: MO 5.632 Medical Terminology and Body Systems III. Enrollment in Administrative Medical Assistant or Medical Assistant programs.

MO 5.626 Advanced Clinical Office Procedures*(8 class hrs/wk, 5 cr) W*

Continuation of Basic Clinical Office Procedures. Medical assistant students will assist, perform and document advanced, invasive and sterile procedures using standard precaution guidelines without causing undo harm or discomfort to patients. Prerequisite: MO 5.625 Basic Clinical Office Procedures; OA 2.515MA Business Math Medical II.

MO 5.630 Medical Terminology and Body Systems I*(3 class hrs/wk, 3 cr) F/W/Sp/Su*

Prepares students to use basic medical language in written and oral form to communicate as a member of a health care professional team and understand the basics of physician's diagnosis and treatment.

MO 5.631 Medical Terminology and Body Systems II*(3 class hrs/wk, 3 cr) F/W/Sp/Su*

Prepares students to use an expanded medical vocabulary to communicate with health care professionals. Learn to recognize the structure and function of the human body, basic pathology and diagnostic tools. Prerequisite: MO 5.630 Medical Terminology and Body Systems I.

MO 5.632 Medical Terminology and Body Systems III*(3 class hrs/wk, 3 cr) F/W/Sp/Su*

This course builds upon Medical Terminology and Body Systems I and II to provide a comprehensive knowledge of medical terminology. Students will communicate, document, and comprehend terminology as it pertains to medical specialties, reports and patient data. Prerequisite: MO 5.631 Medical Terminology and Body Systems II.

MO 5.640 Administrative Externship*(9 class hrs/wk, 1-3 cr) F/W/Sp*

Students apply all major medical administrative competencies and concepts learned in the curriculum to a real-world experience in local medical facilities. Prerequisite: All administrative courses must be completed prior to entering externship. Prior work experience will be evaluated on an individual basis.

MO 5.641 Clinical Externship*(18 class hrs/wk, 1-6 cr) F/W/Sp*

Students apply all major clinical competencies and concepts learned in the two-year medical assistant program to a real-world experience in local medical facilities. Prerequisite: MO 5.640 Administrative Externship.

MO 5.650 Basic Electrocardiography Techniques*(1 class hrs/wk, 1 cr) W*

Prepares the medical assistant to perform electrocardiograms in the clinical setting. Prerequisites: Enrollment in the Medical Assistant program; MO 5.625 Basic Clinical Office Procedures.

MO 5.655 Phlebotomy for Medical Assistants*(3 class hrs/wk, 2 cr) W*

Medical assistant students will collect patient blood samples without undo harm to the patient and without compromising the integrity of the sample. Prerequisites: Enrollment in the Medical Assistant program; MO 5.625 Basic Clinical Office Procedures.

MO 5.661 Physician's Office Laboratory Procedures*(4 class hrs/wk, 3 cr) F*

Medical assistant students will perform CLIA-waived tests in a physician's office laboratory using quality control and practicing safety precautions. Prerequisite: MO 5.631 Medical Terminology and Body Systems II. Corequisite: MO 5.625 Basic Clinical Office Procedures; enrollment in Medical Assistant program.

MO 5.662 Preparation for Certifying Exam (Clinical)*(1 class hrs/wk, 1 cr) Sp*

Medical assistant students review clinical competencies to prepare for the national certification exam administered by the American Association of Medical Assistants. Prerequisite: Must be enrolled in MO 5.641 Clinical Externship of the Medical Assistant Program.

MO 5.665 Documentation and Screening in the Medical Office*(2 class hrs/wk, 2 cr) W/Sp*

Prepares medical office personnel to answer telephone, assess and document conversation, and disseminate information in an ambulatory care setting. Develops and uses a physician-authorized telephone screening manual. Prerequisite: MO 5.630 Medical Terminology and Body Systems I and OA 202 Word Processing for Business: MS Word. Corequisite: OA 2.671 Medical Law and Ethics.

MP: MUSICAL PERFORMANCE

Each MP class may be taken three times for credit.

MP 101 Symphonic Band*(3 class hrs/wk, 1 cr) W/Sp/F*

In conjunction with the Oregon State University Department of Music, provides an opportunity for participation in a symphonic band. Note: May require an audition. An unsuccessful audition will result in disenrollment.

MP 102 Concert Band*(3 class hrs/wk, 1 cr) F/W/Sp*

In conjunction with the Oregon State University Department of Music, provides an opportunity for participation in a concert band. Note: May require an audition. An unsuccessful audition will result in disenrollment.

MP 103 Marching Band*(3 class hrs/wk, 1 cr) F*

Provides opportunity for participation in a marching band in conjunction with the Oregon State University Department of Music. This performance group of more than 160 musicians performs for home football games as well as one trip each year to an off-campus game. Note: May require an audition. An unsuccessful audition will result in disenrollment.

MP 104 Pep Band*(1.5 class hrs/wk, 1 cr) W*

Instrumental performing group concentrating on rock, pop and contemporary styles in the small- to medium-size group setting. Provides an opportunity for performance and participation in the OSU Basketball Pep Band in conjunction with the Oregon State University Department of Music. Note: Each class may be taken three times for credit. May require an audition. An unsuccessful audition will result in disenrollment.

MP 105 Jazz Band*(2 class hrs/wk, 1 cr) Sp*

In conjunction with the Oregon State University Department of Music, provides an opportunity for participation in a jazz band. Note: May require an audition. An unsuccessful audition will result in disenrollment.

MP 122 Concert Choir*(3 class hrs/wk, 2 cr) F/W/Sp*

Concert choir is a traditional choral performance class that includes the singing of a wide range of choral music from around the world. Participation in final concert is required. Audition for vocal placement.

MP 131 Chamber Choir*(3 class hrs/wk, 2 cr) F/W/Sp*

Chamber choir is a performing group that includes the singing and performing of advanced choral literature, including madrigals, motets, jazz arrangements and music theater. Students will develop high-level sight reading and aural skills. Includes a number of off-campus performances as well as final concert. Prerequisite: Audition to demonstrate vocal ability, sightreading, aural skills; recommended: take concurrently with MP 122 Concert Choir.

MP 141 Symphony Orchestra*(3 hrs/wk, 1 cr) F/W/Sp*

In conjunction with the Oregon State University Department of Music, provides opportunity for participation in a symphony orchestra. This large ensemble of 65 – 80 players performs orchestra repertoire from the 18th, 19th and 20th centuries. Note: May require an audition. An unsuccessful audition will result in disenrollment.

MP 151 Rehearsal and Performance*(3–20 class hrs/wk, 1–3 cr) F/W/Sp/Su*

Offers credit for music rehearsal directly related to Performing Arts Department performance. Prerequisite: Instructor's approval.

MP 171 Individual Lessons: Piano*(1 cr) F/W/Sp/Su*

Provides individual instruction in piano. Note: Requires additional tutorial fee.

MP 174 Individual Lessons: Voice*(1 cr) F/W/Sp*

Provides individual instruction in voice. Note: Requires additional tutorial fee.

MP 181 Individual Lessons: Flute*(1 cr) F/W/Sp/Su*

Provides individual instruction in flute. Note: Requires additional tutorial fee.

MP 201 Symphonic Band*(3 class hrs/wk, 1 cr) F/W/Sp*

In conjunction with the Oregon State University Department of Music, provides an opportunity for participation in a symphonic band. Note: May require an audition. An unsuccessful audition will result in disenrollment.

MP 202 Concert Band*(3 class hrs/wk, 1 cr) F/W/Sp*

In conjunction with the Oregon State University Department of Music, provides an opportunity for participation in a concert band. Note: May require an audition. An unsuccessful audition will result in disenrollment.

MP 203 Marching Band*(3 class hrs/wk, 1 cr) F*

Provides opportunity for participation in a marching band in conjunction with the Oregon State University Department of Music. This performance group of more than 160 musicians performs for home football games as well as one trip each year to an off-campus game. Note: May require an audition. An unsuccessful audition will result in disenrollment.

MP 204 Pep Band*(1.5 class hrs/wk, 1 cr) W*

Instrumental performing group concentrating on rock, pop and contemporary styles in the small- to medium-size group setting. Provides an opportunity for performance and participation in the OSU Basketball Pep Band in conjunction with the Oregon State University Department of Music. Note: Each class may be taken three times for credit. May require an audition. An unsuccessful audition will require disenrollment.

MP 205 Jazz Band*(2 class hrs/wk, 1 cr) Sp*

In conjunction with the Oregon State University Department of Music, provides an opportunity for participation in a jazz band. Note: May require an audition. An unsuccessful audition will result in disenrollment.

MP 222 Concert Choir*(3 class hrs/wk, 2 cr) F/W/Sp*

Concert choir is a traditional choral performance class that includes the singing of a wide range of choral music from around the world. Participation in final concert is required. Audition for vocal placement.

MP 231 Chamber Choir*(3 class hrs/wk, 2 cr) F/W/Sp*

Chamber choir is a performing group that includes the singing and performing of advanced choral literature, including madrigals, motets, jazz arrangements and music theater. Students will develop high-level sight reading and aural skills. Includes a number of off-campus performances as well as final concert. Prerequisite: Audition to demonstrate vocal ability, sightreading, aural skills; recommended: take concurrently with MP 222 Concert Choir.

MP 241 Symphony Orchestra*(3 hrs/wk, 1 cr) F/W/Sp*

In conjunction with the Oregon State University Department of Music, provides opportunity for participation in a symphony orchestra. This large ensemble of 65 – 80 players performs orchestra repertoire from the 18th, 19th and 20th centuries. Note: May require an audition. An unsuccessful audition will result in disenrollment.

MP 242 Chamber Orchestra*(2 class hrs/wk, 1 cr) F/W/Sp*

Provides an opportunity for participation in a strings orchestra. The group performs repertoire from the 18th, 19th and 20th centuries.

MP 251 Rehearsal and Performance*(3–20 class hrs/wk, 1–3 cr) F/W/Sp/Su*

Offers credit for music rehearsal directly related to Performing Arts Department performance. Prerequisite: Instructor's approval.

MP 271 Individual Lessons: Piano*(1 cr) F/W/Sp/Su*

Provides individual instruction in piano. Note: Requires additional tutorial fee.

MP 274 Individual Lessons: Voice*(1 cr) F/W/Sp*

Provides individual instruction in voice. Note: Requires additional tutorial fee.

MP 281 Individual Lessons: Flute*(1 cr) F/W/Sp/Su*

Provides individual instruction in flute. Note: Requires additional tutorial fee.

MS: Military Studies**MS 111 Military Science I: Leadership Development***(1 class hr/wk, 1 cr) F*

Introduction to ROTC and its relationship to the U.S. Army. Role of the army officer, including leadership and management fundamentals. Types of jobs available to army officers.

MS 112 Military Science I: Military Skills*(1 class hr/wk, 1 cr) W*

Basic rifle marksmanship; military first aid; customs and traditions of the U.S. Army; unit organization and missions.

MS 130 Military Physical Conditioning*(3.75 class hr/wk, 1 cr) F/W/Sp*

This fitness class is designed to improve your total physical strength and aerobic abilities, prepare you to excel at the Army Physical Fitness Test (APFT) and improve your overall wellbeing. The class is instructed by the Army ROTC Cadre and assisted by Military Science III cadets to better prepare themselves for their leadership course.

MS 113 Military Science I: Land Navigation*(1 class hr/wk, 1 cr) Sp*

How to read a topographic map and use a magnetic compass; includes practical exercises.

MS 211 Military Science II: Effective Team Building*(2 class hrs/wk, 2 cr) F*

An examination of effective leadership. Development of interpersonal skills using practical exercises and case studies.

MS 212 Military Science II: American Military History*(2 class hrs/wk, 2 cr) W*

History of the American soldier from 1775 to 1919; weaponry and tactics of the American Army. Use of battle analysis and wargaming included.

MS 213 Military Science II: Fundamentals of Military Operations*(2 class hrs/wk, 2 cr) Sp*

Basic U.S. Army tactics at the individual, team, and squad levels. Integration of military skills in offensive and defensive operations.

MT: MECHATRONICS/INDUSTRIAL**MAINTENANCE****MT 3.801 Effective Troubleshooting***(2 class hrs/wk, 2 cr) F*

Learn an effective troubleshooting method that will enable you to successfully troubleshoot technical problems in mechanical, electrical, control, and fluid power systems. This method features a disciplined approach that promotes learning from troubleshooting.

MT 3.803 Industrial Safety*(2 class hrs/wk, 2 cr) F*

Learn how to protect yourself and your fellow workers from workplace accidents. Topics analyzed include, but are not limited to, electrical safety, personal protective equipment, confined space entry, hazardous materials, MSDS and blood borne pathogens. Emphasis is on personal responsibility for your own and others' safety. You will create a personalized safety manual.

MT 3.805 Computerized Maintenance Management*(3 class hrs/wk, 2 cr) Sp*

Learn to manage the computerized maintenance management systems (CMMS) used in most modern plants and facilities. Using CMM systems as a troubleshooting tool and as a method for improving plant efficiency is stressed.

MT 3.809 Successful Learning in the Workplace*(2 class hrs/wk, 2 cr) F*

Learn how to improve your learning from everyday workplace activities and employer sponsored training. You will complete a learning plan to guide you through your mechatronics training.

MT 3.812 Mechanical Systems*(4 class hrs/wk, 3 cr) F*

Apply mechanical principles to machine operations like machine drives and structural designs. Covers the basic calculations needed to understand machine operation and practical metallurgy. Understanding mechanical forces in relation to machine operation is stressed.

MT 3.813 Mechanical Systems Troubleshooting and Maintenance*(4 class hrs/wk, 3 cr) W*

Apply fundamental and advanced mechanical skills to the troubleshooting, maintenance and repair of mechanical systems, including structural designs. The emphasis is in understanding and visualizing the forces acting on and within mechanical systems. Basic and advanced tool use is stressed.

MT 3.817 Drive Systems*(4 class hrs/wk, 3 cr) W*

You will learn to troubleshoot and maintain drive lubrication systems. Fundamentals of vibration analysis and shaft alignment are covered in the lab. Emphasis is placed on effective maintenance of belt, chain, and gear drives.

MT 3.819 Bearings & Lubrication Systems*(4 class hrs/wk, 3 cr) W*

Learn to troubleshoot and maintain bearings and lubrication systems. Fundamentals of vibration and oil analysis, handling and mounting bearings, and operating lubrication systems are included in this training.

MT 3.821 Electrical Troubleshooting Theory*(4 class hrs/wk, 3 cr) Sp*

Learn to use electrical troubleshooting theory in troubleshooting common electrical problems: low voltage, high voltage, unwanted resistance, open circuits, high resistance shorts to ground, and current and voltage unbalance.

MT 3.822 Troubleshooting Motors and Motor Controls*(4 class hrs/wk, 3 cr) Sp*

Learn to troubleshoot and maintain motor control systems, single and three phase motors and stepper and servo motors. Analyzing motor control schematics and using advanced digital multimeters are stressed. Understanding motor controls is critical to understanding the operation of PLC and all automated control systems. Prerequisite: MT 3.821 Electrical Troubleshooting Theory or instructor's approval.

MT 3.823 Industrial Sensors & Control Systems*(4 class hrs/wk, 3 cr) F*

Learn to troubleshoot and maintain the motor and sensors that monitor the operation of automatic production and climate control systems. Analyzing schematics and using advanced digital multimeters are stressed. Understanding the operation of sensors is critical to understanding the operation of PLC and all automated control systems. Prerequisite: MT 3.822 Troubleshooting Motors and Motor Controls.

MT 3.824 Programmable Logic Controllers*(4 class hrs/wk, 3 cr) Sp*

Hands-on introduction to programmable logic controllers (PLCs) with emphasis given to effective selection, installation, and troubleshooting of PLC systems. PLC ladder logic programming will be introduced. Field troubleshooting of input and output devices will be covered. Prerequisite: MT 3.822 Troubleshooting Motors & Motor Controls.

MT 3.825 Industrial Process Control & Calibration*(4 class hrs/wk, 3 cr) Sp*

Learn the fundamentals of process control which involves the control and operation of automated manufacturing processes. Troubleshooting, maintenance, and repair of industrial systems require the technicians to interpret information supplied by the computers controlling the manufacturing processes. Prerequisite: MT 3.824 Programmable Logic Controllers.

MT 3.826 Advanced PLC Troubleshooting & Programming*(4 class hrs/wk, 3 cr) W*

This course is designed to develop skills in programming PLC's. Students will learn to convert common industrial control circuits to PLC ladder logic as well as create programs from narrative description. Special emphasis will be placed on interfacing the PLC with a selection of electro-pneumatic control devices. A systemic approach to testing and troubleshooting PLC programs will also be covered. Prerequisite: MT 3.824 Programmable Logic Controllers.

MT 3.827 Automated Material Handling*(5 class hrs/wk, 3 cr) Sp*

Learn the fundamental operation of automated materials handling by working from a pick-and-place robot to a more complicated automated manufacturing process. Concepts include positioning and speed control, programming, and speed and pauses which will be practiced in a lab setting. Prerequisite: MT 3.824 Programmable Logic Controllers.

MT 3.830 Industrial Pneumatics*(4 class hrs/wk, 3 cr) W*

Learn to analyze fundamental pneumatic schematics, how to troubleshoot common pneumatic problems, and how to maintain and repair pneumatic systems used in a variety of production applications. Understanding pneumatic circuits is critical to working with all types of industrial control systems.

MT 3.833 Principles of Technology*(5 class hrs/wk, 4 cr) W*

The course blends the scientific technical theories associated with mechanical, fluidal, electrical, and thermal energy systems with real world lab work. The goal of this course is to improve the troubleshooting of systems operations.

MT 3.844 Industrial Boiler Operation*(2 class hrs/wk, 2 cr) Sp*

Learn the operating and safety procedures to successfully operate both low and high-pressure steam and hot water boilers in industrial plants and commercial buildings. This is an e-learning class using podcasts.

MT 3.846 Pumps and Valves*(4 class hrs/wk, 3 cr) F*

Learn to troubleshoot, maintain and repair industrial pumps and valves. Pump and valve selection is stressed as is print reading and correct installation. This course emphasizes internet research and practical labs that includes pump and valve rebuilding, and installation of packing and seals for pumps and valves, and selecting pumps for specific applications.

MT 3.899 Capstone Project & Assessment*(6 class hrs/wk, 4 cr) Sp*

Create operating and maintenance routines for a working, fully automated production system. Troubleshoot systems faults and devise a plan for optimizing system operation. This course will require substantial research activity and lab time. Prerequisite: Completion of all program objectives and instructor's approval.

MTH: MATH

Eligibility to enroll in math courses is based on demonstrated skill level through completing the appropriate prerequisite with a "C" grade or higher or achieving an appropriate test score on the Computerized Placement Test (CPT). Many math courses require a calculator. Please see your instructor to determine the type of calculator that is appropriate

MTH 020 Basic Mathematics*(4 class hrs/wk, 4 cr) F/W/Sp/Su*

Provides a thorough review of arithmetic, including fundamental operations with whole numbers, fractions, decimals, percentages, geometry and measurement. Provides a basis for MTH 060 Introduction to Algebra. Note: A minimum competency level is required to pass this course.

MTH 060 Introduction to Algebra*(4 class hrs/wk, 4 cr) F/W/Sp/Su*

A first course in algebra for students who have no previous algebra experience or who need a thorough review. Assumes no familiarity with algebra. Introduces basic operations with integers, exponents, algebraic expressions, linear equations, graphing, dimensional analysis, scientific notation, ratio and proportion, realistic percent problems and other problems that lend themselves to one-variable solutions and introduces statistics, including bar graphs, mean, median, mode and range. Problem solving is emphasized throughout the course. Application problems are realistic with some data to be collected, analyzed and discussed in a group setting with results submitted in written form. Note: A minimum competency level is required to pass this course. Prerequisite: MTH 020 Basic Mathematics or equivalent.

MTH 061 Survey of Mathematical Fundamentals

- *(3 class hrs/wk, 3 cr) F/W/Sp/Su*

Survey course for the Associate of Applied Science degree. Includes applications of basic algebra, ratio and proportion, charts, tables, graphs, data analysis and problem solving, and provides an introduction to practical geometry and trigonometry. Emphasis is on applications. Application problems are realistic with some data to be collected, analyzed and discussed in a group setting with results submitted in written form. A minimum competency level is required to pass this course. Prerequisite: MTH 060 Introduction to Algebra or equivalent.

