

# Course Descriptions

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## Course Descriptions

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**AB**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

## **Auto Body/Collision Repair**

### **AB-101 Auto Restoration**

3 credits, Fall/Winter/Spring/Summer  
Designed for students interested in auto body repair and painting their own vehicles. Includes dent removal, panel replacement, welding and painting. May be repeated for up to 12 credits.

### **AB-105 Street Rod Construction Techniques**

3 credits, Fall/Winter/Spring/Summer  
Instruction on panel forming, welding, basic body work and repair of your own projects. Includes shop safety, chemical hazard safety, proper and safe use of tools, basic metal work and finishing, and paint preparation and application.

### **AB-106 Basic Metalforming**

2 credits, Not Offered Every Term  
Instruction in basic metalforming techniques used in the fabrication of replacement or modified parts used in the construction of automobiles, motorcycles, aircraft, and metal sculpture. Includes shop safety.

### **AB-112 Collision Repair Welding I**

2 credits, Fall/Winter/Spring  
Focus is on auto collision damage repair. Emphasis is on Metal Inert Gas (MIG), Gas Metal Arc Welding (GMAW), welding on light gauge metals, oxygen-acetylene welding cutting and forming.

### **AB-113 Collision Repair I/Nonstructural**

6 credits, Fall/Winter/Spring  
Provides basic instruction in collision repairs, including shop safety and chemical hazard safety; proper and safe use of tools; basic metal work and finishing; use of filler; door removal, replacement and alignment; and replacement and alignment of bolt-on front end sheet metal parts. Prereq or Corequisite: AB-112 and ABR-125

### **AB-123 Collision Repair Welding II**

2 credits, Fall/Winter/Spring  
Training in light gauge metal repair: Gas Metal Arc Welding (GMAW). Plasma Arc Cutting (PAC), Squeeze Type Resistance Spot Welding (S-TRSW), and other advanced welding techniques specific to collision damage repair. Prerequisite: AB-112

### **AB-133 Collision Repair II/Structural**

6 credits, Fall/Winter/Spring  
Repair major body damage using modern frame repair equipment. Includes repair and replacement of bolt-on, bonded, and welded components using the latest technology. Includes introduction to computerized measuring and damage analysis. Prerequisite: AB-113

### **AB-149 Collision Repair Estimating I**

2 credits, Fall  
Provides instruction in procedure and terminology used in the collision repair estimating field. Body part component identification and the effects of a collision on a vehicle will be studied.

### **AB-150 Collision Repair Computerized Estimating - Audatex**

2 credits, Winter  
Provides detailed instruction in the use of modern computerized estimating systems in the collision repair field. Focus is on Audatex software. Prerequisite: AB-149

### **AB-151 Collision Repair Computerized Estimating – CCC-ONE**

2 credits, Spring  
Provides detailed instruction in the use of modern computerized estimating systems in the collision repair field. Focus is on CCC-ONE software. Prerequisite: AB-149

### **AB-222 Collision Repair III/Advanced Structural**

6 credits, Fall/Winter/Spring  
Major collision repair with a systems approach: frame and structure, panels, suspension and brakes, electrical and cooling systems. Emphasis on frame and unibody repair, replacement of welded body panels, and diagnosis and repair of related damage. Prerequisite: AB-133

### **AB-224 Collision Repair IV/Advanced Structural**

6 credits, Fall/Winter/Spring  
Advanced frame and Unibody repair procedures. Electronic measurement and dimensioning, repair documentation, brakes, suspension, and alignment as they relate to collision repair. Prerequisite: AB-222

### **AB-226 Collision Repair V/Advanced Structural**

6 credits, Fall/Winter/Spring  
Uses the latest high quality, productive techniques and equipment to repair vehicles to pre-collision condition. Covers the refined collision repair processes for today's workplace. Prerequisite: AB-224

### **AB-235 Collision Repair Welding III**

2 credits, Fall/Winter/Spring  
Aluminum welding for collision damage repair. Gas Metal Arc Welding (GMAW) and Gas Tungsten Arc Welding (GTAW) processes are learned, along with related weld repair techniques and equipment/safety procedures. Prerequisite: AB-123

### **AB-280 Collision Repair/CWE**

2-6 credits, Fall/Winter/Spring/Summer  
Cooperative work experience. Work-based learning experience in an auto body repair shop. Corequisite: CWE-281  
Required: Instructor consent.

**ABR**

Courses with this prefix may not transfer with credit to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

## **Auto Body/Collision Repair and Refinishing**

### **ABR-125 Collision Repair/Refinishing I**

6 credits, Fall/Winter/Spring  
Covers shop safety, fire prevention, selection and use of paint products, abrasives, fillers, basic application of primers, sealers, and topcoats. Prereq or Corequisite: AB-112 and AB-113

**ABR-127 Collision Repair/Refinishing II**

6 credits, Fall/Winter/Spring

Application of solvent and water-borne finishes, including spot repairs, color matching, complete refinishing, and problem solving. Introduction to computerized color information retrieval and mixing. Prerequisite: ABR-125

**ABR-129 Collision Repair/Refinishing III**

6 credits, Fall/Winter/Spring

Application of solvent and water-borne basecoats and tri-coats and urethane topcoats, using both foreign and domestic refinishing systems. Includes complete refinishing, spot and panel painting, color matching and problem solving. Prerequisite: ABR-127

**ABR-142 Airbrush Art**

2 credits, Fall

Includes origination or repair of automotive art, murals, lettering, logos, etc. Techniques may be applied to signage and manicurist projects. Topics include airbrush selection and maintenance, layouts and masking, colors and blending.

**ABR-152 Custom Painting Fundamentals**

2 credits, Spring

Custom color application and special effects. Covers personal protection, shop safety, environmental concerns, product choice and compatibility, selection and use of masking materials, and color harmony.

**ABR-162 Basic Automotive Pinstriping**

2 credits, Winter

Matching factory striping colors and patterns. Designing and applying custom designs. Integrating striping into graphic designs. Covers necessary materials and tools.

**ABR-225 Production Shop Techniques**

6 credits, Fall/Winter/Spring

Designed for students who wish to gain additional hands-on experience in refinishing, using the most up-to-date methods and materials. Prerequisite: ABR-129

**ABR-227 Restoration Practices**

6 credits, Fall/Winter/Spring

Designed for students who wish to broaden their skills base in the upper end refinish market. Projects will be considerably more challenging, with standards and expectations set higher. Prerequisite: ABR-225

**AM**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Automotive Mechanics****AM-100 Automotive Fundamentals**

3 credits, Fall/Winter/Spring

An introductory automotive service class intended to provide fundamental knowledge and basic experience about automobiles. Covers automotive systems, preventive maintenance and performing basic repairs. Also provides skill and knowledge for purchasing cars, choosing quality mechanics, and making good economic decisions about repairs and costs. Intended generally to enhance the overall satisfaction of being an automatic consumer and car owner. Restricted to high school students only.

**AM-106 Fix Your Own Car**

2 credits, Fall/Winter/Spring/Summer

A do-it-yourself course for students who want to work on their own cars. Includes: oil change, lubrication, fluid checks, brakes, cooling system, electrical system, safety, and other quick services. May be repeated up to 12 credits.

**AM-118 Small Engine Repair**

3 credits, Fall/Winter/Spring

This course is designed to provide an overview of basic small engine maintenance, operation and repair. It covers safety, small engine theory, electrical systems, and troubleshooting. Classroom instruction covering theory of operation, 2 cycle and 4 cycle designs and applications, combined with hands-on live projects provides the student the opportunity to learn basic principles of small engine operation, including outdoor equipment, motorcycles, and A.T.V.'s. Restricted to high school students only.

**AM-121 General Auto Repair I**

3 credits, Fall/Winter/Spring

Course material is coordinated with other auto courses. Includes live repair work and fundamentals such as safety, tools, measuring, and fasteners. For first term automotive students. Prereq or Corequisite: AM-129, AM-130, AM-131, AM-133, AM-224, or AM-235.

**AM-122 General Auto Repair II**

3 credits, Fall/Winter/Spring

Course material is coordinated with other auto courses. Includes live repair work and fundamentals such as safety, tools, measuring, and fasteners. For second term automotive students. Prerequisite: AM-121

**AM-129 Electrical Systems**

7 credits, Fall

This course includes general electrical system diagnosis; battery diagnosis and service; starting system diagnosis and repair; charging system diagnosis and repair; lighting systems diagnosis and repair; ignition system diagnosis and repair. Prerequisites: MTH-020 or placement in MTH-050, WRD-080 or placement in WRD-090

**AM-130 Brake Systems**

7 credits, Fall

Theory and lab course covers basic hydraulics, brake fluids, friction material, seals, disc and drum brakes, disc and drum brake servicing equipment, hydraulic and vacuum brake boosters and anti-lock braking systems. Prerequisites: MTH-020 or placement in MTH-050, WRD-080 or placement in WRD-090

**AM-131 Chassis Systems**

7 credits, Winter

A theory and lab course covering the design, construction, service, and repair of front and rear suspension systems, wheels and tires, steering systems, and alignments. Prerequisites: MTH-020 or placement in MTH-050, WRD-080 or placement in WRD-090

**AM-133 Engine Systems**

7 credits, Spring

A course in engine repair. Includes design, construction, testing, maintenance, repair, and rebuilding.

**AM-175 Advanced Mechanic Studies I**

3 credits, Fall/Winter/Spring

Lab course for currently enrolled automotive students wishing to specialize in specific areas of automotive repair. Prerequisites: AM-129, AM-130, AM-131, AM-133, AM-224, AM-235, AM-243, AM-244, and AM-245

**AM-185 Advanced Mechanic Studies II**

3 credits, Fall/Winter/Spring

Lab course for currently enrolled automotive students wishing to specialize in specific areas of automotive repair. Prerequisites: AM-129, AM-130, AM-131, AM-133, AM-224, AM-235, AM-243, AM-244, and AM-245

**AM-195 Advanced Mechanic Studies III**

3 credits, Fall/Winter/Spring

Lab course for currently enrolled automotive students wishing to specialize in specific areas of automotive repair. Prerequisites: AM-129, AM-130, AM-131, AM-133, AM-224, AM-235, AM-243, AM-244, and AM-245

**AM-223 Hybrid Service Technology**

3 credits, Fall/Winter/Spring

Provides students with knowledge of theory and physical description of hybrid vehicles. The student will have the opportunity to acquire practical experience in the area of diagnosing and repairing hybrid vehicles. Prerequisite: AM-244

**AM-224 Comfort Systems**

4 credits, Spring

Covers design, construction, testing, maintenance, and repair of automotive heating and air conditioning systems. Prerequisites: MTH-020 or placement in MTH-050, WRD-080 or placement in WRD-090

**AM-228 Service Shop Management**

4 credits, Spring

Course designed to familiarize students with the responsibilities of the parts manager, service manager and service writer and the day to day responsibilities of operating a business. Prerequisites: MTH-020 with a C or better, or placement in MTH-050 or higher

**AM-235 Power Transmission Systems**

7 credits, Spring

Covers construction, operation, service and repair of clutches, manual transmission, U-joints, drive lines, final drives, overdrive, and four wheel drives.

**AM-243 Fuel & Emission Control Systems**

7 credits, Winter

Covers service of fuel storage and delivery systems: fuel injection, emission controls, and other electronic engine controls. Includes DSO use and exhaust gas analysis. Prerequisites: AM-129 with a C or better

**AM-244 Advanced Electrical Systems**

7 credits, Winter

Includes an in-depth study of systems that affect engine performance and information on computerized diagnostic equipment. Covers diagnosis/repair of accessory systems, supplemental restraint systems and advanced diagnosis of electrical/electronic systems. Prerequisites: AM-129 with a C or better

**AM-245 Automatic Transmission Systems**

7 credits, Fall

Provides students with knowledge of theory and physical description of the automatic transmission. The student will have the opportunity to acquire practical experience and learn the proper procedures for overhaul and service. Prerequisites: AM-129 with a C or better.

**AM-280 Auto Mechanics/CWE**

1-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. Work-related learning experience in an auto repair shop or auto dealership. Corequisite: CWE-281. Required: Instructor consent.

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**ANT****Anthropology****ANT-101 Physical Anthropology**

4 credits, Fall/Winter/Spring

Introduces the study of humans as biocultural beings in the context of modern genetics, evolutionary theory, primate taxonomy, anatomy and behavior, fossil hominines, and the role of the physical anthropologist in forensic science. Recommended: WRD-090 or placement in RD-115

**ANT-102 Archaeology & Prehistory**

4 credits, Fall/Winter/Spring

Introduces the methods used by archaeologists to study the development of human cultures. Provides a survey of world prehistory, tracing the transition of human societies from hunting and gathering to farming, to the beginning of urban life and the rise of early civilizations. Recommended: WRD-090 or placement in RD-115

**ANT-103 Cultural Anthropology**

4 credits, Fall/Winter/Spring/Summer

Introduces the diversity of contemporary human cultures and the ways anthropologists study and compare them in an effort to understand how different societies organize their lives and make sense of the world around them. Explores the interrelationships among the various elements of culture. Recommended: WRD-090 or placement in RD-115

**ANT-231 Indians of the Pacific Northwest**

4 credits, Not Offered Every Term

Survey of Native American cultures in the Pacific Northwest region from prehistoric times to the present. Course is based on archaeological, ethno-historical, and ethnographic evidence. Includes contemporary issues in Northwest Native American life. Recommended: WRD-090 or placement in RD-115

**ANT-232 Indians of North America**

4 credits, Not Offered Every Term

A broad survey of the cultures, arts, and history of Native Americans north of Mexico. Uses archaeological, ethno-historical, and ethnographic evidence to explore the diversity of Native American cultures from prehistoric times to the present. Includes contemporary issues in Native American life. Recommended: WRD-090 or placement in RD-115

**ANT-280 Anthropology/CWE**

2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of anthropology and/or archaeology. Corequisite: CWE-281

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**ART****Art****ART-100A Jewelry Making Techniques**

1 credit, Not Offered Every Year

Various topics will introduce techniques in: construction, forming, fabrication, soldering, inlay, etching, mold making, casting, stone setting, chain making and silversmithing. Students will be encouraged to create and design their own jewelry with both meaning and function. Historical and contemporary issues surrounding jewelry and body adornment will be presented and discussed during the course. May be repeated for up to 3 credits.

**ART-100B Ceramic Making Techniques**

1 credit, Not Offered Every Year

Various topics will introduce techniques in clay construction, kiln construction, firing methods, glazing and/or other ceramic methods. Students will create and design work using clay and/or clay materials. Historical and contemporary issues related to ceramics will be presented and discussed. May be repeated for up to 3 credits.

**ART-101 Art Appreciation**

3 credits, Fall

Discover the fundamentals of thinking about and creating art through readings, class discussions, art projects and gallery/museum tours. This course will examine history, ideas and issues associated with art making and culture from ancient to 20th century.

**ART-102 Art Appreciation**

3 credits, Winter

Discover the fundamentals of thinking about and creating art through readings, class discussions, art projects and gallery/museum tours. This course will examine recent history, culture, ideas and issues associated with art and culture. Focus on modern and contemporary art.

**ART-103 Art Appreciation**

3 credits, Spring

Discover the fundamentals of thinking about and creating art through readings, class discussions, art projects and gallery/museum tours. This course will examine history, culture, ideas and issues associated with art-making and culture. Focus on the formalism of art, architecture and design.