MTH 062 Occupational Trigonometry

- *(1 class hr/wk, 1 cr) F/W/Sp/Su*

Introduces right triangle trigonometry and its applications. Occupational formulas and applications are used. Note: A minimum competency level is required to pass this class. Prerequisite: MTH 061 Survey of Mathematical Fundamentals or instructor's approval.

MTH 063 Industrial Shop Math

- *(1 class hr/wk, 1 cr) Sp*

Acquaints students with measuring tools in the industrial shop and the types of computations and problem-solving methods frequently needed in industrial settings. Note: A minimum competency level is required to pass this course. Prerequisite: MTH 061 Survey of Mathematical Fundamentals or instructor's approval.

MTH 064 Business Applications of Math Fundamentals

- *(1 class hrs/wk, 1 cr) F/W/Sp/Su*

Covers the mathematics of finance, including simple interest and compound interest as applied to bank loans, installment buying, credit purchases and annuities. Prerequisite: MTH 061 Survey of Mathematical Fundamentals or instructor's approval.

MTH 065 Elementary Algebra

- *(4 class hrs/wk, 4 cr) F/W/Sp/Su*

A nontraditional algebra course that incorporates some geometry, statistics and trigonometry. Designed for the student who is familiar with beginning algebra concepts (see MTH 060). Topics include graphing linear, quadratic and exponential functions; solving linear and quadratic equations; solving application problems; using linear and other mathematical models. Problem solving is emphasized throughout the course. Application problems are realistic with some data to be collected, analyzed and discussed in a group setting with results submitted in written form. A minimum competency level is required to pass this course. Note: Students use graphing calculators in this course. Prerequisite: MTH 060 Introduction to Algebra or equivalent.

MTH 095 Intermediate Algebra

- *(4 class hrs/wk, 4 cr) F/W/Sp/Su*

Designed for the student who is familiar with elementary algebra, as well as basic geometry and statistics (see MTH 065). Topics include graphing quadratic, exponential, logarithmic and other functions; multiplying and factoring polynomials; performing operations with rational expressions; solving systems of linear equations; solving quadratic equations by factoring; performing arithmetic with complex numbers; developing and applying mathematical models. Problem solving is emphasized throughout the course. Application problems are realistic with some data to be collected, analyzed and discussed in a group setting with results submitted in written form. A minimum competency level is required to pass this course. Note: Students use graphing calculators in this course. Prerequisite: MTH 065 Elementary Algebra or equivalent.

MTH 097 Practical Geometry

- *(4 class hrs/wk, 4 cr) F/W/Sp/Su*

Presents applied, informal geometry for students who did not take geometry in high school or who need a thorough review. Includes problem solving, geometric shapes, angle measure, perimeter, area and volume, congruence and similarity, circles, basic constructions and an introduction to right triangle trigonometry. Prerequisite: MTH 095 Intermediate Algebra or equivalent.

MTH 105 Introduction to Contemporary Mathematics

- *(4 class hrs/wk, 4 cr) W/Sp*

A survey course in mathematics for students in the liberal arts and other non-science majors. Topics are selected from areas such as management science, statistics, social choice, the geometry of size and shape, and computers and their applications. Emphasizes the application of mathematics to the problems of contemporary society and the critical role these applications play in economic, political and personal life. Prerequisites: MTH 095 Intermediate Algebra or equivalent.

MTH 111 College Algebra

- *(5 class hrs/wk, 5 cr) F/W/Sp/Su*

Explores relations and linear, quadratic, exponential, polynomial, rational and logarithmic functions. Includes theory of equations, matrices and determinants. Prerequisites: MTH 095 Intermediate Algebra or equivalent.

MTH 112 Trigonometry

- (5 class hrs/wk, 5 cr) F/W/Sp/Su

Introduces trigonometric functions, trigonometric identities, inverse trigonometric functions, trigonometric equations, right triangle trigonometry, complex numbers and polar coordinates. Includes parametric equations, vectors, and conic sections. Prerequisites: MTH 111 College Algebra and MTH 097 Practical Geometry or equivalent.

MTH 199 Mathematics: Special Studies

- (1–3 class hrs/wk, 1–3 cr) As needed

Allows the student to investigate, with supervision from a faculty member, a topic of his or her interest at an individualized pace. Credits and projects will be determined jointly by the instructor and the student.

MTH 211 Fundamentals of Elementary Mathematics I

- (4 class hrs/wk, 4 cr) F/W

One of three courses in the mathematics cluster for prospective elementary and middle school teachers. Develops the understanding of basic mathematical concepts necessary for teaching mathematics in grades K–8. Topics include problem solving, whole numbers, algorithms for computation, numeration systems, number theory and fractions. Prerequisite: MTH 095 Intermediate Algebra or equivalent.

MTH 212 Fundamentals of Elementary Mathematics II

- (4 class hrs/wk, 4 credits) W/Sp

One of three courses in the mathematics cluster for prospective elementary and middle school teachers. Develops the understanding of basic mathematical concepts necessary for teaching mathematics in grades K–8. Topics include decimals, percent, ratio and proportion, integers, real numbers, basic statistics and probability. Prerequisite: MTH 211 Fundamentals of Elementary Mathematics I.

MTH 213 Fundamentals of Elementary Mathematics III

- (4 class hrs/wk, 4 credits) Sp

One of three courses in the mathematics cluster for prospective elementary and middle school teachers. Develops the understanding of basic mathematical concepts necessary for teaching mathematics in grades K–8. Covers basic geometry topics including shapes and their properties; symmetry; angle measure; measurement of length, area and volume; congruence and similarity; Pythagorean Theorem; and coordinate geometry. Prerequisite: MTH 095 Intermediate Algebra and MTH 097 Practical Geometry or equivalent.

MTH 231 Elements of Discrete Mathematics

- (4 class hrs/wk, 4 cr) W

The first course in discrete mathematics for mathematics and computer science majors. Topics include elementary logic, mathematical proof, mathematical induction, functions and sequences, basic set theory, matrix algebra, relations and Boolean algebras. Prerequisite: MTH 112 Trigonometry or equivalent. MTH 251 Differential Calculus recommended.

MTH 232 Elements of Discrete Mathematics

- (4 class hrs/wk, 4 cr) Sp

The second course in discrete mathematics for mathematics and computer science majors. Topics include basic matrix linear algebra, combinatorics, graph theory and algorithms. Prerequisite: MTH 231 Elements of Discrete Mathematics.

MTH 241 Calculus for Biological/Management/Social Sciences

- (4 class hrs/wk, 4 cr) F/W/Sp

Introduces calculus as applied to business, the social sciences and life sciences. It uses an intuitive development of the calculus of polynomial, exponential and logarithmic functions, extrema theory and applications. Prerequisite: MTH 111 College Algebra.

MTH 243 Introduction to Statistics

- (4 class hrs/wk, 4 cr) As needed

An introductory statistics course emphasizing interpretation of statistical results. The course focuses on sampling procedures, experimental design, descriptive statistics, and inferential statistical techniques to analyze survey and experimental data from a wide range of fields including health care, biology, psychology, physics and agriculture. Includes basic concepts in graphical

interpretation of one and two variable data, probability, probability distributions (binomial, normal, t-Distribution, and chi-square), confidence intervals for means and proportions, and hypothesis testing. Prerequisite: MTH 111 College Algebra or equivalent.

MTH 245 Math for Biological/Management/Social Sciences

- (4 class hrs/wk, 4 cr) F/W/Sp

A survey course of discrete mathematics for non-physical science majors. Topics include systems of inequalities, linear programming, probability and probability distributions, and an introduction to descriptive statistics. Prerequisite: MTH 111 College Algebra, or equivalent.

MTH 251 Differential Calculus

- (5 class hrs/wk, 5 cr) F/W/Sp/Su

The first course in the calculus sequence for students majoring in mathematics, science and engineering. Limits and derivatives are approached using graphical, numeric, and symbolic methods. Linear approximations, related rates, curve sketching and optimization are among the applications of differentiation covered in this course. Prerequisite: MTH 112 Trigonometry or equivalent.

MTH 252 Integral Calculus

- (5 class hrs/wk, 5 cr) F/W/Sp/Su

The second course in the calculus sequence for students majoring in mathematics, science and engineering. Topics include techniques of integration, numerical integration, improper integrals, applications of integration, and an introduction to differential equations. Prerequisite: MTH 251 Differential Calculus.

MTH 253 Calculus

- (4 class hrs/wk, 4 cr) F/Sp

The third course in the calculus sequence for students majoring in mathematics, science and engineering. Topics include sequences and series of real and complex functions, matrix algebra, linear dependence and independence, eigenvalues and eigenvectors. Prerequisite: MTH 252 Integral Calculus.

MTH 254 Calculus

- (4 class hrs/wk, 4 cr) F/W

The fourth course in the calculus sequence for students majoring in mathematics, science and engineering. Topics include vectors in 2- and 3- space, multivariable functions and partial derivatives, vector functions, directional derivatives, optimization of surfaces, cylindrical and spherical coordinates, multiple integrals and their applications, and an introduction to vector calculus. Prerequisite: MTH 252 Integral Calculus.

MTH 255 Vector Calculus

- (4 class hrs/wk, 4 cr) W

An intermediate treatment of multivariate calculus with a vector approach. Provides the mathematical skills for courses in advanced calculus, fluid mechanics and electromagnetic theory. Prerequisite: MTH 254 Calculus.

MTH 256 Applied Differential Equations

- (4 class hrs/wk, 4 cr) Sp

Beginning course in differential equations for students majoring in mathematics, sciences or engineering. Covers ordinary differential equations, applications, systems of first order differential equations, and Laplace transforms. Prerequisite: MTH 254 Calculus or instructor's approval.

MTH 265 Statistics for Scientists and Engineers

- (4 class hrs/wk, 4 cr) W

Covers probability and inferential statistics applied to scientific and engineering problems. Includes random variables, expectation, sampling, estimation, hypothesis testing, regression, correlation and analysis of variance. Prerequisite: MTH 252 Integral Calculus.

MTH 280 CWE Mathematics

- (6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su

Designed to give students practical experience in supervised employment related to mathematics. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

MTH 299 Mathematics: Special Studies*(1–3 class hrs/wk, 1–3 cr) As needed*

Allows the student to investigate, with supervision from a faculty member, a topic of his or her interest at an individualized pace. Credits and projects will be determined jointly by the instructor and the student.

MUS: MUSIC**MUS 101 Music Fundamentals***➤ (3 class hrs/wk, 3 cr) F/W/Sp*

Includes music reading, basic music theory, study of scales, interval, chord recognition and music analysis.

MUS 105 Introduction to Rock Music*➤ (3 class hrs/wk, 3 cr) As needed*

Examines the relationship between rock music and society. Emphasizes the music and lyrical significance of rock music as contemporary social commentary. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

MUS 161 Music Appreciation*➤ (3 class hrs/wk, 3 cr) F/W/Sp*

Studies music through the elements or language of music, musical forms and the history of music. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

MUS 205 Introduction to Jazz*➤ (3 class hrs/wk, 3 cr) As needed*

Provides a listener's approach to the development of jazz through its various styles and its place in Afro-American and 20th century socio-political history. For the non-music major. Prerequisite: College level reading and writing skills (WR121) are strongly recommended for success in this course.

MUS 280 CWE Music*(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su*

An instructional program designed to give students practical experience in supervised employment related to music. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

NFM: NUTRITION AND FOOD MANAGEMENT**NFM 225 Nutrition***(4 class hrs/wk, 4 cr) F/W/Sp*

Introduces nutrients: their functions, sources, effects of deficiency, and toxicity. Examines current recommendations for Americans and topics of current interest. Includes digestion, metabolism and changing nutrient needs through the life cycle. Provides opportunity to evaluate personal dietary intake for three days. Note: A background in chemistry is recommended.

NU: NURSING ASSISTANT**NU 5.403 Introduction to Nursing***(92 class hours, 4 cr) As needed*

This laboratory class allows students to practice and perform the skills of the nursing assistant before entering the Nursing program. The skills include: vital signs, hygiene measures, comfort measures, special procedures, bedside nursing, mobility measures, safety measures, nutrition measures, elimination measures and restorative care device use.

NU 5.406 Nursing Assistant*(150 hours, 9 cr) F/W/Sp/Su*

Fulfills the Oregon State Board of Nursing requirement. (75 hours of classroom/skills laboratory instruction and 75 hours of clinical experience)

Course includes instruction in basic bedside nursing skills, basic restorative services, mental health and social service needs, personal care

skills and resident rights. Students will learn the knowledge and skills necessary to care for convalescing residents and residents in nursing facilities. Following successful completion of the course, the student may take the National Nurse Aide Assessment Program (NNAAP) examination to be certified as a Nursing Assistant. Prerequisite: Students are urged to have a high school diploma and to be physically able to lift and turn dependent residents, see and hear residents in distress, therapeutically communicate, intervene in stressful situations, make judgements under stress. Students must score at the 31st percentile or higher on the LBCC Computerized Placement Test (CPT) or have completed RD 080 with a "C" or better before entering the program. Show proof of negative TB test within the last nine months and measles immunizations #1 and #2 if born after Jan. 1, 1957. Prior to resident care the student must be deemed "qualified" following a criminal history check. All students will be required to do a fingerprint card prior to Certification from Oregon State Board of Nursing. Cooperating with the drug testing policies of any non-LBCC, clinical teaching site is a condition for continued enrollment in the course.

NUR: NURSING**NUR 101 Nursing I***(16 class hrs/wk, 9 cr) F*

NUR 101 is the first course in the nursing sequence. In this course, beginning nursing students learn core concepts required to perform the professional roles of care provider, communicator, and critical thinker in the context of a health care system. Students begin the socialization process into the role of the nurse. Issues related to the health-illness continuum, communication, health promotion, and patient care management theory are explored within the context of the health care delivery system. This course focuses on assessing the patient and developing a database, as well as beginning to plan, implement, and evaluate a plan of care for patients while respecting the beliefs of individuals, considering variations in concepts of health and illness, and allowing for differences in communication needs. Other content includes the pathophysiology, nursing assessment, nursing implications, and related pharmacology for patients experiencing changes in functional status, infection, basic psychosocial and/or mental health needs. Simulated practice of fundamental nursing care is included. Clinical application of both theory and skills occurs in a hospital setting. Prerequisites: WR121 English Composition, MTH 095 Intermediate Algebra, BI 231 Anatomy and Physiology, BI 232 Anatomy and Physiology, BI 233 Anatomy and Physiology, and admission to the Nursing program.

NUR 102 Nursing II*(16 class hrs/wk, 9 cr) W*

NUR102 is the second course offered in the core nursing sequence of classes. The nursing roles of provider of care, teacher, and member of a profession are explored in meeting the needs of a variety of patients. The initial focus of this course provides the foundation for topics related to nursing care of the acute care patient experiencing physical and psychological changes in body image related to healing and general surgical procedures. Foundational concepts of nursing care include the care of patients with airway disorders, musculoskeletal disorders, metabolic disorders, digestive, and intestinal disorders. Care of the hospitalized child is also integrated into the aforementioned concepts. Clinical application of both theory and skills occurs in the hospital setting. Simulated practice in a multimedia setting is an element of the clinical practicum. Prerequisites: NUR 101 Nursing I, NUR 268A Drug Therapy and Nursing Implications.

NUR 103 Nursing III*(17 class hrs/wk, 9 cr) Sp*

NUR 103 is the third course in the nursing sequence. This course focuses on concepts regarding patients who are experiencing physical and psychological changes as they relate to childbearing, child rearing, cancer, cardiac disease, and immune system and genitourinary system disorders. Content includes exploration of pathophysiology, nursing implications, diagnostic tests, and related pharmacology. The nursing roles of provider of care, teacher, and

member of a profession are explored in meeting the needs of patients in the acute care setting. Simulated practice of fundamental nursing care occurs in the nursing skills lab, and clinical application of both theory and skills occurs in the hospital and community settings. Prerequisites: NUR 101 Nursing I, NUR 102 Nursing II, NUR 268A and NUR 268B Drug Therapy and Nursing Implications.

NUR 201 Nursing IV

(17 class hrs/wk, 9 cr) F

NUR 201 is the fourth course in the nursing sequence. This course focuses on comprehensive nursing interventions to promote positive patient responses to health and illness issues. Content includes pathophysiology, nursing assessment, nursing implications of related diagnostic tests, and pharmacology for patients with fluid management disorders, chronic/degenerative neurological disorders, cardiac disorders, hematology problems, cancer, elder care, and mental health disorders. Students will utilize the nursing process to promote positive outcomes in patients experiencing complex physiologic and psychosocial alterations in those body systems. Emphasis is placed on the roles of the nurse as care giver, communicator, educator, and critical thinker. Issues surrounding chronicity and nursing care of high-risk populations in the community, including issues related to the care giver and patient are also addressed. Emphasis is also placed on critical thinking skills and the nursing process as it relates to patient care in the hospital setting. Simulated practice of nursing skills occurs in the nursing skills lab. Clinical application of both theory and skills occurs in the hospital and community settings. Prerequisites: NUR 101, 102 and 103 Nursing I, II and III; NUR 268A, 268B, and 268C Drug Therapy and Nursing Implications, or completion of all advanced placement requirements.

NUR 202 Nursing V

(17 class hrs/wk, 9 cr) W

NUR 202 is the fifth course in the nursing sequence. The focus is on comprehensive nursing interventions to promote positive patient responses to health and illness issues. Critical thinking will be promoted by assisting the student to interrelate pathophysiology, nursing assessment, nursing implications of related diagnostic tests, and pharmacology for patients with renal disorders, hepatic and exocrine disorders, burns, acute complex respiratory disorders, neurological trauma, shock, trauma, and multisystem disorders. Students will utilize the nursing process to promote positive outcomes in patients experiencing complex physiologic and psychosocial alterations in those body systems. Emphasis is on critical thinking and the nursing process as they relate to patient care in the hospital setting. Simulated practice of nursing skills occurs in the multimedia nursing skills lab. Clinical application of both theory and skills occurs in the hospital and community setting. Prerequisites: NUR 101, 102, 103, and 201 Nursing I, II, III and IV; NUR 268A, 268B, 268C Drug Therapy and Nursing Implications A, B, and C; and WR 227 Technical Writing or completion of all advanced placement requirements.

NUR 203 Nursing VI

(15 class hrs/wk, 7 cr) Sp

Nursing 203 is the final and sixth course in the core nursing sequence. The focus of this course is on complex and comprehensive patient care. Case studies, patient scenarios, and student presentations are the dominating components of this course. The primary concerns developed in this course include the management of complicated clinical problems where pathological factors interplay in patient care. Supervisory skills and case management proficiencies are applied to small groups of hospitalized patients. A registered nurse preceptor oversees the clinical care given by the student. This nurse directly supervises the student under the guidance of the nursing faculty liaison within the scope of practice of the entry-level nurse. The student will practice leadership in the delegation, patient assignment, and evaluation of health team members from a variety of backgrounds. Clinical application of theory and skills occurs in the acute and sub-acute hospital settings. Prerequisites: NUR 101, NUR 102, NUR 103, NUR 201 and NUR 202 Nursing I, II, III, IV and V; NUR 268A, NUR 268B and NUR 268C Drug Therapy and Nursing Implications, and WR 227 Technical Writing, or completion of all advanced placement requirements.

NUR 222 Contemporary Nursing

(1 class hr/wk, 1 cr) Sp

Introduces and discusses ethical, legal and professional responsibilities in relation to employment, licensure, professional organizations and changing trends in health care. Includes job search skills. Prerequisites: NUR 101, NUR 102, NUR 103, NUR 201, NUR 202, and NUR 203, Nursing I, II, III, IV V, and VI (current enrollment acceptable).

NUR 268A Drug Therapy and Nursing Implications

(1 class hr/wk, 1 cr) F

This one credit course focuses on nursing management and critical thinking regarding medication therapy. Introductory topics are pharmacokinetics, drug interactions and nursing implications. These topics are then applied to the following drug groups: analgesics, opiates, nonopioids, NSAIDs, aspirin, drugs for bone disorders, joint disorders, adrenergics, cholinergics, sedatives, hypnotics, and infectious disease agents. Drug lists for each major category of drugs will be used to direct learning for drug action, safe dosage, side effects, drug interactions, adverse reactions, and nursing implications. Prerequisite: NUR 101 Nursing I (current enrollment acceptable).

NUR 268B Drug Therapy and Nursing Implications

(1 class hr/wk, 1 cr) W

This one credit course builds on the knowledge acquired in NUR 268A and continues to focus on nursing management and critical thinking with regards to medication therapy. Topics included in this unit of study are pharmacokinetics, pharmacodynamics, interactions of the drug groups used in the treatment of disorders found in the following body systems: respiratory, endocrine, gastrointestinal, body fluids and electrolytes. This course will also address drugs that are used specific to the following disorders: angina, heart failure, hypertension, diabetes, birth control, and impotence. Drug lists for each major category of drugs will be used to direct learning for drug action, safe dosage, side effects, drug interactions, adverse reactions and nursing implications. Prerequisite: NUR 268A Drug Therapy and Nursing Implications and NUR 102 Nursing II (current enrollment acceptable).

NUR 268C Drug Therapy and Nursing Implications

(1 class hr/wk, 1 cr) F

This one credit course focuses on nursing management and critical thinking pertaining to medication therapy as well as drug therapy related to pediatric patients. Drug classifications and prototype drugs will be studied. Topics will focus on therapeutic uses, drug actions, adverse reactions, drug interactions, and nursing implications for the following drug groups: anti-dysrhythmics, anticancer, anticoagulants, immunosuppressants, neurogenerative/neurologic, psychotherapeutic, women's health, anti-seizure drugs, anti-anginals, lipid-lowering, antiplatelet, antithrombotic drugs, and antimicrobials specific to the GU system. Prerequisites: NUR 268A and NUR 268B Drug Therapy and Nursing Implications, NUR 101, NUR 102, and NUR 103 Nursing I, II, and III (current enrollment acceptable).

NUR 280S Service-Learning Nursing

(3-42 class hours/wk, 1-14 cr) F/W/S/Su

An instructional program, using contextual learning, designed to promote critical thinking, citizenship and civic responsibility as students work with community partners in addressing real community needs. Students identify learning objectives, work a specified number of hours during the term, and engage in faculty-led guided reflection activities. Prerequisites: Students must have taken or must be currently taking appropriate course or courses in their major field of study. They must also have their service-learning approved by the appropriate faculty coordinator.

OA: BUSINESS TECHNOLOGY

OA 121 Keyboarding

(5 class hrs/wk, 1-2 cr) F/W/Sp/Su

Introduces the correct reaches, posture and techniques for touch keying on the alphabetic and top-row number keys to prevent computer-related injuries. Designed for those with no previous keyboarding instruction or those needing a review of touch techniques.

OA 122 Formatting*(5 class hrs/wk, 1–2 cr) F/W/Sp/Su*

Correctly format business memos, letters, tables and reports using word processing software. Prerequisite: OA 121 Keyboarding or touch typing at 25 wpm minimum.

OA 123A Typing Skillbuilding*(5 class hrs/wk, 2 cr) F/W/Sp/Su*

Diagnose keying deficiencies and practice prescribed drills leading to improved speed and accuracy while keying by touch. Prerequisite: OA 121 Keyboarding or equivalent experience.

OA 123B Advanced Typing Skillbuilding*(5 class hrs/wk, 2 cr) F/W/Sp/Su*

Continue diagnosing keying deficiencies and practicing prescribed drills leading to improved speed and accuracy while keying by touch. Prerequisite: OA 123A Typing Skillbuilding.

OA 124 Typing: Speed and Accuracy Development*(5 class hrs/wk, 3 cr) F/W/Sp*

Student will identify speed and accuracy deficiencies and practice prescribed corrective drills to improve keying abilities. Prerequisite: OA 121 Keyboarding or equivalent.

OA 201 Word Processing for Business: WordPerfect*(5 class hrs/wk, 1–3 cr) F/W/Sp/Su*

Use a variety of WordPerfect features to produce, format, edit and enhance business documents. Prerequisite: OA 121 Keyboarding or touch typing at 25 wpm minimum. Corequisite: CIS 1250 Introduction to Windows or equivalent.

OA 202 Word Processing for Business: MS Word*(5 class hrs/wk, 1–3 credits) F/W/Sp/Su*

Use a variety of MS Word features to produce, format, edit and enhance business documents. Prerequisites: OA 121 Keyboarding or touch typing at 25 wpm minimum. Corequisite: CIS 1250 Introduction to Windows or equivalent.

OA 203 Advanced Word Processing*(5 class hrs/wk, 3 cr) F/Sp*

Explore and master advanced functions of the popular word processing packages by applying concepts and software functionality to job-related projects. Prerequisite: OA 201 Word Processing for Business: WordPerfect or OA 202 Word Processing for Business: MS Word.

OA 2.500 Business Orientation*(1 class hr/wk, 1 cr) F*

Students will learn about resources and facilities at LBCC, practice strategic workplace “soft” skills, and gain additional career information in chosen field of study.

OA 2.505 Voice Recognition*(5 class hrs/wk, 2 cr) W/Sp*

Students will use speech recognition software and voice commands as tools to control computer operations and create professional documents. Prerequisite: CIS 1250 Introduction to Windows or equivalent.

OA 2.513 Numeric Keyboarding: Speed & Accuracy*(4 class hrs/wk, 1 cr) F/W/Sp/Su*

Students will input by touch 10-key and top-row data numeric accurately and efficiently. Students will learn and demonstrate techniques to maintain and improve health, safety, and productivity as a computer user. Prerequisite: OA 121 Keyboarding or touch typing at 25 wpm.

OA 2.513P Numeric Skillbuilding: Production*(4 class hrs/wk, 1 cr) F/W/Sp/Su*

Student will input by touch 10-key and top-row numeric data from a variety of source documents while continuing to build speed and accuracy on the computer keypad. Workstation health and safety will be emphasized. Prerequisite: OA 2.513 Numeric Keyboarding: Speed and Accuracy.

OA 2.515 Business Math*(3–4 class hrs/wk, 1–2 cr) F/W/Sp/Su*

Reviews basic math concepts and utilizes mathematical operations to solve practical business application problems. Prerequisite: MTH 020 Basic Mathematics or placement test score.

OA 2.515M Business Math: Medical I*(2 class hrs/wk, 1 cr) F/W/Sp*

Review and apply basic math skills as used in health care settings. Five-week class. Prerequisite: MTH 020 Basic Mathematics or placement test score.

OA 2.515MA Business Math: Medical II*(2 class hrs/wk, 1 cr) F/W/Sp*

Learn medical application of basic math skills for advanced clinical procedures. Five-week course. Prerequisite: OA 2.515M Business Math Medical I and MTH 060 Introduction to Algebra.

OA 2.524 Medical Transcription I*(5 class hrs/wk, 1–3 cr) F/W/Sp/Su*

Apply previously learned transcription skills to produce radiology, pathology, and history and physical reports. Prerequisites: OA 2.527 Applied Document Processing; MO 5.630 Medical Terminology and Body Systems I; OA 2.656M Medical Information Processing.

OA 2.527 Applied Document Processing*(5 class hrs/wk, 3 cr) F/W/Sp/Su*

Learn to apply editing, word processing, formatting and transcribing skills to produce a variety of business documents. Prerequisites: OA 2.588 Editing Skills for Information Processing with a minimum of a “C” grade; OA 122 Formatting; and OA 201 Word Processing for Business: WordPerfect or OA 202 Word Processing for Business: MS Word.

OA 2.529 Applied Medical Transcription*(10 class hrs/wk, 1–5 cr) F/W/Sp/Su*

Apply previously learned transcription skills to produce radiology, pathology, and history and physical operations, discharge summary, and autopsy reports. Prerequisites: MO 5.631 Medical Terminology and Body Systems II; OA 2.527 Applied Document Processing; OA 2.656M Medical Information Processing.

OA 2.544 Medical Insurance Procedures*(4 class hrs/wk, 4 cr) F/W*

Students will learn major insurance protocols and how to submit and process claims for each.

OA 2.551 Communications in Business*(6 class hrs/wk, 4 cr) F/Sp*

Effectively communicate in both oral and written forms in a variety of business situations and work collaboratively in teams to problem solve challenging communication issues. Prerequisite: OA 2.588 Editing Skills for Information Processing with a minimum of a “C” grade; and OA 122 Formatting. Corequisite: OA 201 Word Processing for Business: WordPerfect or OA 202 Word Processing for Business: MS Word.

OA 2.551M Communications in Business: Medical*(3 class hrs/wk 3 cr) W*

Students will effectively communicate both in oral and written forms in a variety of medical situations and work collaboratively in teams to problem solve challenging communication issues. Prerequisites: OA 2.588 Editing Skills for Information Processing, OA 202 Word Processing for Business: MS Word

OA 2.579 Integrated Software Applications*(4 class hrs/wk, 3 cr) Sp*

Examines procedures related to the integration of functions between various MS office software, office information and decision support systems. Utilize communication and thinking skills in using resources, working with information and understanding systems and technology. Prerequisites: CIS 125D Introduction to Databases; CIS 125O Introduction to Windows; CIS 125S Introduction to Spreadsheets; CIS 125P Introduction to Presentations; and OA 202 Word Processing for Business: MS Word.

OA 2.588 Editing Skills for Information Processing*(3 class hrs/wk, 3 cr) F/W/Sp*

Reviews basic grammar fundamentals with an emphasis on proofreading and editing skills. Prerequisite: WR 090 The Write Course or writing CPT score of 40 or higher.

OA 2.590 Readings and Conference: Administrative Support*(2–10 class hrs/wk, 1–5 cr) F/W/Sp/Su*

Student will pursue an individualized instructional plan in an area of particular interest or where additional curriculum expertise is needed. Note: Number of credits is determined by the amount of time needed and spent. Prerequisite: Instructor's approval.

OA 2.612 CWE Externship Seminar*(1 class hr/wk, 1 cr) F/W/Sp*

Students and instructor will debrief and discuss CWE and externship training experiences. Must be currently enrolled in a CWE or externship class.

OA 2.613 CWE (Cooperative Work Experience) for Office Professionals*(6–42 class hrs/wk, 1–14 cr) F/W/Sp/Su*

Student will obtain relevant employment opportunity in chosen field of study to develop and refine a broad range of employability skills. Thirty hours of work equals one college credit. Prerequisite: GPA of 2.0 and approval of supervising faculty.

OA 2.616 Job Success Skills*(1 class hr/wk, 1 cr) Sp*

Learn to effectively communicate employability skills to a prospective employer. Includes employability traits, job research techniques, resume writing, job applications, employment tests, cover letters, mock interviews, and professional dress and grooming.

OA 2.619 Electronic Health Records*(2 class hrs/wk, 1 cr) W/Sp*

Medical office professional will learn the basics of electronic medical records using a generic electronic health records program supplemented by the MedWare Chart EHR software.

OA 2.645 Administrative Procedures I*(6 class hrs/wk 4cr) Sp*

Students will incorporate general office procedures, team-building activities, and ethical decision-making processes needed in a diverse, modern office environment. Prerequisites: CIS 1250 Introduction to Windows; OA 2.588 Editing Skills for Information Processing with a minimum of a "C" grade; OA 201 Word Processing for Business: WordPerfect or OA 202 Word Processing for Business: MS Word.

OA 2.646 Project Management*(6 class hrs/wk, 4 cr) W*

Students will participate in dynamic business simulations, using a variety of traditional office procedures, communication processes, and team skills. Prerequisite: OA 2.645 Administrative Procedures I or instructor's approval.

OA 2.650 Management for the Office Professional*(3 class hrs/wk, 3 cr) F*

Student will discover and refine administrative office management skills needed by present and future office professionals. Prerequisite: OA 2.645 Administrative Procedures I.

OA 2.652 Filing*(4 class hrs/wk, 1 cr) F/W/Sp/Su*

Learn and apply ARMA rules for filing paper records for a variety of filing systems.

OA 2.656M Medical Information Processing*(4 class hrs/wk, 3 cr) W/Sp*

Prepares student to develop, practice and apply editing and transcription skills to produce accurate medical documents for use in a health care setting. Prerequisites: MO 5.630 Medical Terminology and Body Systems I; OA 122 Formatting or OA 202 Word Processing for Business: MS Word; and OA 2.588 Editing Skills for Information Processing with a minimum "C" grade.

OA 2.670 Medical Office Procedures*(6 class hrs/wk, 4 cr) F/Sp*

Students will develop the skills needed to know and perform the clerical and administrative duties and procedures of a medical office. Prerequisites: MO 5.630 Medical Terminology and Body Systems I; OA 2.565M Medical Information Processing; OA 2.588 Editing Skills for Information Processing with a minimum grade of "C"; OA 2.671 Medical Law and Ethics; OA 201 Word Processing for Business: WordPerfect or OA 202 Word Processing for Business: MS Word.

OA 2.671 Medical Law and Ethics*(3 class hrs/wk, 3 cr) W*

Students learn an ethical framework for evaluating themselves and their environment and the legal requirements assigned to them.

OA 2.672 Basic Coding*(3 class hrs/wk, 3 cr) W/Sp*

Students will learn to utilize ICD-9 and CPT manuals to translate medical information into billable financial data. Prerequisite: MO 5.630 Medical Terminology and Body Systems I; OA 2.544 Medical Insurance Procedures.

OA 2.675 Legal Practices, Procedures and Terminology I*(4 class hrs/wk, 3 cr) W*

Students examine procedures required for administrative support in legal or judicial office setting. Legal document formatting and legal terminology are introduced. Focus on required work ethic and privacy concerns in legal setting and examine Oregon Rules and Civil Procedures in relation to various areas of civil criminal law. Prerequisite: OA 122 Formatting and OA 201 Word Processing for Business: WordPerfect or OA 202 Word Processing for Business: MS Word. Corequisite: OA 2.588 Editing Skills for Information Processing.

OA 2.676 Legal Practices, Procedures and Terminology II*(4 class hrs/wk, 3 cr) Sp*

Continue examination of procedures required for administrative support in legal career areas; legal document formatting; legal terminology; required work ethic and privacy concerns in legal settings; and examination of Oregon Rules and Civil Procedures. Prerequisite: OA 2.675 Legal Practices, Procedures and Terminology I.

OA 2.679 Basic Medical Coding*(3 class hrs/wk, 1 cr) F/Sp*

Teaches basic concepts of medical coding systems including: ICD-9 coding systems; CPT-4 codes for the insurance claim forms (HCFA 1500/UB92 forms); and physician reports for outpatient and inpatient services.

OA 2.680 Advanced Coding*(3 class hrs/wk, 3 cr) F/Sp*

Students learn to analyze medical coding information to extrapolate financial data that will provide the best opportunity for reimbursement. Prerequisite: OA 2.672 Basic Coding; MO 5.631 Medical Terminology and Body Systems I.

OA 2.681 Coding in the Hospital Environment*(3 class hrs/wk, 3 cr) F/Sp*

Student will learn to support the hospital reimbursement mechanism and utilizes hospital coding resources. Prerequisite: OA 2.544 Medical Insurance Procedures, OA 2.672 Basic Coding or commensurate practical experience at the instructor's discretion. Corequisite: OA 2.680 Advanced Coding.

OA 2.682 Desktop Publishing*(4 class hrs/wk, 3 cr) W*

Explore and master basic functions of popular Web designing and publishing software packages by applying concepts and software functionality to job-related projects. Design and create attractive, effective materials for today's business needs such as letterheads, flyers, newsletters, advertisements, brochures, online publications and Web pages. Prerequisite: OA 201 Word Processing for Business: WordPerfect or OA 202 Word Processing for Business: MS Word.

OA 2.683 Computerized Records Management*(5 class hrs/wk, 3 cr) W*

Perform manual filing using ARMA simplified filing rules and electronic filing using MS Access database and develop fundamentals of managing the records life cycle. Prerequisites: OA 201 Word Processing for Business: WordPerfect or OA 202 Word Processing for Business: MS Word and OA 2.652 Filing.

OA 2.690 Preparation for IAAP Certifying Exam*(1 class hr/wk, 1 cr) F/W/Sp*

Student will review theoretical and technical skills needed to successfully pass the national exams administered by the International Association of Administrative Professionals and take skills tests sponsored by the Office Professional Assessment and Certification organization. Prerequisite: Near completion of two-year Administrative Professional Program.

OA 2.691 Preparation for Certifying Exam (Administrative)*(1 class hrs/wk, 1 cr) W*

Medical assistant students review administrative competencies to prepare for the national certification exam administered by the American Association of Medical Assistants. Corequisite: Must be enrolled in MO 5.640 Administrative Externship of the Medical Assistant Program.

OA 2.925 Basic Microsoft Office Skills*(10-15 class hrs/wk, 1-3 cr) As needed*

Covers some of the basics of Windows and Microsoft Office.

OST: Occupational Skills Training**OST 202 Occupational Skills Training Seminar***(1 class hr/wk, 1 cr) F/W/Sp/Su*

The OST seminar is a course designed to provide opportunities for students involved in an OST course to share training-related experience with their OST coordinator.

OST 280 Occupational Skills Training*(6-42 class hrs/wk, 2-14 cr) F/W/Sp/Su*

A site-based training program designed to give students experience in a supervised training position related to their occupational goal. Students identify learning outcomes, train a specified number of hours during the term and participate in related seminar activities. Credits earned are based upon completion of identified outcomes and the number of hours spent in training.

PE: PHYSICAL EDUCATION**PE 131 Introduction to Health and Physical Education***(3 class hrs/wk, 3 cr) F/W*

Surveys professional opportunities in the area of health and physical education. Provides a basic philosophy of physical education and health as well as objectives. Qualifications of a variety of related occupations are discussed. Required for all physical education and health majors.

PE 180B Advanced Basketball: Women*(3 class hrs/wk, 1 cr) F/Sp*

Provides a detailed presentation of individual basketball skills and on-court strategy for team play. Prerequisite: PE 180D Basketball Conditioning: Women and instructor's approval.

PE 180C Basketball Skills: Women*(3 class hrs/wk, 1 cr) Sp*

Continued emphasis on conditioning for overall efficiency of basketball skills. Provides a detailed presentation of basketball skills and a plan for overall improvement. Prerequisite: PE 180D Basketball Conditioning: Women and instructor's approval.

PE 180D Basketball Conditioning: Women*(10 class hrs/wk, 1 cr) F*

Emphasis is on development of strength conditioning, aerobic fitness and agility drills needed in improving basketball skills. Three-week class.

PE 180G Advanced Volleyball: Women*(3 class hrs/wk, 1 cr) W/Sp*

Emphasizes the development of skills for team play. Prerequisite: Instructor's approval.

PE 180H Volleyball Conditioning: Women*(10 class hrs/wk, 1 cr) F*

Emphasis on development of strength conditioning, aerobic fitness, agility and plyometric drills needed in improving volleyball skills. Three-week course. Prerequisite: Instructor's approval.

PE 1851 Beginning Volleyball*(3 class hrs/wk, 1 cr) F/W/Sp*

Introduces the skills and techniques basic to volleyball, including different offensive and defensive forms of team play, strategies, etiquette and rules of the game.

PE 1851 Intermediate Volleyball*(3 class hrs/wk, 1 cr) F/W/Sp*

Emphasizes increasing a player's abilities within a team situation. Designed for the player who has mastered beginning volleyball skills.

PE 1851 Advanced Volleyball*(3 class hrs/wk, 1 cr) W/Sp*

Increases skill levels and mental strategies, with emphasis on increasing a player's abilities within a team situation.

PE 1852 Walk for Health*(3 class hrs/wk, 1 cr) F/W/Sp*

Emphasizes the health and fitness benefits of a regular walking program, including strengthening and stretching activities. Instruction focuses on fitness walking and mechanics, physiological and psychological effects of walking, injury prevention, equipment and long-term exercise commitment.

PE 1853 Cardio Kick Boxing*(3 class hrs/wk, 1 cr) F/W/Sp*

Provides the students with the techniques of kick boxing. This includes benefits, safety precautions, and specific fitness principles.

PE 1854 Advanced Weight Training*(3 class hrs/wk, 1 cr) F/W/Sp*

Provides instruction and practices in conditioning programs specific to sports participation.

PE 1855 Relaxation and Massage*(3 class hrs/wk, 1 cr) Intermittently*

Designed to provide the student with the knowledge and skills needed to incorporate and practice a variety of techniques of relaxation and massage. Massage and relaxation are two basic and effective ways of attaining and maintaining good health and reducing stress.

PE 1856 Ski Conditioning*(8 class hrs/wk, 1 cr) Intermittently*

Improves personal fitness for downhill and cross-country skiing specifically.

PE 1856 Skiing/Snowboarding*(8 class hrs/wk, 1 cr) Intermittently*

Provides opportunity for students to have on-slope instruction at local ski facility by ski instructors. Note: Eight-week class.

PE 1857 Intermediate Basketball*(3 class hrs/wk, 1 cr) F/W/Sp*

Emphasizes basketball conditioning, skill development and game situations. Features game format.