**ART-106 Animation & Motion Graphics I**

3 credits, Fall/Winter

Introduction to the fundamentals of animation and motion graphics design. This project-based course will explore experimental and new technological approaches to creating digital effects and animation for video and web-based applications. Students will learn the basics of Adobe After Effects. Previous experience with computer graphics and digital video is recommended. Recommended: ART-221, ART-225, ART-226, and DMC-104

**ART-107 Animation & Motion Graphics II**

3 credits, Winter/Spring

This project-based course will explore intermediate aspects of experimental and new technological approaches to creating digital effects and animation for video and web-based applications. Students will learn intermediate features of Adobe After Effects to create successful motion graphics projects. Previous experience with computer graphics and digital video is recommended. Prerequisite: ART-106 or DMC-106. Recommended: ART-221, ART-225, ART-226, and DMC-104

**ART-108 Animation & Motion Graphics III**

3 credits, Spring

Continuation of the process of animation and motion graphics design. This project-based course will explore advanced aspects of experimental and new technological approaches to creating digital effects and animation for video and web-based applications. Previous experience with computer graphics and digital video is recommended. Students will learn advanced aspects of Adobe After Effects to create successful motion graphics projects. Prerequisite: ART-107 or DMC-107. Recommended: ART-221, ART-225, ART-226, and DMC-104

**ART-115 Basic Design: 2-Dimensional Design**

4 credits, Fall/Winter/Spring

Acquaints students with the vocabulary of composition and the elements and principles of design. Develop creative composition and analytical skills through projects and critiques. Examine historical and contemporary issues and ideas related to visual composition.

**ART-116 Basic Design: Color Theory & Composition**

4 credits, Fall/Winter/Spring

Explore the use of color in art. Create charts, paintings and collages that investigate the elements, principles and theory of color. Examine historical and contemporary issues and ideas of color and composition in the arts.

**ART-117 Basic Design: 3-Dimensional Composition**

4 credits, Spring

Examine the elements of form, space, structure, and sculpture. Create works of art using various sculptural processes. Examine historical and contemporary issues and ideas relating to sculpture and 3-dimensional design.

**ART-131 Drawing: Still Life and Landscape**

4 credits, Fall/Spring

Introduces basic skills, drawing tools, materials, techniques, elements of composition; line, gesture, color and value. Projects will involve observational drawing with a focus on still life and landscape images. Assignments include drawing, assigned readings, term papers and group critiques of drawing projects. Historical issues of drawing will be examined.

**ART-132 Life Drawing (Figure Emphasis)**

4 credits, Winter

Introduces basic drawing skills, tools, materials, techniques, elements of composition; line, gesture, and value. Direct observation of reality in relation to volume and form drawn onto a two-dimensional plane with a focus on the human form. Assignments include drawing, assigned readings and group critiques of drawing projects.

**ART-133 Drawing for Comics**

4 credits, Spring

Introduces basic drawing skills, drawing tools, materials, techniques, elements of composition; line, gesture, color and value. Projects will involve drawing with a focus on sequential imagery, comics and graphic style. Assignments include drawing, assigned readings and group critiques of drawing projects. This course emphasizes composition, expression and text-related imagery.

**ART-141 Digital Art Publishing**

1 credit, Not Offered Every Term

Digital printing technology has made publishing full color visually focused books on art easier than you might think. You can now have a single copy of a book printed and bound at a price comparable to a book you would find in bookstores. This hands-on course will introduce you to this exciting new world and give you the opportunity to get started on that children's book, portfolio book or other art centered book project that's been kicking around in your head. Get it out of your head and into your reader's hands. We will layout our project in Adobe InDesign and output it to a PDF file that will be ready to send off to the printer or shared online as an e-book. The course will discuss issues of layout, graphic design and digital photography as they relate to publishing art centered books.

**ART-161 Photography I**

3 credits, Fall/Winter/Spring

Introduction to basic camera operation and basic darkroom processes in developing and printing film. Elements of composition, content, and historical reference will be explored. Required: Access to a 35mm camera with adjustable exposure controls (no digital cameras).

**ART-162 Photography II**

3 credits, Winter/Spring

In this second of three Photography courses, this course continues to explore camera operation and darkroom processes in developing and printing film. Elements of composition, content, and historical reference will be explored. Required: Access to a 35mm camera with adjustable exposure controls. Prerequisites: ART-161 (no digital cameras).

**ART-163 Photography III**

3 credits, Spring

This course is the third of three Photography courses exploring basic camera operation and basic darkroom processes in developing and printing film. Elements of composition, content, and historical reference will be explored. Required: Access to a 35mm camera with adjustable exposure controls. Prerequisite: ART-161 and ART-162 (no digital cameras).

**ART-181 Painting: Plein Air (Outdoors)**

1 credit, Not Offered Every Year

This course will familiarize students with the pleasures and challenges of painting en plein air - outdoor painting. The class will consist of five field sessions providing students with a first hand experience of painting outdoors. While discovering the varied challenges of painting the landscape and negotiating the urgency of working out-of-doors, we will explore the transformative power of giving our attention to the world around us. This plein air painting class can accommodate painters of different levels of experience, and will deal with a number of concerns specific to painting outdoors, while also encouraging the development of individual interests. The class is open to both oil and acrylic disciplines.

**ART-194 Watercolor Painting**

3 credits, Not Offered Every Year

A beginning level study and practice course focused on individual exploration in technique and application of watercolor painting. Skill development in: preparation, creative expression, and presentation with the transparent medium of watercolor.

**ART-195 Watercolor Painting, Intermediate**

3 credits, Not Offered Every Year

An intermediate skill level course focused on individual exploration in technique and translucency of watercolor painting. Students continue to explore, through the application of skill development in: the preparation of compositions, creative expression, and public presentation with the medium of watercolor. Prerequisite: ART-194

**ART-196 Watercolor: Inside/Outside**

1 credit, Not Offered Every Year

A study and practice course developed to complement the individual's exploration of technique and application of watercolor painting. Skill development specific to prep and painting in natural and public environments.

**ART-197 Gallery Design & Management**

3 credits, Spring

Introduction to the fundamental goals and methodology of managing a visual arts gallery. This course examines issues of contemporary art while providing practical experience in curating, preparation and installation of exhibitions, fund raising, grant writing, public relations and related gallery objectives.

**ART-204 History of Western Art**

4 credits, Fall

Examines art, culture, and history from the Paleolithic through the Byzantine eras. This is a broad overview of art history that promotes an understanding of art and its history through readings, lectures, papers and exams. Students must be able to write brief research papers. Recommended: WRD-098 or placement in WR-121

**ART-205 History of Western Art**

4 credits, Winter

Examines art, culture, and history from the Medieval Era through the Renaissance. This is a broad overview of art history that promotes an understanding of art and its history through readings, lectures, discussions, papers and exams. Students must be able to write brief research papers. Recommended: WRD-098 or placement in WR-121

**ART-206 History of Western Art**

4 credits, Spring

Examines art, culture, and history from the Baroque period through the current century. This is a broad overview of art history that promotes an understanding of art and its history through readings, lectures, papers and exams. Students must be able to write brief research papers. Recommended: WRD-098 or placement in WR-121

**ART-221 2D Animation: Design/Techniques**

3 credits, Winter/Spring

Introduces the principles of 2D digital animation using the latest industry standard software. The course will emphasize design and physical principles, analytical skills, and creativity. Students will learn the fundamental principles of animation, character and environment design, FX animation, and basic narrative development, in order to create successful animated projects. Recommended: Pass CS-195, ART-225, and ART-131.

**ART-222 Advanced 2D Animation: Design & Techniques**

3 credits, Spring

Covers advanced principles of animation using Adobe Flash and other software. The course will emphasize professional workflow and techniques of animation production for multimedia platforms.