PE 1858 Modern Dance*(3 class hrs/wk, 1 cr) Intermittently*

This class will explore: gaining strength and stability in core support, moving from center, dynamic alignment, three dimensional use of the spine and torso, experiments in gravity, breath, weight and floor work. Special attention will be given to spatial awareness, rhythm & musicality and the exploring the body's expressive potential.

PE 185A Circuit Weight Training*(3 class hrs/wk, 1 cr) F/W/Sp*

Provides instruction and participation in circuit training routines designed to improve muscular strength, muscular endurance, flexibility and body composition.

PE 185E Beginning Ballet*(3 class hrs/wk, 1 cr) F/W/Sp*

Provides an exercise program choreographed to music and designed to study the basic elements of dance as well as mechanics of ballet movements, alignment, balance and terminology.

PE 185E Intermediate Ballet*(3 class hrs/wk, 1 cr) F/W/Sp*

Provides an exercise program choreographed to music and designed to study the intermediate elements of dance as well as mechanics of ballet movements, alignment, balance and terminology. Prerequisite: One year of beginning ballet.

PE 185F Bowling*(3 class hrs/wk, 1 cr) F/W/Sp*

Students will increase proficiency in bowling skills and techniques. Rules and courtesies of the game as well as social and recreational values to the student are stressed.

PE 185G Body Conditioning*(3 class hrs/wk, 1 cr) F/W/Sp*

Provides instruction and practice in exercises that condition the body. Techniques taught for the use of free and fixed weights, and aerobic equipment. Flexibility, strength and physical endurance emphasized.

PE 185GS Beginning Soccer*(3 class hrs/wk, 1 cr) Intermittently*

Provides basic skills, rules and strategies for soccer. Includes dribbling, kicking, trapping, heading, throw-in, tackling, shooting, goalie play, corner kicks, penalty kicks, soccer formations, offensive and defensive play.

PE 185H Body Toning*(3 class hrs/wk, 1 cr) Intermittently*

Provides instruction to develop total body tone, including strengthening and firming of stomach, legs, hips, thighs, arms and upper body. Instructor will lead floor exercises and hand weight routines.

PE 185J Beginning Aerobic Dance*(3 class hrs/wk, 1 cr) F/W/Sp*

Provides an exercise program choreographed to music and designed to tone, trim and firm all body muscle groups as it strengthens and conditions the cardiovascular system.

PE 185J Intermediate Aerobic Dance*(3 class hrs/wk, 1 cr) F/W/Sp*

Provides an exercise program choreographed to music and designed to tone, trim and firm all body muscle groups as it strengthens and conditions the cardiovascular system.

PE 185K Beginning Step Aerobics*(3 class hrs/wk, 1 cr) F/W/Sp*

Introduces students to stepping techniques, including proper and safe movement on and off the bench. Students increase their skill level to enter step classes offered at any level. Students also build on all stepping techniques, including "adding on" to patterns and transitioning into new combinations.

PE 185K Intermediate Step Aerobics*(3 class hrs/wk, 1 cr) F/W/Sp*

Designed to meet the needs of experienced step aerobic participants. Students learn to execute more advanced combinations, plus improve their fitness level by learning power moves designed to increase the intensity level of their workout.

PE 185L Yoga*(3 class hrs/wk, 1 Cr) Intermittently*

A beginning level class where students learn basic yoga poses and are given options so that they can work at their own level. Breathing, stretching and relaxation are focused on in class. Benefits include greater flexibility and strength and reduced stress. Classes end with five minutes of deep relaxation.

PE 185L Yoga Strength*(3 class hrs/wk, 1 cr) Intermittently*

This class combines the benefits of yoga with strength training. Sets of repetitions with weights are performed throughout the class to tone and strengthen all major muscle groups of the body. This challenging class improves flexibility and leaves participants enjoying the positive, calming effects of yoga and the strengthening, toning benefits of weight training.

PE 185L Restorative Yoga*(3 class hrs/wk, 1 cr) Intermittently*

In this class, students learn deep relaxation and renewal techniques with the use of props. It will focus mainly on rest and relaxation but will also include basic yoga poses, breathing and stretching. Students will benefit from increased flexibility, greater body awareness, and reduced feelings of stress. This class is especially helpful for students taking challenging classes or those with stressful jobs or lives.

PE 185M Beginning Golf*(6 class hrs/wk, 1 cr) F/Sp*

Introduces the mental and physical needs involved in golf, including grip, stance, swing techniques, rules, strategy and etiquette. Note: Five-week class.

PE 185M Intermediate Golf*(6 class hrs/wk, 1 cr) F/Sp*

Provides a more detailed presentation of golf techniques and strategy to improve and correct basic swing errors. Prerequisite: PE 185M Beginning Golf recommended or intermediate skill. Note: Five-week class.

PE 185M Advanced Golf*(6 class hrs/wk, 1 cr) Intermittently*

Provides a detailed presentation of golf technique and strategy to improve and correct basic swing errors. Also includes on-course play. Prerequisite: PE 185M Beginning Golf. Note: Five-week class.

PE 185N Pilates*(3 class hrs/wk, 1 cr) F/W/Sp*

Provides a non-impact, invigorating approach to physical conditioning and mind/body awareness.

PE 185P Jogging*(3 class hrs/wk, 1 cr) F/W/Sp*

Emphasizes the health and fitness benefits of a regular jogging program, including strengthening and stretching activities. Instruction focuses on mechanics of jogging, physiological and psychological effects of jogging, injury prevention, equipment and long-term exercise commitment.

PE 185PA/PB Beginning/Intermediate Personal Defense*(3 class hrs/wk, 2 cr) F/W/Sp*

This course provides expertise in the strategy of self-defense. The class will teach various self-defense drills, including exertion training. It is designed to teach realistic offensive and defensive counter measures while making use of each individual's unique abilities. The skills taught are simple, effective and proven. The classroom portion includes the study of various topics, including posttraumatic stress disorder (PTSD), the role of a professional witness, tactical communication, profiling and stalking. State statutes, guidelines and procedures are also reviewed. The main purpose of the course is to build confidence and competence when dealing with a violent encounter.

PE 185Q Beginning Karate*(3 class hrs/wk, 1 cr) F/W/Sp*

Introduces the student to the American Kenpo Karate System. Includes basic such as blocking, striking and kicking. Self Defense movements and katas (forms) will also be covered. Emphasizes proper warm-up, calisthenics and stretching to establish and maintain good body condition.

PE 185Q Intermediate Karate*(3 class hrs/wk, 1 cr) F/W/Sp*

Focuses training in the American Kenpo Karate System and includes continued development of basics, higher level katas (forms) and the enhancement and development of self defense techniques. Emphasizes proper warm-up, calisthenics and stretching to establish and maintain good body condition.

PE 185Q Freestyle Karate*(3 class hrs/wk, 1 cr) Intermittently*

A course designed to deal with freestyle techniques of the martial arts including several different styles and philosophies. Prerequisite: PE 185Q Beginning Karate.

PE 185R Hip Hop Aerobic Dance*(3 class hrs/wk, 1 cr) Intermittently*

An introductory class that utilizes elements of Hip-Hop, jazz dance and other contemporary dance forms. It is a fun, high-energy class. Students should be in good physical condition without chronic injuries.

PE 185S Beginning SCUBA*(4 class hrs/wk, 2 cr) Intermittently*

Provides instruction in the use of self-contained underwater breathing apparatus (SCUBA). Includes six academic (classroom) modules, six confined water (pool) modules and open-water dives to certify students as a PADI Open Water Scuba Diver. Note: Eight-week class.

PE 185S Advanced Open Water SCUBA*(4 class hrs/wk, 1 cr) Intermittently*

Provides additional supervised dives developing new SCUBA skills in the areas of night, deep, navigation, search and recovery and naturalist diving. Prerequisite: PADI open water or equivalent.

PE 185T Flag Football*(4 class hrs/wk, 1 cr) Intermittently*

Emphasizes playing flag football for fun and fitness. Instruction focuses on key points of the game, including safety, equipment, rules, strategy, conditioning, injury prevention, team leadership, as well as development of stance, blocking, passing, catching, flag tackling and kicking skills.

PE 185U Sand Volleyball*(4 class hrs/wk, 1 cr) Sp*

Introduces skills and techniques to basic and intermediate sand volleyball, including different offensive and defensive formats of team play, strategies, and etiquette of the game.

PE 185V Ultimate Frisbee*(3 class hrs/wk, 1 cr) F/Sp*

Introduces the skills and techniques basic to ultimate frisbee, including offensive and defensive play, strategies, etiquette and rules of the game.

PE 185X Cardio Core Conditioning*(3 class hrs/wk, 1 cr) Intermittently*

Designed to improve daily functioning, this class integrates rhythmic cardiovascular and resistance exercises with core conditioning techniques. Students develop deep muscles within the torso to improve stability, mobility, strength and endurance. Steps, hand weights and elastic bands are utilized to maximize exercise benefits. This class format is suitable for students of various fitness levels.

PE 185Y Beginning Tennis*(4 class hrs/wk, 1 cr) F/Sp*

An elective course for the novice or beginning student that will provide instruction, playing experience and knowledge of the basic stroke fundamentals of ground strokes, volleys, lob, serve and overhead smash. Playing rules, scoring, court etiquette, conditioning, equipment and playing strategy for singles and doubles will be discussed.

PE 185Y Intermediate Tennis*(4 class hrs/wk, 1 cr) F/Sp*

Covers advanced tennis strategies and skills. Prerequisites: Intermediate skill recommended or beginning tennis suggested.

PE 185Y Advanced Tennis*(4 class hrs/wk, 1 cr) Sp*

Prepares students for competition, emphasizing development of skills for competitive play. Prerequisites: Intermediate skill recommended or beginning tennis suggested.

PE 190A Baseball Conditioning*(10 class hrs/wk, 1 cr) Sp*

Emphasizes physical conditioning that develops strength and agility for better efficiency in baseball skills. Team concepts are taught through offensive and defensive strategies to improve team play. Three-week course. Prerequisite: PE 190C Beginning Baseball and instructor's approval.

PE 190B Baseball Skills: Hitting and Pitching*(3 class hrs/wk, 1 cr) W*

Enables student to refine basic baseball skills in hitting, pitching and catching. Provides instruction and practice in team offensive hitting concepts and pitching philosophies. Prerequisite: PE 190C Beginning Baseball and instructor's approval.

PE 190C Beginning Baseball*(10 class hrs/wk, 1 cr) F*

Introduces fundamental baseball skills. Some aerobic conditioning skills are used to develop general stamina. Learning is enhanced through scrimmage format. Three-week class.

PE 190D Advanced Baseball*(3 class hrs/wk, 1 cr) Intermittently*

Helps develop the advanced student in the game of baseball. Individual and team concepts are taught to ensure a high level of play from its participants. Prerequisite: Beginning baseball and instructor's approval.

PE 190H Advanced Basketball: Men*(3 class hrs/wk, 1 cr) F/Sp*

Provides a detailed presentation of individual basketball skills and on-court strategy for team play. Prerequisite: PE 190J Basketball Conditioning: Men, and instructor's approval.

PE 190J Basketball Conditioning*(10 class hrs/wk, 1 cr) F*

Emphasis is on development of strength conditioning, aerobic fitness and agility drills needed in improving basketball skills. Three-week course.

PE 190K Basketball Skills: Men*(3 class hrs/wk, 1 cr) F*

Continued emphasis on conditioning for overall efficiency of basketball skills. Provides a detailed presentation of basketball skills and a plan for overall improvement. Prerequisite: PE 190J Basketball Conditioning: Men, and instructor's approval.

PE 194K Defensive Tactics*(3 class hrs/wk, 2 cr) F/W/Sp*

This course is designed to improve defensive tactics applications, including control holds, focused blows and survival mindset. The classroom portion deals with understanding state and federal statutes in self-defense and use of force cases. Aerobic and anaerobic drills are taught to improve physical ability, mental focus and practical self-defense. The physical testing is challenging and created to best utilize each individual's unique abilities and goals. Some of the training is based on Department Public Safety Standards Training (DPSST) physical standards, National Tactical Officers Association (NTOA) standards and Counterstrikes International (CSI) standards.

PE 231 Lifetime Health and Fitness*(3 class hrs/wk, 3 cr) F/W/Sp/Su*

Evaluates selected areas of the student's present health and fitness level. Provides information on each of the seven wellness dimensions as they relate to physical fitness, back care, heart health, stress management, nutrition, weight management, behavioral change, and lifestyle choices. Considers work-life balance and self-responsibility. Shows the student how to enter the work site as a fit and healthy individual and suggests ways to maintain that level of health.

PE 232 Backpacking: Map and Compass Skills*(3 class hrs/wk, 3 cr) Sp*

Prepares the individual for safe, challenging and enjoyable wilderness trips. Emphasizes physical conditioning, equipment, clothing, food, safety and the use of map and compass.

PE 270 Sport Psychology*(3 class hrs/wk, 3 cr) Intermittently*

Students will be introduced to mental, physical, social and psychological aspects of athletic performance and the significance of sport as it relates to culture, socialization, character development, personality, race, gender, economics and mass media.

PE 280A CWE Physical Education*(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su*

An instructional program designed to give students practical experience in supervised employment related to physical education. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

PE 280B CWE Recreation*(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su*

An instructional program designed to give students practical experience in supervised employment related to recreation. Students identify job performance objectives, work a specified number of hours during the term and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

PE 291 Lifeguard Training*(3 class hrs/wk, 2 cr) Sp*

Introduces students to the necessary minimum knowledge and skills training for a person to qualify to serve as an entry-level lifeguard and Red Cross certification. Prerequisite: Swimming pretest.

PE 292 Water Safety Instruction*(6 class hrs/wk, 2 cr) Sp*

Trains students to teach swimming and other water safety skills. Practice teaching will include lesson planning, teaching methods, teaching to diverse groups of students and student evaluations. Prerequisites: Must be 17 years old (by the end of the course), successfully pass the written and skill pretest (based on a proficiency level equal to the Red Cross Community Water Safety Course and Level VI learn-to-swim skills.)

PH: PHARMACY TECHNICIAN**PH 5.901 Pharmacy Technician***(30 hrs, 3 cr) As needed*

Focuses on the competencies required by pharmacy technicians in institutional and community pharmacy settings. Students will learn and practice the roles and responsibilities for the pharmacy technician. Also, this course prepares learners to take the national Pharmacy Technician Certification Exam administered by the Pharmacy Technician Certification Board. Prerequisite: WR 115 Introduction to College Writing and MTH 095 Intermediate Algebra.

PH 5.905 Pharmacy Laws and Ethics*(20 hrs, 2 cr) As needed*

Covers the rules and regulations that govern pharmacies in the state of Oregon. By the end of the course, each student will be able to look up any rule regarding the practice of pharmacy in the Oregon Revised Board of Pharmacy Statutes. Prerequisite: WR 115 Introduction to College Writing and MTH 095 Intermediate Algebra.

PH 5.910 Pharmacy Math*(48 hrs, 4 cr) As needed*

Develops math skills needed to become a pharmacy technician in a retail or hospital setting. Topics include: fractions, decimals, ratios and proportions in dosage calculation; changing within the household; metric and apothecary systems of measurement; calculations necessary for preparing pharmaceutical solutions and determining IV flow rates. Prerequisites: MTH 095 Intermediate Algebra and WR 115 Introduction to College Writing.

PH 5.915 Pharmacology and Drug Classification for Pharmacy Technicians*(54 hrs, 5 cr) As needed*

Prepares students training to work as a member of a Pharmacy Technician health care team to effectively communicate pharmaceutical information to a

variety of health care professionals using correct spelling and pronunciations of selected pharmaceuticals which will help ensure patient safety in pharmaceutical usage. Students will obtain knowledge of a large number of pharmaceuticals including generic and trade names and an understanding of how they work in the body, including the usual dosage of a drug. Prerequisite: MTH 095 Intermediate Algebra and WR 115 Introduction to College Writing.

PH 5.920 Pharmacy Operations: Retail and Institutional*(35 hrs, 2 cr) As needed*

Focuses on drug distribution systems, record management and inventory control, and ambulatory and institutional practices. Students will learn how hospital and retail pharmacies operate. Prerequisite: WR 115 Introduction to College Writing and MTH 095 Intermediate Algebra.

PH 5.925 Workplace Spanish for Health Care Professionals*(20 hrs, 2 cr) As needed*

Introduces students to Spanish pronunciation and basic questions and phrases used in providing customer service in a Pharmacy setting. The class focuses on learning simple commands and yes/no questions in order to provide good customer service to Spanish-speaking customers. Aspects of Hispanic culture relating to customs and attitudes toward health care and medical personnel will also be covered.

PH: PHLEBOTOMY**PH 5.310 Phlebotomy***(100 hrs, 8 cr) As needed*

Provides skill development in the performance of a variety of blood collection methods using proper techniques and universal precautions. Includes vacuum collection, arterial specimen collection, devices syringes, capillary skin punctures, radial artery punctures for blood gasses, butterfly needles, blood cultures and specimen collection on adults, children and infants. Emphasis on infection prevention, proper patient identification, labeling of specimens and quality assurance, specimen handling, processing and accessioning. An overview of Medicare billing will also be covered.

PH 5.320 Anatomy and Physiology for Phlebotomists*(20 hrs, 2 cr) As needed*

Provides an overview of basic anatomy and physiology of body systems and anatomic terminology. Relates major areas of the clinical laboratory to general pathologic conditions associated with the body systems. Systems include: circulation, heart, lymph, respiratory, urinary, cells and blood, and muscular/skeletal. Students acquire skills to identify veins of arms, hands, legs and feet on which phlebotomy is performed.

PH 5.330 Communication and Customer Service for Phlebotomists*(30 hrs, 2 cr) As needed*

Students acquire skills in the basic concepts of communication, personal and patient interaction, stress management and professional behavior. Topics include: proactive listening; giving and receiving constructive feedback; maintaining a professional image; working well as a team; proper manner for greeting and interacting with a patient, physician, nurse, respiratory therapist and other hospital personnel; communicating instructions effectively; telephone skills, knowledge of basic ICD-9 coding systems and CPT-4 codes for insurance billing.

PH: PHYSICS**PH 104 Descriptive Astronomy***● (5 class hrs/wk, 4 cr) F/Sp*

An introductory course covering the historical and cultural context of discoveries concerning planets and stars and their motion. Topics include models and the scientific method, astronomical tools, the solar system, stars and stellar evolution, galaxies and cosmology. An accompanying laboratory is used for experiments, including outdoor observations. Prerequisite: MTH 065 Elementary Algebra or equivalent. This course includes a laboratory component.

PH 201 General Physics

● (7 class hrs/wk, 5 cr) F

The first of a three-term sequence of introductory college physics for students who are planning to transfer credit to a four-year college or university, or for anyone desiring an understanding of physics principles. Topics covered include: mechanics, force and motion in one- and two-dimensions, circular motion, gravitation, energy, linear and angular momentum, and simple harmonic motion. Lab exercises help elucidate physical principles and teach measurement and analysis skills. Completion of MTH 112 Trigonometry with a grade of "C" or better. This course includes a laboratory component.

PH 202 General Physics

● (7 class hrs/wk, 5 cr) W

The second of a three-term sequence of introductory college physics for students who are planning to transfer credit to a four-year college or university, or for anyone desiring an understanding of physics principles. The themes of thermodynamics, waves and electricity will be explored. Specific topics include fluids, temperature, heat, thermodynamics, wave motion, sound, electrostatic force, field, potential, and circuits. Prerequisite: Completion of PH 201 General Physics with a "C" or better. This course includes a laboratory component.

PH 203 General Physics

● (7 class hrs/wk, 5 cr) Sp

The third term of a three-term sequence of introductory college physics for students who are planning to transfer credit to a four-year college or university, or for anyone desiring an understanding of physics principles. The topics covered in this course include geometric and physical optics, magnetism, electromagnetic induction, AC and DC circuits, atomic physics, and nuclear processes. Prerequisites: Completion of PH 201 General Physics with a grade of "C" or better and completion of PH 202 General Physics with a "C" or better. This course includes a laboratory component.

PH 211 General Physics with Calculus

● (7 class hrs/wk, 5 cr) F

The first of a three-term calculus-based sequence of introductory college physics for students in science, engineering and other curricula who are planning to transfer credit to a four-year college or university, or for anyone desiring an understanding of physics principles. Topics include measurement; scientific models; motion in a straight line; motion in two dimensions; vectors; force and motion; Newton's laws of motion; energy momentum; conservation laws; center of mass; linear and angular momentum; universal gravitation. Lab exercises help elucidate physical principles and teach measurement and analysis skills. Prerequisites: Completion of MTH 251 Differential Calculus and MTH 252 Integral Calculus with a grade of "C" or better. Recommended corequisite of MTH 254 Calculus for students who will take PH 212 and PH 213. This course includes a laboratory component.