**ART-225 Computer Graphics I**

3 credits, Fall/Winter

Introduction to the use of digital graphics programs. Photo manipulation, illustration, and compositing techniques will be explored. Design principles and creative composition will be emphasized. Historical and contemporary issues related to graphic design aesthetics will be considered. Recommended: ART-115

**ART-226 Computer Graphics II**

3 credits, Winter/Spring

Continue exploring the processes of digital graphics programs. More advanced aspects of image compositing, bit mapping, layering, and using channels in Photoshop. More advanced aspects of vector graphics creation and document creation in Illustrator and InDesign. Creative problem solving, design applications and contemporary issues will be explored. Historical reference and current trends in digital media will continue to be examined. Recommended: ART-225

**ART-227 Computer Graphics III**

3 credits, Spring

Advanced use of multi-digital formats to create images, compositions and documents. Develop a design portfolio. Design principles, creative problem solving, historical and contemporary issues in graphics and aesthetics will be analyzed. Recommended: ART-225, ART-226

**ART-250 Ceramics/Beginning**

4 credits, Fall

Broad general introduction to ceramics. Explore different methods of working with clay, including pinching, coiling, slab construction and throwing on the wheel. Introduction to glazing and firing methods. Research into the ancient history of ceramics. Develop fundamental skills and clay experience to foster artistic growth.

**ART-251 Ceramics/Beginning**

4 credits, Winter

Broad general introduction to ceramics. Explore different methods of working with clay, including pinching, coiling, slab construction, and throwing on the wheel. Introduction to glazing and firing methods. Research into the history of ceramics from the 10th through the 19th centuries. Develop fundamental skills and clay experience to foster artistic growth.

**ART-252 Ceramics/Beginning**

4 credits, Spring

Broad general introduction to ceramics. Explore different methods of working with clay, including pinching, coiling, slab construction, and throwing on the wheel. Introduction to glazing and firing methods. Research ceramics from the early 20th century to the present. Develop fundamental skills and clay experience to foster artistic growth.

**ART-253 Ceramics/Intermediate**

4 credits, Fall

Further develop ceramic skills, artistry and ideas. Continued exploration of working with clay, including pinching, coiling, slab construction and throwing on the wheel. Continue to learn about glazing and firing. Research ancient history of ceramics.

**ART-254 Ceramics/Intermediate**

4 credits, Winter

Further develop skills and ideas to foster artistic growth. Explore different methods of working with clay, including pinching, coiling, and slab construction and throwing on the wheel. Continue to learn about glazing and firing. Research ceramics from the 10th through 19th centuries.

**ART-255 Ceramics/Intermediate**

4 credits, Spring

Further develop skills and ideas to foster artistic growth. Explore working with clay: pinching, coiling, and slab construction and throwing on the wheel. Continue to learn about glazing and firing. Research ceramics from the 20th century through the present.

**ART-257 Metalsmithing/Jewelry**

3 credits, Spring

This course examines basic techniques in metalsmithing and jewelry-making in the context of developing aesthetic solutions to technical and conceptual problems. Students will learn basic techniques and processes of metalsmithing such as sawing, cold connection, soldering, metal inlay, fabrication, forming, surface treatments and casting. The focus of this class will be placed on creating forms for body adornment. Critiques, discussions and presentations establish critical skills necessary to evaluate work, explore artistic intent, and examine aesthetic and structural solutions.

**ART-262 Digital Photography & Photo-Imaging**

3 credits, Fall/Winter/Spring

Introduces concepts, techniques, practices, aesthetics and ethics of photographic imaging and image-making with digital technology. Students will use Adobe Photoshop software. Required: Access to a digital camera with adjustable exposure controls

**ART-270 Introduction to Printmaking**

1 credit, Not Offered Every Year

Introduces various non-chemical printmaking techniques, processes and methods. Students will be encouraged to create and design their own work using these forms using both meaning and intention. Contemporary issues related to printmaking will be presented and discussed. Can be repeated for up to 3 credits.

**ART-280 Art/CWE**

2-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with on-the-job work experience in the field of art. Corequisite: CWE-281

**ART-281 Painting/Beginning**

4 credits, Fall

Introduces basic painting tools, materials, techniques, and elements of composition, color, gesture, and value. Projects will involve observational painting with a focus on Still Life and its relationship to volume and form on a two-dimensional plane. Assignments include painting, drawing, assigned readings and group critiques of painting projects.

**ART-282 Painting/Beginning**

4 credits, Winter

Introduces basic painting tools, materials, techniques, and elements of composition, color, gesture, and value. Direct observation of reality in relation to volume and form on a two-dimensional plane with a focus on the human form. Assignments include painting, readings and critique of projects.

**ART-283 Painting/Beginning**

4 credits, Spring

Introduces basic painting tools, materials, techniques, and elements of composition, color, gesture, and value. Projects will involve observational painting with a focus on landscape and its relationship to volume and form on a two-dimensional plane. Assignments include painting, drawing, assigned readings and group critiques of painting projects.



**ART-284 Painting/Intermediate**

4 credits, Fall

Utilizes advanced painting concepts, materials and techniques with emphasis on composition, color, gesture and value. Projects will involve observational painting with a focus on Still Life and its relationship to volume and form on a two-dimensional plane. Assignments include paintings, readings, and critique of projects.

**ART-285 Painting/Intermediate**

4 credits, Winter

Utilizes advanced painting concepts, materials and techniques with emphasis on composition, color, gesture and value. Projects will involve observational painting with a focus on the human form and its relationship to volume and form on a two-dimensional plane. Assignments include paintings, readings, and critique of projects.

**ART-286 Painting/Intermediate**

4 credits, Spring

Utilizes advanced painting concepts, materials and techniques with emphasis on composition, color, gesture and value. Projects will involve observational painting with a focus on landscape and its relationship to volume and form on a two-dimensional plane. Assignments include painting, drawing, assigned readings and group critiques of painting projects.

**ART-291 Sculpture**

4 credits, Fall

Introduction to the processes and concepts of sculpture; the elements of form and space will be explored. Clay, plaster, mold making, carving, and assemblage will be introduced. Reference to historical and aesthetic content will be presented.

**ART-292 Sculpture**

4 credits, Winter

Explores the human form in traditional and contemporary techniques and concepts. Use of clay, armatures, combining mediums, flexible molds and other sculpture media will be explored. Concepts of aesthetics in formal composition will be explored through projects, lectures, and critiques. The human form in the history of sculpture will be examined.

**ART-293 Sculpture**

4 credits, Spring

Examines the processes and concepts of sculpture; the elements of form, space and visual communication will be examined with emphasis on current concerns. Clay, plaster, welding, casting, and assemblage will be explored. Historical and contemporary ideas and aesthetic content will be examined.

**ART-297 Professional Practices and Artist's Skills**

3 credits, Winter

Professional practices relevant to emerging artists' careers. Lecture format includes resume and portfolio preparation, developing resources and community connections, gaining exposure and representation for artwork, creating publicity, basic marketing and exhibition strategies, presenting and installing art work, business concerns, art market dynamics, art collecting. Field trips to local galleries and/or guest lectures. Recommended: WR-121

**ASC****Arts and Sciences**

See also General Science (GS).

**ASC-175 Integrated Science Inquiry**

4 credits, Fall

An introductory laboratory course for liberal arts majors emphasizing an evolutionary approach to major topics in science through the use of integrated themes. The themes focus on the scientific discoveries and people that shape our understanding of the world. The course emphasizes an interdisciplinary perspective on science, collaborative scientific investigations and critical thinking. Themes have included: Evolution: the Idea that Shocked the World, the People and Animals of Africa, and the Lewis and Clark Expedition. Recommended: WRD-098 or placement in WR-121

**ASC-176 Integrated Science Inquiry**

4 credits, Winter

An introductory lab science course for liberal arts majors in science through the use of integrated themes. The themes focus on the scientific discoveries and people that shape our understanding of the world. The course emphasizes an interdisciplinary perspective on science, collaborative scientific investigations and critical thinking. Themes have included Human Evolution, Diseases of Africa and the Lewis and Clark Expedition. Recommended: WRD-098 or placement in WR-121

**ASC-177 Integrated Science Inquiry**

4 credits, Spring

An introductory laboratory course for liberal arts majors emphasizing an evolutionary approach to major topics in science through the use of integrated themes. The themes focus on the scientific discoveries and people that shape our understanding of the world. The course emphasizes an interdisciplinary perspective on science, collaborative scientific investigations and critical thinking. Themes have included Evolution & Contemporary Issues, Africa, and the Lewis and Clark Expedition. Recommended: WRD-098 or placement in WR-121

**ASE**

Courses with this prefix will not transfer to a four-year institution.

**Adult High School Diploma****ASE-010 Basic Math**

0 credits, Fall/Winter/Spring/Summer

Math concepts: addition, subtraction, multiplication, division of whole numbers, fractions and decimals; percentage; measurement; graphs; ratio/proportion; basic principles of algebra and geometry. Course is geared to those students who may need a slower-paced approach. Elective credit only for high school diploma requirement.

**ASE-011 Applied Math I**

0 credits, Fall/Winter/Spring/Summer

Presents the use of the numbers and operations of arithmetic while basic algebra and geometry are integrated throughout the course. The use of up-to-date technology is integrated. A scientific calculator is required.

**ASE-012 Applied Math II**

0 credits, Fall/Winter/Spring/Summer  
Presents the use of numbers and operations of arithmetic while integrating algebraic and geometric concepts throughout the course. Current technology is also incorporated.

**ASE-015 Basic English**

0 credits, Fall/Winter/Spring/Summer  
Review of English fundamentals of grammar, spelling, capitalization, and punctuation through English literature and writing. Builds a better understanding of audience and purpose for writing.

**ASE-016 Intermediate English**

0 credits, Fall/Winter/Spring/Summer  
Review of capitalization, punctuation, and spelling, with emphasis on paragraph construction. Includes practical applications of sentence patterns, subject and verb agreement, and other writing skills.

**ASE-017 Advanced English**

0 credits, Fall/Winter/Spring/Summer  
Language arts course emphasizing grammar, sentence structure, style, clarity, logic, organization, and paragraph composition. Emphasis on transition from paragraph to essay.

**ASE-020 Literature I**

0 credits, Fall/Winter/Spring/Summer  
Course focuses on literature from the 17th-19th centuries, including the elements and examples of prose, poetry, and drama that produce good literature.

**ASE-026 Health I**

0 credits, Fall/Winter/Spring/Summer  
Presents issues impacting psychosocial health; applies prevention and risk-reduction concepts to health-related problems. Determines the impact of behaviors that pose a threat to healthy living.

**ASE-028 Global Studies I**

0 credits, Fall/Winter/Spring/Summer  
Focuses on geographic tools (maps, globes, charts, graphs) to explain and analyze geographical relationships and areas. Identifies areas and physical features that have impacted historical and modern issues and events.

**ASE-029 Global Studies II**

0 credits, Fall/Winter/Spring/Summer  
Focuses upon examination, prediction, and critical evaluation of the interrelationships among social, cultural, historical, economic, and environmental processes that change the characteristics of places and regions throughout the globe over time.

**ASE-032 U.S. History I**

0 credits, Fall/Winter/Spring/Summer  
Focuses on the settlement of America to 1900, emphasizing the development of economic, political, and social systems. Analyzes causes and effects of wars and domestic and foreign policy, and examines the growth of technology.

**ASE-033 U.S. History II**

0 credits, Fall/Winter/Spring/Summer  
Focuses on the societal issues, trends, and events of US history from World War II to the present including the Cold War, civil rights movement, Vietnam War, and terrorism. Analyzes causes and effects of wars and domestic and foreign policy, and examines the growth of technology.

**ASE-034 Government I**

0 credits, Fall/Winter/Spring/Summer  
Introduces the basic principles of American government, including the branches of federal, state, and local government and how they interact. Explores foundational documents, and applies concepts to contemporary issues. Explores roles of government as they apply to foreign and domestic policies and policy shifts.

**ASE-035 Career Exploration I**

0 credits, Fall/Winter/Spring/Summer  
Explores student role models, personal strengths and weaknesses, factors influencing workplace satisfaction, online occupational sorters, training, and earning. Presents job search, acquisition, and retention strategies; defines appropriate workplace behaviors, and analyzes workplace problems in context.

**ASE-036 Personal Finance I**

0 credits, Fall/Winter/Spring/Summer  
Presents skills to promote realistic financial decisions regarding personal income and career planning, budgeting and saving, shopping and consumption, banking and credit, investing, and rights and responsibilities in the marketplace.

**ASE-037 Basic Developmental Reading**

0 credits, Fall/Winter/Spring/Summer  
Develops basic reading skills, including word parts, pronunciation, spelling, basic vocabulary, and comprehension skills. Employs strategies to assist students in becoming more proficient readers. Elective high school credit in the AHSD program.

**ASE-038 Intermediate Reading**

0 credits, Fall/Winter/Spring/Summer  
This course builds on word attach vocabulary, spelling, and reading comprehension skills to improve basic reading fluency and reading strategies. Introduces genre and focuses on academic texts.

**ASE-039 Advanced Reading**

0 credits, Fall/Winter/Spring/Summer  
Develops advanced vocabulary, reading comprehension skills, critical reading, and study skills. Explores reading in various genres including drama, poetry, fiction and non-fiction.

**ASE-041 AHSD Life Experience Assessment**

0 credits, Fall/Winter/Spring/Summer  
Assists student in documenting actual life experiences, which are then assessed toward meeting credit requirements for an Adult High School Diploma. May be repeated up to 3 high school credits.

**ASE-042 Job Skills Competency Lab**

0 credits, Fall/Winter/Spring/Summer  
Provides overview of college and career processes and expectations including cooperative work experience for employed high school students to earn elective credit. Focuses on appropriate work and college behaviors, decision making techniques, communication skills, and teamwork. Can be repeated up to 2 high school credit.

**ASE-046 Human Development**

0 credits, Fall/Winter/Spring/Summer  
Provides instruction in the areas of parent education and life skills targeted to the issues of teen parents and high school students. This course will assist students in developing positive parenting skills, understanding child development, applying appropriate practices for various developmental stages, building self-esteem, improving personal communication skills and developing survival skills. May be repeated up to 2 high school credits.

**ASE-047 Physical Education I**

0 credits, Fall/Winter/Spring/Summer  
Presents a broad perspective of sports activities including team cooperation. Explores the significance of sports in a variety of cultures. Analyzes rules, procedures, and practices that are safe and effective for specific activities.

**ASE-054 American Civics II**

0 credits, Fall/Winter/Spring/Summer  
Presents basic principles and ideals embedded in American democracy. Examines power, authority government and public with relation to American ideals and the roles, rights, and responsibilities of citizens. Explores founding concepts and structures of American government including changing and managing the constitution.

**ASE-056 Personal Finance II**

0 credits, Fall/Winter/Spring/Summer  
Explores personal finance related to types of loans, debt, large purchases, taxes, insurance, investments, financial careers, and retirement. Corequisite: ASE-057

**ASE-057 Careers II**

0 credits, Fall/Winter/Spring/Summer  
Explores the relationships between personal finance, workplace issues and personal choices. Presents skills to enter and advance in the workplace, promote healthy living patterns, and for personal planning. Basic technology skills are incorporated. Corequisite: ASE-056

**ASE-058 Physical Education II**

0 credits, Fall/Winter/Spring/Summer  
Presents a broad perspective of physical fitness, encouraging students to pursue and maintain a health enhancing level of physical fitness. Identifies the basic principles of fitness development.

**ASE-059 Health II**

0 credits, Fall/Winter/Spring/Summer  
Builds on concepts of ASE-026, Health I. Provides a more in-depth examination of the behaviors that pose a threat to a healthy living. Further practice evaluating positive choices for long term physical mental and emotional health.

**ASE-061 General Science/Frogs**

0 credits, Fall/Winter/Spring/Summer  
Presents principles of diversity and interdependence of life, anatomy and physiology, and animal structure and function through virtual dissection.

**ASE-062 Physical Science/Winter Ecology**

0 credits, Fall/Winter/Spring/Summer  
Presents principles of winter ecology. Students explore animal, insect, human, and plant adaptations to life in cold wintry environments.

**ASE-063 General Science/ Wetlands**

0 credits, Fall/Winter/Spring/Summer  
Presents principles of the plant and animal kingdom in virtual wetlands. Explores organisms, classification systems, and processes, within wetland ecosystems.