PH 212 General Physics with Calculus

● (7 class hrs/wk, 5 cr) W

The second of a three-term calculus-based sequence of introductory college physics for students in science, engineering and other curricula who are planning to transfer credit to a four-year college or university, or for anyone desiring an understanding of physics principles. Topics include universal gravitation, rotational mechanics and dynamics, static equilibrium; fluid mechanics; simple harmonic motion; waves; superposition of waves; sound; and geometric and physical optics; matter waves. Lab exercises help elucidate physical principles and teach measurement and analysis skills. Prerequisites: MTH 252 and PH 211 General Physics with Calculus with a grade of "C" or better. Recommended Corequisite of MTH 254 Calculus for those students who will take PH 213. This course includes a laboratory component.

PH 213 General Physics with Calculus

● (7 class hrs/wk, 5 cr) Sp

The third of a three-term calculus-based sequence of introductory college physics for students who are planning to transfer credit to a four-year college or university, or for anyone desiring an understanding of physics principles. Topics include electrostatic force, field and potential; current and resistance capacitance; magnetic field; forces on charged particles due to a magnetic

field; Hall effect and other applications of electric and magnetic fields; Law of Biot and Savart; Ampere's law; magnetic dipoles; Faraday's law of induction; Lenz's law; induced electric fields; self and mutual induction; RC and RL direct current circuits; magnetic properties of matter; AC and DC circuits; displacement currents and Maxwell's equations; electromagnetic waves. Prerequisites: PH 212 General Physics with Calculus and MTH 254 Calculus with a "C" or better. This course includes a laboratory component.

PH 299 Special Studies

(2–6 hrs/wk, 1–3 cr) As needed

Allows the student to investigate, with supervision from a faculty member, a topic of his or her interest at an individualized pace. Credits and projects will be determined jointly by the instructor and the student.

PHL: PHILOSOPHY**PHL 198 Independent Studies**

(1 class hr/wk, 1–3 cr) As needed

Offers selected philosophy topics for independent research. Prerequisite: Instructor's approval.

PHL 201 Introduction to Philosophy

➤ (3 class hrs/wk, 3 cr) F

Introduces the philosophical task, the major areas of philosophical speculation and the role critical thinking plays in everyday life.

PHL 202 Elementary Ethics

➤ (3 class hrs/wk, 3 cr) W

Develops the idea of humans as moral agents and considers critically various interpretations of the ideals and standards of moral conduct.

PHL 215 History of Western Philosophy

➤ (3 class hrs/wk, 3 cr) Sp

Studies Western philosophy from the ancient Greeks to the 20th century.

PHL 298 Independent Study: Logic

➤ (1 class hr/wk, 1–3 cr) As needed

Offers individual study of patterns of logic, rules of inference through formalized logical language and techniques of deductive and predicate logic.

PS: POLITICAL SCIENCE**PS 198 Research Topics**

(1 class hr/wk, 1–3 cr) F/W/Sp

Examines in-depth selected political science topics for independent research. Corequisite: WR 123 English Composition.

PS 200 Introduction to Politics

■ (3 class hrs/wk, 3 cr) F

Basic introduction to the central themes and fundamental issues of political life. Examines the nature and meaning of politics; relation between politics and society and politics and economics; the basic concepts associated with the organization and operation of different systems of government; and the major political ideologies of the modern world: liberal-capitalism, socialism, communism, fascism. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

PS 201 Introduction to American Politics and Government

■ (3 class hrs/wk, 3 cr) F/Sp

Introduces and analyzes the American political system. Studies the development and operation of the institutions of national government, the political process (elections, public opinion, interest group activities, policy-making), the American political culture, and the American political-economy (capitalism and American politics). Includes case studies of federalism, election rules, civil society, and lobbying. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

PS 203 State and Local Government in Oregon

■ (3 class hrs/wk, 3 cr) As needed

General introduction to the role, organization and functions of government at the state and local level in the United States. Special emphasis will be placed on the use of Oregon state and local government as a source of examples and case studies. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

PS 204 Introduction to Comparative Politics

■ (3 class hrs/wk, 3 cr) W

Introduces major political, economic, and social concepts applied comparatively to a variety of governments and political systems including democracies, dictatorships, and theocracies. Focus is on Europe, former communist states, and 3rd world states of Africa, the Middle East, Asia, and Latin America. Uses case studies of political conflicts and social movements as well as role-playing and simulations. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

PS 205 Introduction to International Relations

■ (3 class hrs/wk, 3 cr) F/Sp

Introduces analyses of current world events; the nature of the international political and economic systems; and alternative perspectives, strategies, and approaches to contemporary world problems. Topics include global diversity; poverty and economic development; environmental and resource issues; and war and peace. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

PS 211 Peace and Conflict

■ (3 class hrs/wk, 3 cr) As needed

Examines the sources and causes of violence in relations involving individuals, groups, nations, and the global community. Focuses on alternatives to oppressive behavior, undemocratic politics, and the violent resolution of conflict by exploring the ideas and strategies of nonviolence. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

PS 220 U.S. Foreign Policy

■ (3 class hrs/wk, 3 cr) As needed

Analyzes selected U.S. foreign policy issues and problems through case studies. Places foreign policy in the perspective of history and in the context of international political, economic and environmental conflicts. Explores the diversity of perceptions about U.S. foreign relations. Uses role-playing to simulate the foreign policy-making process. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

PS 252 Constitutional Law

■ (3 class hrs/wk, 3 cr) As needed

Introduction to the meaning, principles and use of the U.S. Constitution with emphasis on leading Supreme Court cases. Focus is on current controversies including: privacy rights, property rights, war powers, equal protection, church-state relations, and the role of the courts in the governing process. Uses role-playing and simulations of the judicial process. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

PS 280 CWE Political Science

(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su

Gives students practical experience in supervised employment related to political science. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

PS 280S Service-Learning Political Science

(3–42 class hrs/wk, 1–14 cr) F/W/Sp/Su

An instructional program, using contextual learning, designed to promote critical thinking, citizenship and civic responsibility as students work with community partners in addressing real community needs. Students identify learning objectives, work a specified number of hours during the term, and engage in faculty-led guided reflection activities. Prerequisites: Students must

have taken or must be currently taking appropriate course or courses in their major field of study. They must also have their Service-Learning approved by the appropriate faculty coordinator.

PSG: POLYSOMNOGRAPHIC TECHNOLOGY**PSG 211 Fundamentals of Sleep Monitoring**

(5 credits; 84 hours) As needed

Introduces students to the basic technology used in the monitoring of sleep. Principles of electricity and amplification are introduced. Covers patient hook up and monitoring; calibration and troubleshooting of equipment; data acquisition; and basic scoring.

PSG 215 Polysomnographic Scoring and Analysis

(5 credits; 84 hours) As needed

Introduction to scoring and analysis of polysomnography testing. Students will learn the procedures necessary to generate and validate a report of the scoring of objective and subjective data obtained in a polysomnographic study.

PSG 297 Clinical Polysomnography

(9 credits; 180 hours) As needed

Clinical practice experiences are designed for development, application, critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of polysomnographic procedures. The planned clinical experience provided the student with the opportunity to observe and apply theoretical principles while performing procedures under supervision of the clinical staff. Progression in the program is dependent on the student demonstrating clinical competence on a specified number of competency evaluations.

PSY: PSYCHOLOGY**PSY 101 Psychology and Human Relations**

■ (3 class hrs/wk, 3 cr) F/W/Sp

Psychology and human relations focuses on practical applications of psychology to relationships. Topics include models for understanding individual and social behavior, self and social perception, emotional self-regulation, physical and mental health, addictions, attraction, relationship formation and maintenance, leaders and followers, stress, work, leisure time, sexuality, commitment, and brief introduction to the clinical aspects of human behavior.

PSY 198 Independent Studies: Research Topics

(1 class hr/wk, 1 cr) F/W/Sp

Provides in-depth examination of a selected psychological topic to develop skills in independent research. Intended primarily for the psychology major. Prerequisite: WR 123 English Composition. Corequisite: PSY 203 General Psychology to be taken prior to or concurrently.

PSY 201 General Psychology

■ (3 class hrs/wk, 3 cr) F/W/Sp

Discusses biological and scientific aspects of psychology including history, scientific methodology, genes and evolution, the brain and nervous system, biological rhythms and mental states, sensation and perception and development. Prerequisite: College-level reading and writing (WR121) are strongly recommended for success in this course.

PSY 202 General Psychology

■ (3 class hrs/wk, 3 cr) F/W/Sp

Discusses the cognitive aspects of psychology including scientific methodology, learning, memory, thinking, intelligence, motivation and emotion. Prerequisite: College-level reading and writing (WR121) are strongly recommended for success in this course.

PSY 203 General Psychology

■ (3 class hrs/wk, 3 cr) F/W/Sp

Discusses issues of psychological health, personality development, and the social context, within the science of human behavior. Topics include: scientific methodology; the brain and the nervous system; personality development; health psychology; psychological disorders; treatment approaches; and the social context of behavior. Prerequisite: College-level reading and writing (WR121) are strongly recommended for success in this course.

PSY 215 Introduction to Developmental Psychology

■ (3 class hrs/wk, 3 cr) F/W

Explores physical, psychological, emotional, and social development from birth to death. Topics include: historical foundations; research methodology; and prominent theories/research of each developmental sequence across the lifespan. Prerequisite: College-level reading and writing (WR121) are strongly recommended for success in this course.

PSY 216 Social Psychology

■ (3 class hrs/wk, 3 cr) Sp

Social psychology studies the social nature of human behaviors, attitudes, perceptions, thoughts and emotions. Major areas of study include: research methods, social perception and judgment, attitude formation and change, prejudice, discrimination, sexism, aggression, interpersonal attraction altruism, conformity, group dynamics, and the application of social psychology findings to current social issues. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

PSY 219 Introduction to Abnormal Psychology

■ (3 class hrs/wk, 3 cr) W

An introduction to the study of psychological disorders, including issues of diagnosis and treatment. Topics include: models of abnormality; overview of major disorders, including diagnostic considerations; current research on treatment effectiveness; and the impact of psychological disorders on society and its legal system. Prerequisite: College-level reading and writing (WR121) are strongly recommended for success in this course.

PSY 231 Human Sexuality

■ (3 class hrs/wk, 3 cr) F/W/Sp

Discusses the biological, social and psychological aspects of human sexual functioning, within a scientific context. Topics include sexual anatomy, sexual response, gender identity, gender roles, sexual orientation, love, contraception, sexually transmitted infections and sexual coercion. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

PSY 280 CWE Psychology

(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su

Gives students practical experience in supervised employment related to psychology. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

R: RELIGION**R 101 Introduction to Religious Studies**

➤(3 class hrs/wk, 3 cr) As needed

Explores the nature of religion as experienced historically throughout the world. Examines the nature of religious experience with the divine and the relationship between science and religion. Discusses the roles of language, myths, and symbols in religion. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

R 102 Religions of Western World

(3 class hrs/wk, 3 cr) As needed

Investigates religion in the Western World. Includes discussion of how the outward forms of religious expression integrate with other cultural traditions. Prerequisite: College level reading and writing skills (WR121) are strongly recommended for success in this course.

R 103 Religions of Eastern World

➤(3 class hrs/wk, 3 cr) As needed

Surveys cultures and religions of the eastern world with a focus on the teaching of compassion and tolerance in these religions. Includes understandings of Hinduism, Buddhism, Taoism, and Sikhism. Prerequisite: College-level reading and writing skills (WR121) are strongly recommended for success in this course.

R 198 Independent Studies: Research Topics

(1–3 class hrs/wk, 1–3 cr) As needed

Offers selected topics of study in religion with individual research and/or field study. Corequisite: WR 123 English Composition.

R 211 The Old Testament: Historical Background

➤(3 class hrs/wk, 3 cr) As needed

Describes the history and culture of the Hebrew people, including conditions affecting the production of the Old Testament.

R 212 The New Testament: Historical Background

➤(3 class hrs/wk, 3 cr) As needed

Discusses the historical developments of the New Testament, including development of Christianity and its significance in human experience.

RD: READING**RD 070 Foundation Reading Skills**

(4 class hrs/wk, 4 cr) F/W/Sp

Introduces sound-to-letter pattern relationships, syllabication, active reading and other comprehension strategies to improve reading competence. Students record and apply the strategies in a reading reference notebook designed to help them decode unfamiliar words in the future. Prerequisite: Appropriate score on the reading portion of the Computerized Placement Test.

RD 080 Developing Reading Skills

(3 class hrs/wk, 3 cr) F/W/Sp/Su

Develops students' ability to read closely and draw meaning from the text. Students learn to recognize important ideas, make connections with the text, build vocabulary, find evidence to support claims, and use active reading strategies to increase comprehension and recall. Prerequisite: Completion of RD 070 or appropriate score on reading portion of the Computerized Placement Test.

RD 090 Strategies for Effective Reading

(3 class hrs/wk, 3 cr) F/W/Sp/Su

Students will use reading strategies to become more thoughtful, effective and active readers and build skills to learn from introductory-level college texts. Prerequisite: Completion of RD 080 or appropriate score on reading portion of the Computerized Placement Test.

RD 115 Advanced College Reading

(3 class hrs/wk, 3 cr) F/W/Sp/Su

Develops students' ability to analyze, comprehend, and retain information in college textbook material from various disciplines. Students learn to become literate, active college textbook readers. Prerequisite: Completion of RD 090 or appropriate score on reading portion of the Computerized Placement Test.

RD 120 Critical Thinking

(3 class hrs/wk, 3 cr) F/W/Sp/Su

Students improve the quality of their thinking by applying elements of reasoning and intellectual standards. In this skill-building course, students will critically evaluate complex issues from a variety of sources and develop lifelong critical thinking skills. Prerequisite: Completion of RD 115 or appropriate score on reading portion of the Computerized Placement Test.

RH: REFRIGERATION, HEATING AND AIR CONDITIONING**RH 3.552 Electrical Systems Troubleshooting**

(20 class hrs/wk, 2 cr) W

Skills learned include: safety, troubleshooting with Ohm's law, wiring parallel and series circuits, tracing electrical distribution systems, determining power consumption, determining the correct ampacity, and taking phase-to-phase measurements. Note: Two-week class. Prerequisite: Instructor's approval. Enrolled in RHVAC or possessing verifiable experience.

RH 3.553 Electrical Problems*(22.5 class hrs/wk, 4 cr) W*

Skills learned include: safety; finding shorts and high resistance shorts to ground; testing contacts, transformers, coils, relays and power supplies; taking voltage drop tests. Note: Three-week class. Prerequisite: Instructor's approval. Enrolled in RHVAC or possessing verifiable experience.

RH 3.580 RHVAC Brazing and Fitting*(20 class hrs/wk, 2 cr) F*

Skills learned include: cutting and brazing; safety, bend, cut, flare, and swag refrigerant tubing and RHVAC silver soldering. Earn Oregon State Refrigeration Brazing Certification. Introduction to refrigeration systems as related to troubleshooting. Note: Two-week class.

RH 3.581 Recovery and Charging*(20 class hrs/wk, 2 cr) F*

Skills learned include: take pressures, identify refrigerants, recover and recycle refrigerant, evacuate and charge refrigeration systems. All applicable safety precautions and EPA governed environmental regulations. Note: Two-week class. Prerequisite: Instructor's approval. Enrolled in RHVAC or possessing verifiable experience.

RH 3.584 Refrigeration Troubleshooting*(22.5 class hrs/wk, 4 cr) F*

Skills learned include: troubleshoot and repair refrigeration systems; evaluate system operation; check superheat and subcooling; test compressors, evaporators, condensers, and expansion devices; troubleshoot hot and cold calls; and cleaning a contaminated system. Note: Three-week class. Prerequisite: Instructor's approval. Enrolled in RHVAC or possessing verifiable experience.

RH 3.585 Heating Systems*(20 class hrs/wk, 2 cr) F*

Skills learned include: operation and servicing of oil and gas heating systems. Introduction to troubleshooting heating systems, troubleshooting heat pumps. All relevant safety and energy efficient concerns are covered. Note: Two-week class. Prerequisite: Instructor's approval. Enrolled in RHVAC or possessing verifiable experience.

RH 3.586 Sheet Metal*(20 class hrs/wk, 2 cr) Sp*

Skills learned include: Understand air movement and balancing, essential sheet metal installation and repair skills, and understand layout and design. Note: Two-week class. Prerequisite: Instructor's approval. Enrolled in RHVAC or possessing verifiable experience.

RH 3.587 Troubleshooting Motors*(20 class hrs/wk, 2 cr) W*

Skills learned include: troubleshooting, maintenance and repair of single- and three-phase motors, maintenance and basic troubleshooting of variable speed drives and testing capacitors. Note: Two-week class. Prerequisite: Instructor's approval. Enrolled in RHVAC or possessing verifiable experience.

RH 3.588 Motor Control Troubleshooting*(20 class hrs/wk, 2 cr) W*

Skills learned include: safety, testing motor control circuits, and troubleshooting with electrical schematics. Note: Two-week class. Prerequisite: Instructor's approval. Enrolled in RHVAC or possessing verifiable experience.

RH 3.590 Control Circuit Troubleshooting*(20 class hrs/wk, 2 cr) W*

Skills learned include: safety, troubleshooting and repairing mechanical and digital control circuits; wiring and setting timers; troubleshooting input and output faults; testing 4–20 mA, 1–5 VDC and 1–10 volt DC circuits; and testing diodes, thermistors and thermocouples. programming programmable thermostats. Note: Two-week class. Prerequisite: Instructor's approval. Enrolled in RHVAC or possessing verifiable experience.

RH 3.594 RHVAC Skills Lab*(3–12 class hrs wk/ 1–6 cr) F/W/Sp/Su*

Individual lab practice to improve RHVAC understanding and skills. May also be used for special projects. Prerequisite: Instructor's approval.

RH 3.595 Licensing*(20 class hrs/wk, 2 cr) F*

Skills learned include: working according to environmental concerns and regulations. Earn EPA refrigerant handling certification. Note: Two-week class. Prerequisite: Enrolled in RHVAC or possessing verifiable experience.

RH 3.596 Mechanical Systems*(20 class hrs/wk, 2 cr) Sp*

Skills learned include: safety, managing lubrication systems, maintaining and repairing belt and chain drives, pump maintenance, understanding mechanical processes, and completing selected essential mechanical maintenance tasks. Note: Two-week class. Prerequisite: Instructor's approval. Enrolled in RHVAC or possessing verifiable experience.

RH 3.597 PM and Troubleshooting*(20 class hrs/wk, 2 cr) Sp*

Skills learned include: starting and operating a computerized maintenance program, inventory control, customer service, and job search skills. Note: Two-week class. Prerequisite: Instructor's approval. Enrolled in RHVAC or possessing verifiable experience.

RH 3.602 HVAC System Controls*(22.5 class hrs/wk, 4 cr) Sp*

Skills learned include tracing and analyzing HVAC ducting systems, troubleshooting of mechanical controls, maintenance of pneumatic controls, maintenance, installation and troubleshooting of DDC systems, using computerized DDC systems, and troubleshooting indoor air quality problems. (Computer) Note: Three-week class. Prerequisite: Instructor's approval required. Enrolled in RHVAC or possessing verifiable experience.

RH 3.618 RHVAC Systems Review*(20 class hrs/wk, 2 cr) Sp*

Designed for the completion of projects not completed or needing upgrading. It is a time for review of essential job skills and preparation for the final certification offered through the RHVAC program. Note: Two-week class. Prerequisite: Instructor's approval. Enrolled in RHVAC or possessing verifiable experience.