**ASE-066 Wordprocessing/Spreadsheet Applications**

0 credits, Fall/Winter/Spring/Summer  
Focuses on the use of technology in an educational setting, in the workplace, and in everyday life. Skills needed to operate and utilize a computer's hard drive and various software applications: Microsoft Word, Excel, Access, and PowerPoint.

**ASE-067 Technology II**

0 credits, Fall/Winter/Spring/Summer  
Focuses on the use of technology in academic and career areas. Provides students hands on experience working with spreadsheets, databases, presentations, and computer applications.

**ASE-068 Literature II**

0 credits, Fall/Winter/Spring/Summer  
Focuses on literature from 1850-present. Addresses written works and masterpieces emphasizing themes found throughout US history. Ties literature to national history to better understand political, economic, and religious forces influencing readers and authors.

**ASE-071 Algebra I**

0 credits, Fall/Winter/Spring/Summer  
Major topics (in an integrated approach) include the use of variables, multiplication in algebra, addition in algebra, and subtraction in algebra.

**ASE-071A Algebra 1A**

0 credits, Fall/Winter/Spring/Summer  
Algebra 1A explores the relationship between mathematical quantities, reasoning with equations and inequalities, graphing, functions and mathematical modeling.

**ASE-071B Algebra 1B**

0 credits, Fall/Winter/Spring/Summer  
Algebra 1B reinforces concepts presented in Algebra 1A and introduces quadratic equations, parabolas, functions, and statistics related to data distributions.

**ASE-072 Algebra II**

0 credits, Fall/Winter/Spring/Summer  
Major topics (in an integrated approach) include linear sentences, division in algebra, slopes and lines, exponents, quadratic equations, and linear systems.

**ASE-072A Algebra 2A**

0 credits, Fall/Winter/Spring/Summer  
Algebra 2A reinforces the concepts covered in the Algebra 1A and B sequence focusing on applications. Additionally, Algebra 2A introduces complex numbers.

**ASE-072B Algebra 2B**

0 credits, Fall/Winter/Spring/Summer  
Algebra 2B reinforces the concepts presented in Algebra 1A and Algebra 2A. Additionally, Algebra 2B introduces basic trigonometric functions.

**ASE-086 General Science/Birds**

0 credits, Fall/Winter/Spring/Summer  
Presents principles of general science such as scientific classification, evolution and natural selection, distinguishing fact from value, the scientific method, and current events and their correlation to historical events in science in the context of bird adaptations, origins, physiology, flight, migration and current scientific cases.

**ASE-087 Physical Science: Exploring the Rainforests**

0 credits, Fall/Winter/Spring/Summer  
Using virtual tours of the rainforest, students investigate the plant and animal life; animal characteristics; interdependence in an ecosystem; mechanisms in the biomass; and various types of rainforests.

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**ASL****American Sign Language****ASL-101 First-Year American Sign Language I**  
4 credits, Fall

First term of a three-term introductory course. Everyday communication is the centerpiece of each lesson. Topics revolve around sharing information about ourselves and our environment. Grammar is introduced in context, with an emphasis on developing question and answering skills. Strategies are presented to help the student maintain a conversation. Recommended: WRD-098 or placement in WR-121

**ASL-102 First-Year American Sign Language II**

4 credits, Winter

Second term of a three-term introductory course. Emphasis will be on increasing communicative abilities. Course will focus on language functions such as making requests, describing others, and/or telling a short story. Grammar and vocabulary will also be emphasized throughout the course. Prerequisites: ASL-101

**ASL-103 First-Year American Sign Language III**

4 credits, Spring

Third term of a three-term introductory course. Emphasis will be on developing conversational competence. Course includes basic ASL vocabulary and grammar used for basic communication such as opening conversations, clarifying, giving reasons, narrating family history, correcting, and elaborating. Prerequisites: ASL-102

**ASL-201 Second-Year American Sign Language I**

4 credits, Fall

Review and expansion of American Sign Language vocabulary and structure in order to perfect expressive skills. Emphasizes active communication in sign language. Prerequisites: ASL-103

**ASL-202 Second-Year American Sign Language II**

4 credits, Winter

Continuation of ASL-201. Emphasizes active communication in sign language. Increased emphasis on exploring, analyzing the rules, and presenting stories and literature in sign language. Prerequisites: ASL-201

**ASL-203 Second-Year American Sign Language III**

4 credits, Spring

Continuation of ASL-202. Emphasizes active communication in sign language. Increased emphasis on exploring, analyzing the rules, discussing, developing, and presenting literature and poetry in sign language. Prerequisites: ASL-202

**BA****Business Administration****BA-101 Introduction to Business**

4 credits, Fall/Winter/Spring/Summer

Introduces the American business system in a changing global environment. Disciplines covered include economics, entrepreneurship, formation, accounting, finance, marketing, and management. Recommended: WRD-090 or placement in RD-115

**BA-103 Business Strategies for Computer Consultants**

3 credits, Spring

Class introduces the procedures for establishing and developing a successful consulting business in computer-related services including web development, network support, and computer support.

**BA-104 Business Math**

3 credits, Fall/Winter

Business applications including mark-ups and mark-downs; statistical applications; simple interest; present value and future value of single sums and annuities; gains, losses and valuations of stocks, bonds, mutual funds, and other investments. Also included are accounting math applications of depreciation, inventory valuation, financial ratios and analysis. Prerequisites: MTH-050

**BA-111 General Accounting I**

4 credits, Fall/Winter/Spring

Full-cycle recordkeeping and payroll for service and merchandising businesses; topics include general and special journals, subsidiary ledgers, journalizing, posting, preparing financial statements, and end-of-period adjustments for small businesses. Recommended: WRD-090 or placement in RD-115

**BA-112 General Accounting II**

4 credits, Not Offered Every Year

Financial recordkeeping topics include reporting standards; cash collections and controls; receivables and payables; inventory adjustments; and valuing property, plant and equipment, accounting for proprietorships. Also introduced are partnerships and corporate form of ownership. Prerequisite: BA-111

**BA-119 Project Management Practices**

2 credits, Winter

Basic course in project management, intended for non-project management students. Students gain a basic understanding of project management principles and techniques, with emphasis on scope planning, scheduling, and resource management. Students learn practical application of cost control, time management, and communication in project environments.

**BA-120 Project Management Fundamentals**

3 credits, Fall

Foundational course in project management. Students gain a thorough grounding in project management principles and techniques, including project life cycle, chartering, stakeholder management, work/task breakdown, network diagram and critical path, contingency planning, resource allocation, and project monitoring, and reporting

**BA-122 Teamwork**

3 credits, Fall

Focuses on team dynamics and skills for achieving goals while working in a diverse group. Students complete a team project and in the process, practice successful communication strategies, goal definition, schedule coordination, peer feedback, and conflict management. Additional course topics include learning styles, diversity, appreciating differences, and ethical behavior in teams.

**BA-123 Leadership & Motivation**

3 credits, Fall

Focuses on leadership-achieving organizational goals by employing human, financial, and organizational resources and provides both a theoretical and a practical perspective on leadership and motivation skills. By engaging in both introspective and interactive exercises, students build the expertise necessary to lead both projects and organizations.

**BA-124 Negotiation**

3 credits, Spring

Approaches negotiation from both theoretical and practical perspectives, with an emphasis on successful--and ethical--negotiation techniques. Students engage in one-on-one and team negotiation role plays and complete both pre- and post-negotiation analyses. Students also predict and then evaluate effective negotiations from the perspective of themselves and their peers.