RT: Diagnostic Imaging (Radiology Technology)

RT 5.750 Fundamentals of Diagnostic Imaging*(20 hrs, 2 cr) As needed*

This course is designed to provide an overview of the foundations in radiography and the practitioner's role in the health care delivery system. Principles, practices, and policies of the health care organization(s) are examined and discussed in addition to the professional responsibilities of the radiographer. Content is designed to provide a fundamental background in ethics. The historical and philosophical bases of ethics, as well as the elements of ethical behavior, are discussed. The student will examine a variety of ethical issues and dilemmas found in clinical practice. An introduction to legal terminology, concepts and principles also will be presented. Topics include misconduct, malpractice, legal and professional standards and the ASRT scope of practice. Critical thinking is incorporated in multiple content areas. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.755 Radiographic Procedures – Chest/Abdomen*(40–42 hrs, 3 cr) As needed*

Content is designed to provide the knowledge base necessary to perform standard imaging procedures. This course focuses on radiographic positioning and procedures for the chest and abdomen. Consideration is given to the evaluation of optimal diagnostic images. The lab portion includes peer positioning, film critiques, anatomy and the utilization of equipment to perform procedures on phantoms. Content is designed to provide a basis for analyzing radiographic images. Included are the importance of minimum imaging standards, discussion of a problem-solving technique for image evaluation and the factors that can affect image quality. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.756 Radiographic Procedures – Extremities & Spine*(66 hrs, 5 cr) As needed*

Content is designed to provide the knowledge base necessary to perform standard imaging procedures. This course focuses on radiographic positioning and procedures for the extremities and spine. Consideration is given to the evaluation of optimal diagnostic images. The lab portion includes peer positioning, film critique, anatomy, and the utilization of equipment to perform procedures on phantoms. Content is designed to provide a basis for analyzing radiographic images. Included are the importance of minimum imaging standards, discussion of a problem-solving technique for image evaluation and the factors that can affect image quality. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.758 Radiographic Procedures – Skull & Review*(60 hrs, 5 cr) As needed*

Content is designed to provide the knowledge base necessary to perform standard imaging procedures. This course focuses on radiographic positioning and procedures for the skull and other procedures. Consideration is given to the evaluation of optimal diagnostic images. The lab portion includes peer positioning, film critiques, anatomy, and the utilization of equipment to perform procedures on phantoms. Content is designed to provide a basis for analyzing radiographic images. Included are the importance of minimum imaging standards, discussion of a problem-solving technique for image evaluation and the factors that can affect image quality. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.759 Radiographic Procedures – Fluoroscopy*(33 hrs, 2 cr) As needed*

Content is designed to provide the knowledge base necessary to perform standard imaging procedures. This course focuses on radiographic positioning and procedures for fluoroscopic examinations. Consideration is given to the evaluation of optimal diagnostic images. The lab portion includes peer positioning, film critique, anatomy, and the utilization of equipment to perform procedures on phantoms. Content is designed to provide a basis for analyzing radiographic images. Included are the importance of minimum imaging standards, discussion of a problem-solving technique for image evaluation and the factors that can affect image quality. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.765 Clinical Radiography I*(330 hours, 11 cr) As needed*

Clinical practice experiences are designed for development, application, critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiologic procedures. The planned clinical experience provides the student with the opportunity to observe and apply theoretical principles while performing procedures under supervision of the clinical staff. Progression in the program is dependent on the student demonstrating clinical competence on a specified number of competency evaluations. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.766 Clinical Radiography II*(330 hours, 11 cr) As needed*

Clinical practice experiences are designed for development, application, critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiologic procedures. The planned clinical experience provides the student with the opportunity to observe and apply theoretical principles while performing procedures under supervision of the clinical staff. Progression in the program is dependent on the student demonstrating clinical competence on a specified number of competency evaluations. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.767 Clinical Radiography III*(330 hours, 11 cr) As needed*

Clinical practice experiences are designed for development, application, critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiologic procedures. The planned clinical experience provides the student with the opportunity to observe and apply theoretical principles while performing procedures under supervision of the clinical staff. Progression

in the program is dependent on the student demonstrating clinical competence on a specified number of competency evaluations. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.768 Clinical Radiography IV*(330 hours, 11 cr) As needed*

Clinical practice experiences are designed for development, application, critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiologic procedures. The planned clinical experience provides the student with the opportunity to observe and apply theoretical principles while performing procedures under supervision of the clinical staff. Progression in the program is dependent on the student demonstrating clinical competence on a specified number of competency evaluations. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.771 Exposure I*(30 hrs, 3 cr) As needed*

Content is designed to establish a knowledge base in radiographic, fluoroscopic, mobile, and tomographic equipment requirements and design. Content is designed to impart an understanding of the components, principles, and operation of digital imaging systems found in diagnostic radiology. Factors that impact image acquisition, display, archiving, and retrieval are discussed. Guidelines for selecting exposure factors and evaluation images within a digital system assist students to bridge between film-based and digital imaging systems. Principles of digital system quality assurance and maintenance are presented. The content also provides a basic knowledge of quality control. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.772 Exposure II*(30 hrs, 3 cr) As needed*

Content is designed to establish a knowledge base in factors that govern the image production process, radiographic, fluoroscopic, mobile, and tomographic equipment requirements and design. The course is designed to impart an understanding of the components, principles, and operation of digital imaging systems found in diagnostic radiology including factors that impact image acquisition, display, archiving, and retrieval. Guidelines for selecting exposure factors and evaluation images within a digital system assist students to bridge between film-based and digital imaging systems. Principles of digital system quality assurance and maintenance are presented. The content also provides a basic knowledge of quality control. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.773 Exposure III*(20 hrs, 2 cr) As needed*

Content is designed to impart an understanding of the components, principles, and operation of digital imaging systems found in diagnostic radiology. Factors that impact image acquisition, display, archiving, and retrieval are discussed. Guidelines for selecting exposure factors and evaluation images within a digital system assist students to bridge between film-based and digital imaging systems. Principles of digital system quality assurance and maintenance are presented. The content also provides a basic knowledge of quality control. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.775 Patient Care in Radiologic Sciences*(24 hrs, 2 cr) As needed*

Course is designed to provide the basic concepts of patient care, including consideration for the physical and psychological needs of the family. Routine and emergency patient care procedures will be described, as well as infection control procedures utilizing standard precautions. The role of the radiographer in patient education is identified. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.777 Radiation Biology*(30 hrs, 3 cr) As needed*

This course is designed to provide an overview of the principles of the interaction of radiation with living systems. Radiation effects on molecules, cells, tissues and the body as a whole are presented. Factors affecting biological response are presented, including acute and chronic effect of radiation. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.779 Radiation Protection*(30 hrs, 3 cr) As needed*

Course is designed to present an overview of the principles of radiation protection including the responsibilities of the radiographer, personnel and the public. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies and health care organizations will be addressed. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.780 Basic Principles of Computed Tomography*(10 hrs, 1 cr) As needed*

Prepares students to work with a health care team providing entry-level radiography students with the principles related to Computed Tomography (CT) imaging. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.786 Radiographic Pathology*(30 hrs, 3 cr) As needed*

Content is designed to introduce concepts related to disease and etiological considerations with emphasis on radiographic appearance of disease and impact on exposure factor selection. Prerequisite: Admission into the Diagnostic Imaging Program

RT 5.791 Radiation Production & Characteristics*(30 hrs, 3 cr) As needed*

Content is designed to establish a basic knowledge of atomic structure and terminology. The course also presents the nature and characteristics of radiation, x-ray production and the fundamentals of photons interactions with matter. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.796 Pharmacology*(20 hrs, 2 cr) As needed*

Designed to provide the basic concepts of pharmacology. Concepts of pharmacology including modes of action, uses, modes of excretion effects, side effects, and patient care required for specific pharmacologic agents. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.798 Radiological Technology Comprehensive Review I*(10 hrs, 1 cr) As needed*

Prepares students to take the National ARRT examination. Allows a student to practice taking the exam using simulation tests. Introduces test-taking methods and skills, study skills, and memorization techniques. Reviews all pertinent program and course materials and education. Prerequisite: Admission into the Diagnostic Imaging Program.

RT 5.799 Radiological Technology Comprehensive Review II*(20 hrs, 2 cr) As needed*

Prepares students to take the National ARRT examination. Allows a student to practice taking the exam using simulation tests. Introduces test-taking methods and skills, study skills, and memorization techniques. Reviews all pertinent program and course materials and education. Prerequisite: Admission into the Diagnostic Imaging Program.

SD: SUPERVISORY MANAGEMENT**SD 101 Supervision: Fundamentals***(3 cr) F/W/Sp*

Introduces current management theory in the areas of motivation, leadership, organization and planning, team building, and decision making. Examines the skills necessary to be an effective supervisory leader within a diverse workplace.

SD 102 Supervision: Effective Communication*(3 cr) W/Sp*

Focuses on the supervision skills that are used in effective communications in the workplace. Learn the basics of communication, including styles of communication, listening skills and non-verbal communication. In addition, learn meeting management and business presentation skills.

SD 103 Issues in Supervision*(3 cr) F/Sp*

Provides an understanding of ethical theories and decision making with an emphasis on how management decisions affect the organization, staff,

and environment. Covers the supervisor's responsibility for conservation and environmental issues within the workplace. Gain knowledge of contemporary employment laws, and legal and ethical methods of staff recruitment and performance evaluations. Ethical skills learned are incorporated into methods for resolving conflict in the workplace.

SD 104 Supervision Skills*(3 cr) W/Sp*

A series of topics designed to improve a student's supervision skills. Study topics such as stress and time management, improving productivity in a changing environment and effective customer skills.

SD 107 Business and Society*(3 cr) F/Sp*

Study the basis of American business ethics. Compare and contrast western and non-western culture systems and examine the part culture plays in the formation of a nation's business values. Explore the relationships between business and contemporary society, including such topics as government regulation of business, business responsibility to consumers and the environment, and the role and responsibility of American business in the global community.

SD 280 CWE Supervisory Development*(6-42 class hrs/wk, 2-14 cr) F/W/Sp/Su*

Gives students practical experience in supervised employment related to supervisory management. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

SOC: SOCIOLOGY**SOC 198 Research Topics***(1 class br/wk, 1 cr) As needed*

Requires an in-depth review of current knowledge about a sociological topic. Intended primarily for the sociology major to develop skills in independent research. Prerequisite: WR 123 English Composition.

SOC 204 General Sociology**■** *(3 class hrs/wk, 3 cr) F/W/Sp*

Introduces the sociological perspective: the components of society and social organization, culture, socialization and stratification. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

SOC 205 General Sociology**■** *(3 class hrs/wk, 3 cr) F/W/Sp*

Applies sociological perspectives to the study of social change and trends in family, religion, education, economics and politics. Prerequisite: SOC 204 General Sociology or instructor's approval.

SOC 206 General Sociology**■** *(3 class hrs/wk, 3 cr) W/Sp*

Surveys social issues and social movements. Stresses application of basic concepts to the analysis of contemporary problems in group life. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

SOC 211 Sociology of Deviance and Social Control**■** *(3 class hrs/wk, 3 cr) Sp*

Three parallel intents have determined the contents and organization of this course: to present a comprehensive coverage of the major sociological theories of deviance; to show how these different perspectives might be brought together to obtain a more complete understanding of deviance causation; and to emphasize that the social processes that produce and maintain deviance are essentially the same ones that produce and maintain conformity. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

SOC 222 Marriage Relationships

■ (3 class hrs/wk, 3 cr) F

Examines intimate relationships, courtship, marriage and family patterns — old, new and unconventional. Focuses on how relationships are built, maintained, changed and terminated. Prerequisite: SOC 204 General Sociology or instructor's approval.

SOC 280 CWE Sociology

(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su

Gives students practical experience in supervised employment related to sociology. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

SOC 280S Service-Learning Sociology

(3–42 class hrs/wk, 1–14 cr) F/W/Sp/Su

An instructional program, using contextual learning, designed to promote critical thinking, citizenship and civic responsibility as students work with community partners in addressing real community needs. Students identify learning objectives, work a specified number of hours during the term, and engage in faculty-led guided reflection activities. Prerequisites: Students must have taken or must be currently taking appropriate course or courses in their major field of study. They must also have their Service-Learning approved by the appropriate faculty coordinator.

SP: SPEECH**SP 100 Introduction to Speech Communication**

(3 class hrs/wk, 3 cr) W/Sp

Survey course covering the complexities of the communication process and the impact of communication on obtaining employment. Includes insights into the causes and effects of general communication behaviors, involvement in active exploration of basic communication theories and concepts, and opportunities to develop communication strengths.

SP 111 Fundamentals of Speech

(3 class hrs/wk 3 cr) F/W/Sp/Su

Provides the opportunity to discuss and understand the nature of public speaking and discourse in both ancient and modern society, and to create, adapt and deliver original speeches before an audience. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

SP 112 Introduction to Persuasion

(3 class hrs/wk, 3 cr) F/W/Sp

Studies the theory and practice of persuasion and persuasive techniques. Students learn to analyze, develop and present persuasive messages. Introduces the nature and logic of reasoning, persuasive propositions, issues and claims, the use of evidence and rational discourse. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

SP 199 Special Studies in Speech

(3–9 class hrs/wk, 1–3 cr) F/W/Sp/Su

Offers individual and special studies arranged with an instructor. Note: May be repeated for a maximum of nine credits.

SP 218 Interpersonal Communication

(3 class hrs/wk, 3 cr) F/W/Sp/Su

Introduces students to various aspects of the communication process in one-to-one relationships. Emphasis is placed on enhancing personal and professional relationships by expanding knowledge, increasing understanding and developing practical skills necessary for competent communication. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

SP 219 Small Group Communication

(3 class hrs/wk, 3 cr) F/W/Sp

Investigates interaction at the small-group level. Many interesting aspects of group communication are experienced and explored. Both the process and dynamics of groups will be important, as well as group tasks and outcomes. Small-group communication is viewed from historical, sociological and cultural perspectives. Students gain insight as to the critical role groups and group communication plays in the structure and functioning of civilization. Prerequisite: College-level reading and writing skills (WR 121) are strongly recommended for success in this course.

SP 280 CWE Speech

(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su

Gives students practical experience in supervised employment related to speech. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

SP 280S Service-Learning Speech

(3–42 class hrs/wk, 1–14 cr) F/W/Sp/Su

An instructional program, using contextual learning, designed to promote critical thinking, citizenship and civic responsibility as students work with community partners in addressing real community needs. Students identify learning objectives, work a specified number of hours during the term, and engage in faculty-led guided reflection activities. Prerequisites: Students must have taken or must be currently taking appropriate course or courses in their major field of study. They must also have their service-learning approved by the appropriate faculty coordinator.

SPN: SPANISH**SPN 101 First-Year Spanish I**

(4 class hrs/wk, 4 cr) F/W/Sp/Su

This class introduces basic structures of Spanish in order to help students communicate basic ideas. The class stresses all language skills (listening, speaking, reading and writing) through a communicative approach, as well as cultural topics. The class provides a general background of Hispanic populations, especially those largely represented in the U.S. This is not a conversation class, but there is an emphasis on oral communication. Conducted mainly in Spanish. Students with previous knowledge of the language are encouraged to take the placement examination.

SPN 102 First-Year Spanish II

(4 class hrs/wk, 4 cr) W/Sp/Su

Continues to build language proficiency and introduce new grammar structures, particularly those used to communicate about past events. This class augments students' ability to deal with different practical situations in Spanish, and explores the history and cultures of more Spanish speaking countries. Further development of vocabulary, all language skills, and culture. Conducted in Spanish. Prerequisite: SPN 101 First-Year Spanish I with a "C" or a higher grade, or take the placement examination, or have instructor's approval.

SPN 103 First-Year Spanish III

(4 class hrs/wk, 4 cr) Sp/Su

Continues to build language proficiency and introduce new grammar structures. This class augments students' ability to successfully interact in more situations in Spanish, and explores the history and cultures of additional Spanish speaking countries. Further development of vocabulary, all language skills, and culture. Conducted in Spanish. Prerequisite: Complete SPN 102 First-Year Spanish II with a "C" or a higher grade, or take the placement examination, or have instructor's approval.

SPN 198 Independent Studies

(1–4 class hrs/wk, 1–4 cr) F/W/Sp

A special Spanish class tailored to improve writing skills in the language. Includes research in preparation for individual professional needs. Prerequisite: Instructor's approval.

SPN 201 Second-Year Spanish I*> (4 class hrs/wk, 4 cr) F*

Review and further development of all language skills towards proficiency and cultural understanding. SPN 201 prepares students to use Spanish in more academic settings. All four main skills of the language are emphasized (reading, writing, speaking, and listening). Acquaints students with Hispanic cultures through authentic materials. There is an emphasis in presenting different cultural manifestations. Conducted in Spanish. Prerequisite: SPN 103 First-Year Spanish III with a minimum "C" grade, or four years of high school Spanish equivalent, or instructor's approval. Native speakers are required to have instructor's approval.

SPN 202 Second-Year Spanish II*> (4 class hrs/wk, 4 cr) W*

Further development of all language skills towards language proficiency and cultural understanding. Conducted in Spanish. Acquaints students with more complex grammar structures, and Hispanic cultures through authentic materials. Prerequisite: SPN 201 Second-Year Spanish I with a minimum "C" grade, or five years of high school Spanish equivalent or instructor's approval. Native speakers are required to have instructor's approval.

SPN 203 Second-Year Spanish III*> (4 class hrs/wk, 4 cr) Sp*

Prepares students to use Spanish in more academic settings and use the language for critical and analytical purposes. Acquaints students with more complex grammar structures, and Hispanic cultures through authentic materials. Conducted in Spanish. Prerequisite: SPN 202 Second-Year Spanish II with a "C" grade or higher, or instructor's approval. Native speakers are required to have instructor's approval.

SPN 280 CWE Spanish*(3–42 class hrs/wk, 1–14 cr) F/W/Sp/Su*

Gives students practical experience in supervised employment related to Spanish. Students identify job performance objectives, work a specified number of hours during the term, and attend a CWE-related seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

SPN 280S Service-Learning Spanish*(3–42 class hrs/wk, 1–14 cr) F/W/Sp/Su*

An instructional program, using contextual learning, designed to promote critical thinking, citizenship and civic responsibility as students work with community partners in addressing real community needs. Students identify learning objectives, work a specified number of hours during the term, and engage in faculty-led guided reflection activities. Prerequisites: Students must have taken or must be currently taking appropriate course or courses in their major field of study. They must also have their Service-Learning approved by the appropriate faculty coordinator.

SS: STUDY SKILLS**SS 070 Vocabulary Basics***(2 hrs, 1 cr) F/W/Sp/Su*

This self-paced minicourse is part of a comprehensive vocabulary program which helps students build vocabulary and strengthen their reading, writing, and thinking. Features include an intensive words-in-context approach, abundant practice, individual feedback, and focus on high-frequency words and word parts known to be most helpful for students. Prerequisite: Townsend Reading Placement Test.

SS 071 Vocabulary Improvement I*(2 hrs, 1 cr) F/W/Sp/Su*

This self-paced minicourse is part of a comprehensive vocabulary program which helps students build vocabulary and strengthen their reading, writing, and thinking. Features include an intensive words-in-context approach, abundant practice, individual feedback, and focus on high-frequency words and word parts known to be most helpful for students. Prerequisite: Townsend Reading Placement Test.

SS 072 Vocabulary Improvement II*(2 hrs, 1 cr) F/W/Sp/Su*

This self-paced minicourse is part of a comprehensive vocabulary program which helps students build vocabulary and strengthen their reading, writing, and thinking. Features include an intensive words-in-context approach, abundant practice, individual feedback, and focus on high-frequency words and word parts known to be most helpful for students. Prerequisite: Townsend Reading Placement Test.

SS 073 Vocabulary Improvement III*(2 hrs, 1 cr) F/W/Sp/Su*

This self-paced minicourse is part of a comprehensive vocabulary program which helps students build vocabulary and strengthen their reading, writing, and thinking. Features include an intensive words-in-context approach, abundant practice, individual feedback, and focus on high-frequency words and word parts known to be most helpful for students. Prerequisite: Townsend Reading Placement Test.

SS 074 Vocabulary Improvement IV*(2 hrs, 1 cr) F/W/Sp/Su*

This self-paced minicourse is part of a comprehensive vocabulary program which helps students build vocabulary and strengthen their reading, writing, and thinking. Features include an intensive words-in-context approach, abundant practice, individual feedback, and focus on high-frequency words and word parts known to be most helpful for students. Prerequisite: Townsend Reading Placement Test.

SS 075 Vocabulary Improvement V*(2 hrs, 1 cr) F/W/Sp/Su*

This self-paced minicourse is part of a comprehensive vocabulary program which helps students build vocabulary and strengthen their reading, writing, and thinking. Features include an intensive words-in-context approach, abundant practice, individual feedback, and focus on high-frequency words and word parts known to be most helpful for students. Prerequisite: Townsend Reading Placement Test.

SS 087 Techniques of Studying*(1–10 class hrs/wk, 0–3 cr) As needed*

Develops study skills and college success skills for students in designated programs. When taught in conjunction with a career and technical or academic program, the course emphasizes study of the materials and technology used in the program. The course delivery is adapted to the needs of students in that program. Prerequisite: Adequate reading preparation for the materials being used. When taught in conjunction with a career and technical or academic program, co-enrollment is anticipated.

SS 090 Study Skills*(3 class hrs/wk, 3 cr) F/W/Sp/Su*

Introduces students to the study skills needed to be successful in a community college. These include note taking, reading and studying textbooks, using the library, time management, and preparing for and taking tests. These skills are taught in combination with understanding attitude, motivation, and student behavior. Prerequisite: Appropriate reading competence as indicated by Computerized Placement Test.

SS 1.181 Taking Lecture Notes*(20 class hrs, 1 cr) F/W/Sp/Su*

In this self-paced, instructor-guided course, students develop effective note-taking skills. Students analyze their current skills and problem areas. Course includes pre-lecture preparation, effective listening techniques, identifying key information in a lecture, outlining skills, note-taking strategies, and the Cornell method of note taking and studying. Application activities reinforce concepts in each area.

SS 1.184 Studying for Tests*(20 class hrs, 1 cr) F/W/Sp/Su*

In this self-paced, instructor-guided course, students develop strategies for test preparation. Students learn how to anticipate course requirements, plan study time, and learn methods for identifying, organizing and actively learning the important information in a course. Included is study of mapping as a tool for learning course information.

SS 1.185 Test-taking Skills*(20 class hrs, 1 cr) F/W/Sp/Su*

In this self-paced, instructor-guided course, students develop test-taking skills. Students learn to anticipate why and when tests are given, evaluate their test-taking attitudes, develop successful test-taking strategies for objective and essay tests, learn post-test evaluation, and explore test anxiety and methods for managing it.

TA: THEATER**TA 144 Improvisation***(3 class hrs/wk, 3 cr) F*

Introduction to the basic strategies of developing spontaneous responses and critical thinking skills to manage unexpected situations. Includes role playing and scene development.

TA 145 Improvisation*(3 class hrs/wk, 3 cr) W*

Introduction to the basic strategies of developing spontaneous responses and critical thinking skills to manage unexpected situations. Includes performance improvisation.

TA 146 Improvisation*(3 class hrs/wk, 3 cr) Sp*

Introduction to the basic strategies of developing spontaneous responses and critical thinking skills to manage unexpected situations. Includes narrated storytelling.

TA 147 Introduction to Theater*➤ (3 class hrs/wk, 3 cr) W/Sp*

A lecture/discussion course that surveys, from an audience's point of view, the place of theater in our culture; theatrical production styles and personnel involved in creating a live theatrical event.

TA 180 Rehearsal and Performance*(2–6 class hrs/wk, 1–3 cr) F/W/Sp*

Offers credit for participating in a public theater production of the college. Productions provide both extracurricular activity for non-majors and practical application of classroom theory for theater students. May be repeated for up to six credits. Prerequisite: Instructor's approval.

TA 190 Projects in Theater*(2–6 class hrs/wk, 1–3 cr) F/W/Sp/Su*

Offers individually arranged projects in the theater. May be repeated for up to nine credits. Prerequisite: Instructor's approval.

TA 198 Independent Studies: Theater*(2–6 class hrs/wk, 1–3 cr) F/W/Sp/Su*

Offers individually arranged projects in the theater. Prerequisite: Instructor's approval.

TA 244 Stagecraft*(3 class hrs/wk, 3 cr) On demand*

Introduces basic theater technology emphasizing the practical skills and crafts used in the performing arts to include equipment, materials and techniques used in the constructing and mounting of a theatrical production. Uses the Performing Arts Department's production schedule as a practical demonstration of these crafts, skills and techniques. Prior experience not required or expected.

TA 246 Creative Drama for Teachers*(3 class hrs/wk, 3 cr) Sp*

Explores philosophy, literature, activities and teaching methods of creative dramatics for children.

TA 247 Make Up*(3 class hrs/wk, 3 cr) On demand*

The course includes basic theory, techniques and practical laboratory experience of stage make up valuable to all individuals interested in working on stage or behind the scenes and serves as an introductory experience for those interested in make up applications in film television and video production. Previous experience is not required.

TA 248 Fundamentals of Acting I*(3 class hrs/wk, 3 cr) F/W*

Introduction to the art and craft of acting. Acting as an art form, and its place in world culture.

TA 249 Fundamentals of Acting II*(3 class hrs/wk, 3 cr) As needed*

Introduction to the art and craft of acting. Acting as an art form, and its place in world culture. Prerequisite: Either TA 248 Fundamentals of Acting I; TA 144, 145 or 146 Improvisation; or instructor's approval.

TA 250 Workshop: Theater Arts*(2–6 class hrs/wk, 1–3 cr) F/W/Sp*

Offers practical experience in the preparation of scenery, costumes, properties, sound and publicity for a college theatrical production. May be repeated for up to six credits.

TA 280 CWE Theater Arts*(6–42 class hrs/wk, 2–14 cr) F/W/Sp/Su*

Gives students practical experience in supervised employment related to theater arts. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

TA 290 Projects in Theater*(2–6 class hrs/wk, 1–3 cr) F/W/Sp/Su*

Offers individually arranged projects in the theater. May be repeated for up to 9 credits. Prerequisite: Three credits of TA 190 Projects in Theater and instructor's approval.

TA 298 Independent Studies: Theater*(2–6 class hrs/wk, 1–3 cr) F/W/Sp/Su*

Offers individually arranged projects in the theater. Prerequisite: Instructor's approval.

VT: BASIC VETERINARY ASSISTANT**VT 8.601 Foundation Sciences***(33 hrs, 2 cr) As needed*

Provides students with knowledge and skills in basic biological sciences, including a knowledge of microbiology, virology, anatomy, physiology and parasitology.

VT 8.605 Veterinary Medicine*(78 hrs, 7 cr) As needed*

Provides students with an understanding of common medical procedures and diseases of small and large animals. Students receive training and practice in nursing skills, knowledge of vaccines and standard protocols, foundation areas such as reproduction and nutrition, and specialized areas such as dentistry, cardiology, endocrinology and dermatology. Students gain skills relevant to these areas and current information regarding appropriate treatment methods.

VT 8.610 Standard Hospital Practices*(17 hrs, 1 cr) As needed*

Students gain information regarding general medical and clinical procedures. Students learn office-call procedures, medical terminology, basic business methods, interpersonal skills, and federal and state regulations specific to veterinary clinics.

VT 8.615 Clinical Sciences*(29 hrs, 2 cr) As needed*

Helps students develop the knowledge and skills to perform clinical tasks relevant to veterinary clinics. Both in the classroom and the laboratory, students perform clinical procedures such as intravenous catheterization, urinalysis, diagnostic cytology and complete blood counts.

VT 8.620 Surgery and Anesthesia*(43 hrs, 2 cr) As needed*

Gives students the knowledge and skills necessary to perform the tasks associated with induction and maintenance of anesthesia, as well as those specific to surgery. Through lecture, demonstration and lab exercises, students learn to monitor planes of anesthesia, correct physiologic imbalances, and prepare materials essential to surgery.

VT 8.625 Radiology*(20 hrs, 2 cr) As needed*

Students gain a basic knowledge of the nature of radiation and how to take diagnostic-quality radiographs. Students acquire the necessary number of hours in education in veterinary radiation use and safety required by the Oregon Administrative rules. Upon completion of the course, students are radiation safety certified and therefore qualified to take radiographs at the completion of the section.

VT 8.630 Pharmacology*(20 hrs, 2 cr) As needed*

Students gain a working knowledge of the commonly used drugs in veterinary medicine. This includes a knowledge of pharmacokinetics, drug classifications, indications and routes of administration, and the skills to calculate drug dosages.

WD: WELDING**WD 4.151 Welding I***(4 class hrs/wk, 2 cr) F/W/Sp*

Stresses safety and equipment familiarization, with lab exercises for skill development in basic gas and electric arc welding. Includes technical information lectures in related subjects.

WD 4.152 Welding II*(4 class hrs/wk, 2 cr) F/W/Sp*

Provides welding skill level required in minor industrial applications. Includes more advanced electric arc-welding and an introduction to gas-shielded arc processes (MIG and TIG), as well as lab and technical information on related welding subjects. Prerequisite: WD 4.151 Welding I.

WD 4.156 Machinery Operation and Maintenance*(3 class hrs/wk, 3 cr) Sp*

A comprehensive study of the in-plant installation, operation and maintenance of manufacturing machinery. Includes safety, rigging, pumps, compressors, bearings, lubrication, motors with couplings, and clutches. Also includes machinery alignment and how it is accomplished. Prerequisite: Instructor's approval.

WD 4.157 Machinery Operation Essentials*(3 class hrs/wk, 3 cr) Sp*

Introductory class to the mechanical aspects of manufacturing trades. The class provides an overview of many important aspects a student will encounter entering into the industrial trades.

WD 4.160 Prep for Certification*(4 class hrs/wk, 2 cr) F/W/Sp*

A course designed to allow the individual who has achieved sufficient welding skill proficiency to prepare for applicable AWS Plate Welder Qualification tests and/or ASME Pipe Welder Qualification tests. The student may test during the course upon receiving instructor written permission based on instructor evaluation of student demonstrated welding skill level, welding technique, weld quality and consistency. Testing is performed by an independent testing agency. Prerequisite: WD 4.152 Welding II or instructor's approval.

WD 4.240 Basic Arc Welding (SMAW)*(12 class hrs/wk, 6 cr) F*

A beginning career course stressing safety and equipment familiarization, with lab exercises for skill development in basic fundamentals of electric arc welding (SMAW) process. It includes technical information lectures in related subjects. Prerequisite: WD 4.151 Welding I, previous welding classes or experience, or instructor's approval.

WD 4.241 Intermediate Arc Welding (GMAW and GTAW)*(12 class hrs/wk, 1-6 cr) W*

A continuing career course stressing safety and equipment familiarization with lab exercises for skill development in the fundamentals of electric arc welding process. It includes technical information lectures in related subjects. The process covered in this course are GMAW and GTAW. Prerequisite: WD 4.240 Basic Arc Welding or instructor's approval.

WD 4.242 Fabrication and Repair Practices I*(8 class hrs/wk, 4 cr) F*

Introduces oxyacetylene welding and cutting practices on mild steel of various thicknesses and joint configurations in all positions. Covers basic fundamentals of fabrication and joint alignment.

WD 4.243 Fabrication and Repair Practices II*(8 class hrs/wk, 1-4 cr) W*

Covers fundamentals of welding fabrication and repair. Introduces basic procedures in planning, sketching, cost evaluation, ordering, layout, metal preparation, tack-up and final welding. Prerequisite: WD 4.240 Basic Arc Welding, WD 4.242 Fabrication and Repair Practices I, WD 4.258 Basic Print Reading: Welders.

WD 4.245 Layout Procedures for Metals*(4 class hrs/wk, 3 cr) Sp*

Introduces layout principles and applications. Tools and equipment for layout are studied in respect to their operating performance, with emphasis on maintenance. Includes planning and construction of templates, layout and specific fabrication to examine process quality. Prerequisites: WD 4.247 Interpreting Metal Fabrication Drawings, WD 4.258 Basic Print Reading: Welders, or instructor's approval.

WD 4.246 Advanced Arc Welding (SMAW and FCAW)*(12 class hrs/wk, 1-6 cr) Sp*

Stresses safety and equipment familiarization with lab exercises for skill development in the fundamentals of electric arc welding SMAW and FCAW processes. It includes technical information lectures in related subjects and preparation for AWS welder's certification. Prerequisites: WD 4.240 Basic Arc Welding, WD 4.241 Intermediate Arc Welding or instructor's approval.

WD 4.247 Interpreting Metal Fabrication Drawings*(4 class hrs/wk, 3 cr) W*

Introduces the principles of interpretation and application of industrial fabrication drawings. Basic principles and techniques of metal fabrication are introduced by planning and construction of fixtures used in fabrication from drawings. Basic tools and equipment for layout fitting of welded fabrications are utilized. Covers the use and application of the AWS welding symbols. Prerequisite: WD 4.258 Basic Print Reading: Welders.

WD 4.250 Fabrication and Repair Practices III*(8 class hrs/wk, 4 cr) Sp*

Continues WD 4.243 Fabrication and Repair Practices II. Provides a more in-depth approach to welding design, fabrication and repair. Uses the principles and techniques of metal fabrication from drawings. Prerequisites: WD 4.241 Intermediate Arc Welding (GMAW & GTAW), WD 4.243 Fabrication and Repair II or instructor's approval.

WD 4.251 Fundamentals of Welding Inspection*(4 class hrs/wk, 3 cr) Sp*

Covers general duties and responsibilities of the welding inspector, including the essential subject matter required to judge the quality of welded products to meet the requirement of specifications and code standards. The course offers a comprehensive review of welding procedures, metallurgical considerations, materials control, weld defects testing, examination methods and inspection techniques. Prerequisite: Previous occupational/training experience with direct relationship to weldments, design production, construction-inspection or NDT testing.

WD 4.255 Fabrication of Structural Systems*(8 class hrs/wk, 4 cr) W*

In this skill-building course, students gain advanced oxy-fuel cutting and fabrication skills using various structural materials and components. Includes applied mechanical blue print reading, cost estimating, ordering, inventorying materials, layout and final assembly. Prerequisites: WD 4.250 Fabrication and Repair Practices III, WD 4.152 Welding II, WD 4.258 Basic Print Reading and WD 4.245 Layout Procedures for Welding, or instructor's approval.

WD 4.256 Basic Pipe Welding Skills*(8 class hrs/wk, 4 cr) F*

Introduces and provides hands-on skill development in basic vertical-up open-v groove butt-joint pipe welding techniques on carbon steel pipe with the shielded metal arc welding and gas tungsten-arc welding (TIG) processes. Includes technical information lectures in related subjects. Prerequisite: WD 4.152 Welding II or instructor's approval.

WD 4.257 Fabrication and Repair: Applied Problem Solving*(8 class hrs/wk, 4 cr) Sp*

Introduces students to the problem-solving process in many fabrication and repair of welded structures and piping system applications. Prerequisite: WD 4.255 Fabrication of Structural Systems.

WD 4.258 Basic Print Reading: Welders*(4 class hrs/wk, 3 cr) F*

Introduces principles of welding fabrication drawings. Visualization of parts and projects, dimensioning and sketching are presented to develop the skills necessary to function in the fabrication and repair field and other related fields that require knowledge of prints.

WD 4.260 Basic Wire-Feed Welding*(4 class hrs/wk, 2 cr) Sp*

Provides the basic information and hands-on skills required to operate the MIG short arc (gas metal-arc welding short-circuiting metal transfer), MIG spray transfer (gas metal-arc welding spray transfer), and gas-shielded flux-cored arc welding processes on steel in the flat, horizontal, and vertical positions as applicable to each specific welding process. Technical information lectures will include related subject areas such as basic machine set up and operation, process limitations, the welding machine wire-feeding mechanism, and required shielding gas types for the MIG short arc, MIG spray transfer, and gas-shielded flux-cored welding processes on steel. Prerequisite: WD 4.152 Welding II or instructor's approval.

WD 4.265 Print Reading and Welding Exploration*(4 class hrs/wk, 3 cr) F*

Basic introduction of print reading and welding principles. In the area of blue print, the class will emphasize views, how and when they are used, and terms and symbols. In the area of welding, the class emphasis will be safety, the basics of oxy-acetylene process, shielded metal arc welding and gas metal arc welding.

WD 4.280 Aluminum Welding GTAW and GMAW*(4 class hrs/wk, 2 cr) W*

Provides additional hands-on skill development with the Gas Tungsten-Arc Welding process on aluminum alloys beyond the introduction provided in prerequisite WD 4.152 Welding II; also provides an introduction to the Gas Metal-Arc Welding process on aluminum alloys. Includes technical information lectures in related subject areas. Prerequisite: WD 4.152 Welding II or instructor's approval.

WE: COOPERATIVE WORK EXPERIENCE— CAREER EXPLORATION

WE 202 CWE Seminar*(1 class hr/wk, 1 cr) F/W/Sp/Su*

The CWE seminar is a course designed to provide opportunities for students involved in a CWE course to share work-related experiences with their work experience coordinator. Note: May be repeated for up to four credits.

WE 280 Cooperative Work Experience – Career Exploration*(3–42 class hrs/wk, 1–14 cr) F/W/Sp/Su*

An instructional program designed to give students practical experience in a supervised training position related to their career interest. Students identify learning objectives, work a specified number of hours during the term and participate in related seminar activities. Credits earned are based upon identified objectives and number of hours worked. Prerequisite: CWE coordinator approval.

WR: WRITING

WR 1.050 Survey of Basic Writing Skills*(3 class hrs/wk, 0 cr) F/W/Sp*

Designed for students who are preparing for the GED Writing Test and for ESOL students who want to improve their writing skills. It includes grammar, sentence construction, punctuation, some reading, and informal and formal writing practice. The course also includes basic instruction for using a computer to write documents. Prerequisite: Referral from GED or ESOL faculty and payment of GED/ESOL fee.

WR 050 Survey of Basic Writing Skills*(3 class hrs/wk, 3 cr) F/W/Sp*

Designed for students who are preparing for WR 090 The Write Course or the GED Writing Test and for people who want to brush up on their writing skills. It includes grammar, sentence construction, punctuation, some reading, and informal and formal writing practice. The course also includes basic instruction for using a computer to write documents. It is appropriate for ESOL students who have very high level speaking and listening skills. Prerequisite: Appropriate score on the writing portion of the Computerized Placement Test or referral from GED or ESOL faculty.

WR 075 Spelling*(3 class hrs/wk, 3 cr) W/Sp*

Introduces students to a highly interactive approach to eliminate the most common spelling errors. Includes developing a bank of tools and strategies that enable students to continue to improve. Prerequisite: RD 070 Foundation Reading Skills or appropriate score on reading portion of Computerized Placement Test. Non-native speakers are advised to co-register for a vocabulary course.

WR 083 English Review for College Preparation*(2 class hrs/wk, 2 cr) As needed*

Designed for people who are thinking about coming to LBCC and want to brush up on language skills as well as explore issues related to returning to school. Includes some basic grammar and punctuation instruction, reading skills and informal writing practice. The course also includes basic instruction for using a computer to write documents.

WR 085 Writing Refresher Online*(3 class hrs/wk, 3 cr) W/Sp*

Reviews writing skills required for effective communication by focusing on basic writing conventions in sentences and paragraphs. Instruction includes basic communication skills, language mechanics, grammar, some spelling, sentence structure and paragraph development. Designed for students who want a refresher on the basic components of good writing. After taking the course, students wishing to continue in writing classes would retake the placement test to see which class to take next. Prerequisite: Successful completion of WR 050 or appropriate score on the Computerized Placement Test, basic computer skills and access, on-site orientation session.

WR 090 The Write Course*(4 class hrs/wk, 4 cr) F/W/Sp/Su*

Introduces writing required for effective communication. This course focuses on English conventions, writing sentences, and basic paragraph writing. Prerequisite: Successful completion of WR 050 (with a "C" grade or better) or an appropriate minimum score on the writing portion of the Computerized Placement Test.

WR 095 College Writing Fundamentals*(3 class hrs/wk, 3 cr) F/W/Sp/Su*

Prepares students to successfully use the writing process (plan, draft, revise, edit, proofread); use specific, sufficient, relevant support as evidence to support ideas; effectively use appropriate writer's resources; and edit and proofread for standard English and correct punctuation. Prerequisite: Successful completion of WR 090 the Write Course ("C" or better grade) or appropriate score on the Computerized Placement Test.

WR 115 Introduction to College Writing*(3 class hrs/wk, 3 cr) F/W/Sp/Su*

Introduces college-level critical inquiry in academic and professional reading and writing. WR 115 students critically read, summarize, and respond in paragraph format. Students develop expository essay writing skills, review conventions, and use individual and collaborative processes. Note: This course does not satisfy institutional writing requirements for the degree seeking or transfer student. Prerequisite: Placement in WR 115 is determined by pre-enrollment testing (CPT) or by passing WR 095 with a grade of "C" or better. Students may challenge their mandatory placement, with an advisor's approval, by signing a self-placement form through their counselor.

WR 121 English Composition*(3 class hrs/wk, 3 cr) F/W/Sp/Su*

Covers processes and fundamentals of writing expository essays, including structure, organization and development, diction and style, revision and editing, mechanics and standard usage required for college-level writing. Placement determined by pre-enrollment testing (CPT). Prerequisite: Placement in WR 121 is determined by pre-enrollment testing (CPT) or by passing WR 115 with a grade of "C" or better. Students may challenge their mandatory placement, with an advisor's approval, by signing a self-placement form through their counselor.

WR 122 English Composition: Argumentation*(3 class hrs/wk, 3 cr) F/W/Sp/Su*

Emphasizes the logical means of supporting claims in argumentative essays, thesis statements and reasoning. Includes logic, style and research. Prerequisite: WR 121 English Composition or equivalent.