**BA-125 Advanced Project Management Tools**

5 credits, Winter

Tools and processes employed in the project knowledge areas of project communication, risk, procurement, and quality. Major topics include project communication planning and preferred communication channels and approaches; risk assessment and risk management in a project environment; project procurement planning and management with an emphasis on contract types and contract awards and administration; and approaches to project quality planning, quality assurance, control and improvement. Requirement: Current enrollment in or prior successful completion of BA-120, Project Management Fundamentals. Prerequisite or Corequisite: BA-120

**BA-126 Project Management: Workshop**

3 credits, Spring

In small teams, students manage a simulated project, managing schedule, resources, and reporting project status. As a final outcome, student teams submit a report and presentation that summarizes the project experience and lessons learned. Course tools include Microsoft Project 2013, in which the student is expected to have prior training. Prerequisites: BA-120, BA-125, and BT-177

**BA-130 Leadership in Literature**

4 credits, Not Offered Every Year

Examines the nature of leadership by analyzing characters who are leaders in major literary works. Recommended: WRD-098 or placement in WR-121

**BA-131 Introduction to Business Computing**

4 credits, Fall/Winter/Spring

Introductory course using Microsoft Word, Excel, Access, and PowerPoint applications to create business documents, utilize the Internet, and file management. Recommended: BT-120, WRD-090 or placement in RD-115

**BA-146 Entertainment Law & New Media**

3 credits, Spring

Covers the basic elements of copyright law and licensing as it applies to artists, songwriters, composers, filmmakers, and New Media Artists. Also covers how to protect your intellectual property and benefit from your rights as a copyright owner.

**BA-156 Business Forecasting**

3 credits, Winter

Basic economic principles applied to business decision-making, forecasting, and critical thinking skills related to budgeting, planning, financial analysis, and application of business policy and practice. Designed for business majors. Recommended: WRD-090 or placement in RD-115

**BA-160 Purchasing I**

3 credits, Not Offered Every Year

Covers fundamentals of purchasing, including the role of the purchasing function, purchasing objectives and policies, operating procedures, purchase descriptions and specifications, sources of supply, types of contracts and ordering agreements, legal considerations, and ethical and professional standards.

**BA-161 Purchasing II**

3 credits, Not Offered Every Year

Covers more advanced purchasing concepts and techniques, such as win-win negotiations, total cost management, supplier management, continuous quality improvement, value analysis and value engineering, and inventory management.

**BA-177 Payroll Accounting**

3 credits, Winter

Basic personnel payroll records necessary in business firms, laws affecting payroll systems, procedures used in computing wages, salaries and deductions, and manual preparation of payroll records and reports. Prerequisites: BA-111 or BA-211

**BA-205 Business Communications With Technology**

4 credits, Fall/Winter/Spring

Students practice critical skills for successful communication in a business environment by employing a structured writing process, analyzing audience needs, and identifying and using appropriate communication channels and modalities. Students also work individually to produce a PowerPoint presentation with embedded narration and as team members to manage a comprehensive project and complete a business research paper. Prerequisites: BA-131 and WR-121. Recommended: WRD-090 or placement into RD-115

**BA-206 Management Fundamentals**

4 credits, Fall/Winter/Spring

Concepts and theories of management with focus on planning, organizing, leading, and controlling. Decision making, planning principles, global management, managing people and teams, effective communication, and motivation are included. Pre-requisites: WRD-090 or placement in RD-115. Prerequisite: WRD-090 or placement in RD-115. Recommended: BA-251

**BA-208 Employee and Labor Relations**

4 credits, Winter

Provides a legal and historical overview of employee and labor relations in union and non-union environments. Presents a realistic picture of collective bargaining and labor relations situations and highlights contemporary issues in employee relations, unions, bargaining units, and employee group representation.

**BA-211 Financial Accounting I**

4 credits, Fall/Winter/Spring/Summer

Basic principles of accounting cycle for service and merchandising companies, journals, ledgers, accounting for cash, end-of-period operations, worksheets, entries, and financial statements. Emphasis on procedure and theory. Recommended: WRD-090 or placement in RD-115 and BA-104

**BA-212 Financial Accounting II**

4 credits, Fall/Winter/Spring/Summer

Principles and practices in service and merchandising corporations, cash controls, receivables, assets, short-term and long-term liabilities, debt, and financial statements. Corporate analysis of financial position including the cash flow statement. Prerequisite: BA-211

**BA-213 Decision Making With Accounting Information**

4 credits, Fall/Winter/Spring/Summer

Accounting for manufacturing operations, cost systems, capital budgeting, variances and budget performance reports, job order, process, flow, and cost/volume profit analysis and standard costs. Presentation and interpretation of accounting data to aid decisions. Prerequisite: BA-212

**BA-214 Business Communications**

3 credits, Winter

Focuses on the development of written communication skills in a business organization. Within communications, the interpersonal skills, in the form of both written and oral expression, are integrated to achieve individual and organizational objectives. Both informal and formal techniques are applied to a variety of business communication scenarios. Recommended: WR-101 or WR-121, and CS-120 or BA-131

**BA-216 Cost Accounting**

3 credits, Winter

Job order and process costing to a higher level, including variances and cost estimations; standard and variable costing in a manufacturing environment; inventory and capacity analysis; customer-profitability analysis; spoilage, rework and scrap; and performance measurement. Prerequisites: BA-213. Recommended: WRD-090 or placement in RD-115

**BA-217 Budgeting for Managers**

3 credits, Spring

Focuses on developing and managing departmental and project budgets and on understanding how they fit into the overall organizational framework. Addresses fixed, flexible, and rolling budgets, break-even and contribution margin analysis, profit planning, manufacturing costs and sales forecasts, and cost behavior and variance analysis. Recommended: BA-111 or BA-211 or have experience in accounting or work-related budgeting. Recommended: BA-131 or CS-135S. Recommended: WRD-090 or placement in RD-115

**BA-218 Personal Finance**

4 credits, Fall/Winter/Spring

Analysis and application of basic principles of personal finance including career planning, budgeting and spending, financial decision-making, use of credit, saving and investing, home purchase, taxes, risk management, retirement planning, estate planning, and other major personal finance topics. Prerequisites: MTH-020 or higher, or BA-104; and WRD-090 or placement in RD-115

**BA-222 Financial Management**

3 credits, Winter

Study of sources and uses of funds, financials, and cash flows; includes valuation of financial assets; long-term cash flows and budgeting; cost of capital; capital structure and dividend policy; working-capital management, ethics, and international business finance. Prerequisites: BA-212

**BA-223 Principles of Marketing**

4 credits, Fall/Winter

Offers a comprehensive investigation of strategic marketing in a global environment. Topics covered will include research, ethics, consumer behavior, product strategy, distribution strategy, promotional strategy and pricing strategy. Recommended: WRD-090 or placement in RD-115

**BA-224 Human Resource Management**

4 credits, Fall/Winter/Spring

Focuses on a practical, real world approach to Human Resource Management for line managers and Human Resource Managers. Introduces history and current legal environment of Human Resource Management and applies current practice in the functions of staffing, human resource development, compensation, safety and health, and employee and labor relations in both union and non-union environment.

**BA-225 Business Report Writing**

3 credits, Not Offered Every Year

Focuses on the skills and techniques required to write and produce professional business reports, including research, writing, formatting, and presentation. Prerequisites: WR-121 and BA-205

**BA-226 Business Law I**

4 credits, Fall/Winter/Spring

Includes concepts, principles, and rules of law applicable to business and personal transactions, with emphasis on sources of law, the U.S. Constitution, personal and business torts and crimes, case-based applications, ethics, and consumer contract law. Recommended: WRD-090 or placement in RD-115

**BA-227 Business Law II**

4 credits, Winter

Emphasis on real and personal property, negotiable instruments, insurance, documents of title, secured transaction, bailments, commercial paper, agency, bankruptcy, suretyship, bulk sales, and estate planning. Prerequisites: BA-226

**BA-228 Computerized Accounting**

3 credits, Spring

Provides the student with an introductory hands-on experience to learn how computers are used for accounting applications using a Windows operating system environment. Prerequisites: BA-111 or BA-211

**BA-229 Employment Law**

4 credits, Spring

Comprehensive treatment of federal and state employment law and its impact on the Human Resource Manager and Human Resource Management practices. Prerequisites: BA-224. Recommended: WRD-090 or placement in RD-115