WR 123 English Composition: Research*(3 class hrs/wk, 3 cr) W/Sp*

Introduces informative and analytical writing supported by research. Students design a research plan, use primary and secondary sources critically, develop research methods, use proper documentation and develop writing strategies for longer papers. Prerequisite: WR 121 English Composition.

WR 185 Understanding English Grammar*(3 class hrs/wk, 3 cr) W*

Explores the structure of the English language as well as its grammatical conventions. Students may then make grammatical choices realizing the rhetorical effects of those choices on the reader. This is not a remedial course. Prerequisite: WR 121 English Composition.

WR 214 Business Communication*(3 class hrs/wk, 3 cr) F/W/Sp*

Explores writing as a strategy for problem-solving in business settings. Develops analytical skills and audience awareness in complex writing situations. Includes group problem-solving, fact-finding interviewing, library and internet-based research, evaluating ethical issues, developing appropriate formats and composing, revising, designing, and editing business documents. Emphasizes written and oral communication in business, including information gathering, writing, editing, listening, interviewing, nonverbal communication, and collaboration. Prerequisite: WR 121 English Composition.

WR 227 Technical Writing*(3 class hrs/wk, 3 cr) F/W/Sp/Su*

Introduces students to the types of writing they will encounter in business, industry, the academic world, and government. It examines the rhetorical nature of writing and asks students to think critically about content, audience, argument and structure. Students will design, write and revise descriptions, job application documents (resumes and application letters), instructions, proposals, and formal technical reports. Prerequisite: WR 121 English Composition.

WR 228 Technical Writing II*(3 class hrs/wk, 3 cr) W*

Advances student knowledge of producing technical documents to meet a variety of industry standards for reports and record keeping with professional editing skills. Student must complete an advanced capstone project in his or her main interest area. Keyboarding and design program knowledge encouraged. Prerequisite: "C" or better in WR 227 Technical Writing or comparable and demonstrable workplace training and experience.

WR 240 Creative Writing: Nonfiction*➤(3 class hrs/wk, 3 cr) On Demand*

Explores using creative writing techniques (plot, characterization, setting, metaphor, point of view, voice, etc) in nonfiction essay writing. Emphasizes the elements of the creative process: personal reflective writing, creative drafting strategies, writing workshops, and revision. Note: May be repeated for up to six credits. Prerequisite: WR 121 English Composition.

WR 241 Creative Writing: Fiction*➤(3 class hrs/wk, 3 cr) F/W/Sp*

Studies elements of short fiction (dialogue, setting, character, conflict, etc.) using workshop sessions in which students discuss the exercises and stories of their classmates. Note: May be repeated for up to six credits. Prerequisite: WR 121 English Composition.

WR 242 Creative Writing: Poetry*➤(3 class hrs/wk, 3 cr) Sp*

Studies basic elements of poetry, types of poetry, uses for poetry and the process of creating poetry. Emphasizes fostering individual style. Note: May be repeated for up to six credits. Prerequisite: WR 121 English Composition.

WR 243 Creative Writing: Script Writing*➤(3 class hrs/wk, 3 cr) Sp*

Focus on writing and submitting scripts for class discussion and analysis. Studies established writers and film for techniques, structures and styles. Note: May be repeated for up to six credits. Prerequisite: WR 121 English Composition and ENG 110 Film Studies strongly recommended.

WR 244 Advanced Creative Writing: Fiction*➤(3 class hrs/wk, 3 cr) W*

Focuses on continuing to apply the techniques and structures of fiction writing introduced in WR 241. Includes writing fiction, having work critiques by instructor and peers, and critiquing that of others in a workshop setting. Note: May be repeated for up to six credits. Prerequisite: WR 121 English Composition and WR 241 Creative Writing: Fiction.

WR 246 Editing and Publishing*(3 class hrs/wk, 3 cr) Sp*

Develops the publishing and graphics skills of students with previous writing experience. Introduces hands-on application of current electronic environments and design principles. Note: May be repeated for up to six credits. Prerequisite: WR 121 English Composition.

WR 247 Literary Publication*(3 class hrs/wk, 3 cr) W*

Develops evaluation principles and selects literature, creative nonfiction, fiction, poetry and art for publication in the campus Web-based literary publication. Note: May be repeated for up to six credits. Prerequisite: WR 121 English Composition, ENG 104 Literature: Fiction, and ENG 106 Literature Poetry strongly recommended.

WR 280 CWE English/Writing*(6-42 class hrs/wk, 2-14 cr) F/W/Sp/Su*

Gives students practical experience in supervised employment related to writing. Students identify job performance objectives, work a specified number of hours during the term, and attend a related CWE seminar. Note: Credits are based on identified objectives and number of hours worked. Prerequisite: CWE coordinator's approval.

WR 280S Service-Learning English/Writing*(3–42 class hrs/wk, 1–14 cr) F/W/Sp/Su*

An instructional program, using contextual learning, designed to promote critical thinking, citizenship and civic responsibility as students work with community partners in addressing real community needs. Students identify learning objectives, work a specified number of hours during the term, and engage in faculty-led guided reflection activities. Prerequisites: Students must have taken or must be currently taking appropriate course or courses in their major field of study. They must also have their Service-Learning approved by the appropriate faculty coordinator.

WW: WATER WASTEWATER TECHNOLOGY**WW 6.154 Process Control I***(6 class hrs/wk, 4 cr) F*

First course of a three course series covering biological treatment process control. It is designed for the student with a basic background in secondary biological treatment processes and some on-the-job experience. Common biological control strategies are covered with an emphasis on advanced operator control skills as they are related to these processes. Advanced techniques of process control are covered including computer data handling, respirometry as control tool, etc. Prerequisite: WW 6.190 Introduction to Environmental Science & Technology, WW 6.191 Water Systems Operations, WW 6.192 Wastewater Systems, WW 6.168 In-Plant Practicum.

WW 6.155 Process Control II*(4 class hrs/wk, 3 cr) W*

Second course in the three-course sequence on biological process control of municipal wastewater treatment facilities. Monitoring techniques and computer-aided data interpretation is continued for both suspended growth, attached growth, and combination treatment systems. Advanced control topics, including filamentous bacteria identification and control and biological nitrogen removal and biological phosphorus removal are covered. Prerequisite: WW 6.154 Process Control I.

WW 6.156 Industrial Electricity*(4 class hrs/wk, 3 cr) F/W*

Provides the student with a hands-on survey of electricity/electronics. Topics include DC & AC electricity, Ohm's Law, series and parallel circuits, electrical sources, semiconductor electronics and motors. The student will have an opportunity to construct various electrical circuits and test the electrical parameters associated with them, thereby confirming theoretical predictions and gaining knowledge in the proper use of electrical test equipment. Prerequisite: MTH 060 Introduction to Algebra or equivalent. Introduces basic DC electrical theory, safety, and multimeter use. Introduction to single and three phase concepts and measurements. Prepares the student for basic electrical troubleshooting required in other industrial trades. Prerequisite: MTH 065 Elementary Algebra.

WW 6.164 Water Sources*(4 class hrs/wk, 3 cr) F*

A basic class for students training to be water resource managers. Includes surface and groundwater sources. Covers hydrology, water quality, laws and regulations, flow measurements, storage, intake structures and wells.

WW 6.165 Water Distribution and Collection Systems*(2 class hrs/wk, 2 cr) Sp*

Describes the management, operation and maintenance of water distribution and sewage collection systems.

WW 6.166 Water Purification Systems*(5 class hrs/wk, 4 cr) F*

An advanced-level course designed to cover the theory, application and operation of potable water treatment systems. Theory, evaluation, and operation of mixing systems, coagulation chemistry, optimization of chemical applications, flocculation, sedimentation and filtration are the focus of this course. A major focus of this class is the evaluation of treatment systems. Prerequisite: WW 6.190 Introduction to Environmental Science & Technology, WW 6.191 Water Systems Operation, WW 6.192 Wastewater Systems, and WW 6.168 In Plant Practicum.

WW 6.167 Water Distribution and Collection Lab*(2 class hrs/wk, 1 cr) Sp*

This laboratory course is designed to parallel the topics covered in WW 6.165 Water Distribution & Collection Systems. Covers the description and Describes the application of materials and design practices used in the construction of roads, water distribution systems and sewage collection systems. Prerequisite: MTH 095 Intermediate Algebra.

WW 6.168 In-Plant Practicum*(40 class hrs/wk, 2–12 cr) Su*

In-Plant Practicum consists of full-time work in a water or wastewater treatment facility. Skills and knowledge developed in first-year courses are combined with on-the-job training by both plant supervisory personnel and LBCC visiting instructors. Prerequisites: WW 6.190 Introduction to Environmental Science & Technology, WW 6.191 Water Systems Operations, WW 6.192 Wastewater Systems, WW 6.193 Introduction to Aquatic Chemistry and Microbiology, WW 6.195 Intermediate Aquatic Chemistry and Microbiology, HE 112 Emergency First Aid or HE 252 First Aid, and instructor's approval.

WW 6.171 Industrial Water/Wastewater Treatment*(3 class hrs/wk, 3 cr) W*

An overview course covering the related applications of water and wastewater treatment in industrial installations. Covers regulatory requirements, ultra-pure water treatment systems, physical-chemical waste treatment systems, and the treatment of metal waste streams.

WW 6.181 Water/Wastewater Mechanics*(4 class hrs/wk, 3 cr) Sp*

Covers the specific equipment and mechanical skills required in the water and wastewater treatment industry. Topics include blueprint reading, valves and hydrants, backflow devices, positive displacement pumps, centrifugal pumps, chlorinators, and other applied equipment.

WW 6.190 Introduction to Environmental Science and Technology*(7 class hrs/wk, 6 cr) F*

Introduces students to field of environmental science, pollution control, and environmental technology. Provides the basic understandings of the normal ecology of the planet and the risks associated with pollution of our environment. Sources of environmental pollution and control technologies including safe drinking water, wastewater treatment, air pollution, solid waste, and hazardous waste management. Prerequisite: Enrolled in Water/Wastewater Technology. Corequisites: WW 6.193 Intro to Aquatic Chemistry & Microbiology, MTH 060 Introduction to Algebra, WR 115 Introduction to College Writing.

WW 6.191 Water Systems Operation*(12 class hrs/wk, 7 cr) Sp*

Develops the basic understanding and required skills for operation of a water treatment system including surface and groundwater sources, raw water storage and pretreatment, coagulation, flocculation, sedimentation, filtration, disinfection, fluoridation, softening corrosion control, membrane processes, finished water storage, water distribution and safety procedures in the workplace. Prerequisites: WW 6.190 Introduction to Environmental Science & Technology. Corequisite: MTH 065 Elementary Algebra and WW 6.195 Intermediate Aquatic Chemistry & Microbiology.

WW 6.192 Wastewater Systems*(12 class hrs/wk, 7 cr) W*

Covers all the common wastewater treatment processes starting with the wastewater collection system, pretreatment, and primary treatment sections of the plant through the biological secondary treatment steps and ending with selected solids handling procedures. Each treatment alternative is covered with the basic physical/biological concepts of the process and the direct operator skills and activities required for successful operation. Observation, laboratory testing, safety and calculation interpretation are used as monitoring tools in this course. Prerequisite: WW 6.190 Introduction to Environmental Science. Corequisite: MTH 065 Elementary Algebra and WW 6.194 Basic Aquatic Chemistry and Microbiology.

WW 6.193 Introduction to Aquatic Chemistry and Microbiology

(8 class hrs/wk, 4 cr) F

The first in a sequence of three chemistry and microbiology courses for water and wastewater technology students. This course covers general chemistry and microbiology skills and concepts that are applied in the second and third courses in the year-long sequence. Laboratory activities cover lab safety and basic lab skills.

WW 6.194 Basic Aquatic Chemistry and Microbiology

(8 class hrs/wk, 4 cr) W

A continuation of WW 6.193 Introduction to Aquatic Chemistry and Microbiology. Covers basic concepts relevant to wastewater treatment and applies them to common wastewater laboratory techniques (e.g. the BOD test, solids tests, microscopic identification, MPN). Prerequisite: WW 6.193 Introduction to Aquatic Chemistry and Microbiology or instructor's approval.

WW 6.195 Intermediate Aquatic Chemistry and Microbiology

(8 class hrs/wk, 4 cr) Sp

Continues WW 6.194 Basic Aquatic Chemistry and Microbiology. Covers basic concepts relevant to drinking water treatment and applies them to common laboratory techniques (e.g. alkalinity, hardness, turbidity, jar test, PA test, chlorine residual). Prerequisite: WW 6.194 Basic Aquatic Chemistry and Microbiology or instructor's approval.

WW 6.197 Solids Handling

(6 4 class hrs/wk, 3 cr) Sp

This course is designed to cover the standard procedures and processes of solids handling and residuals management. Selected topics to be covered will include chemical addition for sludge conditioning, sludge thickening processes, sludge digestion, mechanical dewatering, composting, land application practices, and related lab procedures. Prerequisite: WW 6.155 Process Control II.

WW 6.198 Instrumentation

(5 class hrs/wk, 4 cr) Sp

Provides an introduction to the instrumentation processes used to monitor and control contemporary water and wastewater treatment facilities. Measurement of temperature, pressure, liquid level and flow, and the transmission and control of these parameters will be discussed. Prerequisite: WW 6.156 Industrial Electricity.

WW 6.199 Introduction to Hydraulics

(4 class hrs/wk, 2 cr) F

Provides an introduction to hydraulics for water/wastewater treatment plant operators. Includes performing basic hydraulic computations, hydraulic measurement units, pressure, head, head loss, flow and pump calculations. Corequisite: MTH 060 Introduction to Algebra.

WW 6.235 Applied Hydraulics

(3 class hrs/wk, 3 cr) W

A practical course covering flow, head and head loss calculations, pump calculations and pump curves. Applications are made to water distribution systems and sewage collection systems. Corequisite: MTH 095 Intermediate Algebra.

LBCC's Alcohol- and Drug-Free Program

As one part of its Alcohol- and Drug-free (Workplace/School) Program, Linn-Benton Community College has developed a brochure to provide students and staff information about the health risks associated with the use of illegal drugs and abuse of alcohol. It also includes standards of conduct required of students and staff, LBCC sanctions, legal sanctions, and counseling and treatment resources available in the area. This document has been printed here in abbreviated form. To obtain the full-text document, contact LBCC's Human Resources Office, 917-4420, or view online at www.linnbenton.edu/go/about-lbcc/policies/drugfree.

I. INTRODUCTION

Linn-Benton Community College is legally required and morally committed to the prevention of illicit drug use and the abuse of alcohol by both students and employees. Drug and alcohol abuse is a significant public health problem which has spread throughout our society, affecting performance and productivity, as well as our level of general health. In addition, the use of drugs can adversely affect an organization's level of safety as well as its public confidence and trust. In brief, this section has been developed by LBCC to comply with the federal law and to educate and inform its students and employees of the health risks, counseling and treatment resources, and sanctions for noncompliance. Linn-Benton will biennially review this program to determine its effectiveness and implement changes if needed and to ensure that the sanctions required are consistently enforced.

II. STANDARDS OF CONDUCT

Students

The LBCC *Student Rights, Freedoms, Responsibilities & Conduct* document (page 6, number 14) defines the following behaviors as violations of the standards of student conduct: "use, possession, or distribution of alcoholic beverages, narcotics, or dangerous drugs except as expressly permitted by law." The document may be viewed online at www.linnbenton.edu/go/studentrights.

Employees

In compliance with the Drug-Free Workplace Act of 1988 and the Drug-Free Schools and Communities Act Amendment of 1989 (Public Law 101-226), it shall be the policy of Linn-Benton Community College to maintain an alcohol and drug-free workplace for all employees of the District. The unlawful manufacture, distribution, dispensation, possession or use of alcohol or a controlled substance, except by physician's prescription, is strictly prohibited in the workplace(s) of the Linn-Benton Community College District.

III. A DESCRIPTION OF THE HEALTH RISKS ASSOCIATED WITH THE USE OF ILICIT DRUGS AND THE ABUSE OF ALCOHOL

Illicit Drugs

Marijuana is addictive and can cause: impaired short-term memory, visual tracking, heart rate, slowed reaction time/poor coordination, lung disease and damage to reproductive functions.

Cocaine and Crack are highly addictive and may cause: impaired judgment, short attention span, irritability, depression, mood swings, malnutrition, severe weight loss and liver damage, coma, seizure and heart attack.

PCP, LSD, Heroin, Mescaline and Morphine have a wide variety of negative health effects which may include: hallucinations, mental confusion and/or permanent loss of mental function, addiction, convulsions, coma, death.

Prescription Drugs are too often used to reduce stress and are not safe unless they are taken as prescribed. If abused, they can lead to: malnutrition, sluggishness or hyperactivity, impaired reflexes, addiction and brain damage, coma, death.

Alcohol is the most commonly abused drug and can cause: loss of concentration, poor judgment and coordination, impaired memory, drowsiness and mood swings, liver damage/cirrhosis of the liver, high blood pressure and heart attack, pancreatitis, various cancers, heart disease.

IV. A DESCRIPTION OF THE APPLICABLE LEGAL SANCTIONS UNDER LOCAL, STATE, AND FEDERAL LAW FOR UNLAWFUL POSSESSION, USE, OR DISTRIBUTION OF ILICIT DRUGS AND ALCOHOL

The following chart describes the penalties in general for possession of key drugs according to the Federal Drug Schedules.

	Maximum Prison Time	Maximum Fine
Schedule I - Class B Felony Heroin, LSD, other hallucinogens, marijuana, others	10 years	\$100,000
Schedule II - Class C Felony Methadone, morphine, amphetamine, cocaine, PCP	5 years	\$100,000
Schedule III - Class A Misdemeanor Non-amphetamine stimulants, some depressants	1 year	\$2,500
Schedule IV - Class C Misdemeanor Valium-type tranquilizers, some less potent depressants	30 days	\$500
Schedule V - Violation Dilute mixtures, compounds with small amounts of controlled drugs	none	\$1,000

Delivery of less than five grams or possession of less than one ounce of marijuana is a violation. HB 2479 established mandatory evaluation, education and treatment services for those under 18 years of age. If services are successfully completed, the charge will be dropped. Oregon has strong laws allowing cars, boats, etc. that transport illegal drugs to be seized and forfeited. Alcohol is an illegal drug for those under 21 years of age. For drivers under 18, ANY detectable amount of alcohol (above .00 BAC) is grounds for losing their license until they are 18. There are many more laws pertaining to alcohol and other drugs. This is a sample to demonstrate that most drugs are VERY illegal, and a criminal conviction may bar a student from their chosen career path or an employee from successful employment with the college.

V. LBCC SANCTIONS

Students

Sanctions which may be imposed on students for violations of the code include: *disciplinary warning*, *disciplinary probation* (a written warning by the dean of student services or college president), *temporary exclusion* (removal for up to two class periods or longer), *suspension* (exclusion from classes and activities and/or forfeiture of the right to enter the campus, *expulsion* (termination of student status).

Employees

The college will impose sanctions or require satisfactory completion of a drug abuse assistance or rehabilitation program. Sanctions imposed may include *disciplinary probation* (the suspension of a more severe penalty for a specific time period, based upon good behavior), *suspension* (the temporary barring from employment for a specific time period, without pay), and/or *termination* (the severance of employment with the college).

VI. ASSISTANCE PROGRAMS AVAILABLE TO STUDENTS AND EMPLOYEES

Benton County Alcohol and Drug Treatment Program	766-6835	Drug & Alcohol Abuse Hotline	1-800-621-1646
Linn County Alcohol and Drug Treatment Program	967-3819	Community Outreach/ASSETS	758-3000
Alcoholics Anonymous, Linn & Benton counties	766-3677	Teen Challenge, Inc.	1-503-585-6278
Ala-Non, Linn & Benton counties	967-6262	Milestones Family Recovery Program, Corvallis	753-2230
Narcotics Anonymous Helpline	1-877-233-4287	Serenity Lane, Albany	928-9681

COLLEGE RESOURCES FOR STUDENTS:

Counseling Center, Takena Hall..... 917-4780

COLLEGE RESOURCES FOR EMPLOYEES:

LBCC provides an Employee Assistance Program (EAP), available to all contracted employees. Through this program, each employee and his or her dependents are allowed five visits per year at no cost for appraisal, limited counseling and/or referral. All employee contact with EAP is **strictly confidential**. Phone numbers for EAP include: (800/922-7009; Corvallis (541/754-8004) or Eugene (541/344-6929).