**BA-238 Sales**

4 credits, Spring

Professional consultative selling techniques and how professional selling fits into a comprehensive marketing program as well as daily life. Interactive exercises will be used throughout the course that emphasize face-to-face communication skills and relationship building. Recommended: WRD-090 or placement in RD-115

**BA-239 Advertising**

4 credits, Fall

Emphasizes a strategic and integrated approach to promotion where traditional and non-traditional techniques of promotion are explored. The relationship and role of advertising to marketing will be stressed throughout the course. Recommended: BA-101, and WRD-090 or placement in RD-115

**BA-249 Retailing**

3 credits, Fall/Spring

Provides an understanding of the types of retail businesses, strategies, operations, formats and environments through which retailing is carried out, including a multi-disciplinary approach to understand the structure of effective retail management. Recommended: WRD-090 or placement in RD-115

**BA-250 Small Business Management**

3 credits, Winter

Managing a small business, identifying a market opportunity, developing a business plan, and meeting the competition. Also includes financial accounting and cash-flow projections. Recommended: WRD-090 or placement in RD-115

**BA-251 Supervisory Management**

3 credits, Fall/Winter/Spring

Role and responsibilities of the first-line supervisor or manager. Analyzing business, dealing with change, staffing and scheduling, leadership, decision-making, motivational skills, legal considerations, and managing teams. Prerequisites: WRD-090 or placement in RD-115

**BA-254 Basic Compensation & Benefits**

4 credits, Spring

Covers wages, salary benefits, and plans with a primary focus on designing an effective and strategic compensation and benefit program within an organization. Covers general compensation topics, terminology, and practical applications to the workplace.

**BA-255 Advanced Topics in Accounting & Auditing**

4 credits, Spring

Capstone course for students working towards the Accounting AAS degree. The course will build upon knowledge obtained from the Principles of Accounting courses and introduce, from a perspective, more advanced topics such as Fund and Governmental Accounting, Auditing, Fraud Examination, and current issues in Taxation. Prerequisites: BA-213

**BA-256 Income Tax Accounting**

3 credits, Fall

Detailed review of the federal tax structure as it relates to the preparation of individual tax returns. Also provides a brief overview of partnership and corporate tax returns. Recommended: WRD-090 or placement in RD-115

**BA-261 Consumer Behavior**

4 credits, Spring

Seeks to understand how and why people make consumption decisions then apply this understanding to marketing strategies. Concepts of the consumer decision-making process, personal and interpersonal factors and their impact on consumer decisions are major components. Recommended: WRD-090 or placement in RD-115

**BA-268 Applied Project Demonstration**

3 credits, Spring

Students demonstrate the ability to manage a real-world project from initiation through closing. Course deliverables include project scope statement, communication management plan, risk management plan, status report with Gantt chart, and "Lessons Learned" report and presentation. The project--along with a comprehensive exam--demonstrates knowledge acquired in prerequisite classes in the Project Management degree program

**BA-272 Financial Analysis, Accounting and Budget forecasting (Retail)**

4 credits, Winter

This course uses the application of business math skills to teach students to prepare retail budgets and forecasts leading to profitability. Students will be taught how to use accounting concepts and principles related to financial statements for effective and ethical business decision making. Recommended: WRD-090 or placement in RD-115

**BA-280 Business/CWE**

3-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. On-the-job experience in a business related to the student's major course of study. Under supervision of instructor and employer. May be repeated for up to 6 credits. Corequisite: CWE-281

**BA-281 Business/CWE**

3-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. On-the-job experience in a business related to the student's major course of study. Under supervision of instructor and employer. May be repeated for up to 6 credits. Corequisite: CWE-281

**BA-285 Human Relations in Business**

4 credits, Fall/Winter/Spring

Introduces the theory and practical application of human relations at the individual, group, and organizational levels. Emphasizes psychological principles that help build relationships among employees and employers. Includes goal setting, motivation, communication, leadership, conflict management, and individual and group behavior. Recommended: WRD-090 or placement in RD-115

**BI****Biology****BI-101 General Biology; Cellular Biology**

4 credits, Fall/Winter/Spring/Summer

An inquiry-based laboratory course focusing on cellular biology, genetics, epigenetics, biotechnology and natural selection. Class uses student centered activities in a collaborative learning environment to enhance appreciation of the biological world. Recommended: MTH-060 or MTH-098 or placement in MTH-065, and WRD-090 or placement in RD-115, and WRD-098 or placement in WR-121

**BI-102 General Biology; Animal Systems**

4 credits, Fall/Winter/Spring/Summer

An inquiry based laboratory course focusing on human and animal body systems; including teratogens, Hox genes and hormone mimics in embryonic development. Activities emphasize comparisons across animal phyla to better understand the diversity of life. The class uses student centered activities in a collaborative learning environment to enhance appreciation of the animal kingdom. Recommended: MTH-060 or MTH-098 or placement in MTH-065, and WRD-090 or placement in RD-115, and WRD-098 or placement in WR-121

**BI-103 General Biology; Plants & the Ecosystem**

4 credits, Summer/Fall/Spring

An inquiry based laboratory course focusing on plants and the ecosystem; including plant identification, population dynamics, productivity and energy flow. Activities include an integrated approach to understanding environmental issues and the impact of humans on the biosphere. The class uses student centered activities in a collaborative learning environment to enhance appreciation of the biological world. Recommended: MTH-060 or MTH-098 or placement in MTH-065, and WRD-090 or placement in RD-115, and WRD-098 or placement in WR-121

**BI-112 General Biology for Health Sciences**

4 credits, Fall/Winter/Spring/Summer

A one-term preparatory course that introduces the Health Occupations student to the scientific method, molecular and cellular biology, principles of inheritance, natural selection, tissues and organ systems. Topics and skills covered prepare students to enter BI-231, Anatomy & Physiology and BI-234, Introductory Microbiology. Recommended: Pass MTH-060 or placement in MTH-065 or MTH-098; pass WRD-098 or placement in WR-121. CH-112 strongly recommended.

**BI-120 Introduction to Human Anatomy and Physiology**

4 credits, Fall

This laboratory course is designed to serve the students in the Career Technical Programs: Medical Assistant and Clinical Laboratory Assistant Students as part of their core curriculum. Material covered includes the structure and function of the human body. Basic chemistry and cell structures are covered, as well as the organization of tissues, organs, and organ systems. Correlations can then be made between this material and disease states commonly encountered in the practice of these fields. Animal organ dissection required. Corequisite: Take BI-120L

**BI-160 Bird Identification & Taxonomy**

3 credits, Not Offered Every Term

Lecture course introducing bird taxonomy, evolution, anatomy and physiology, identification, and behaviors. Identification techniques applied to regional birds through lectures, slides and other activities.

**BI-160L Bird Identification & Taxonomy with Lab**

4 credits, Not Offered Every Term

Lecture course introducing bird taxonomy, evolution, anatomy and physiology, identification, and behaviors. Identification techniques applied to regional birds through lectures, slides and other activities. Includes field identification of common Oregon birds by sight, sound, and habitat. Field trips required along with online research.

**BI-163 Malheur Field Trip**

1 credit, Spring

Four day field trip. Study of plants, animals, geology, and history of the Northern Basin and Range ecoregion at the Malheur Environmental Field Station in southeast Oregon. Required: Field trip

**BI-165C Natural History of the Oregon Coast**

3 credits, Not Offered Every Term

Explores the natural processes that form our Northwest coastal environment: geologic development, shoreline processes, oceanography, and environmental hazards. Topics include the ecology of marine mammals, birds, estuaries, tidepools, sand dunes, and coastal forests.

**BI-165CL Natural History of the Oregon Coast With Lab**

4 credits, Not Offered Every Year

Explores the natural processes that form our Northwest coastal environment: geologic development, shoreline processes, oceanography, and environmental hazards. Topics include the ecology of marine mammals and birds, estuaries, tide pools, sand dunes and coastal forests. Lab included with field trips and lab activities. Corequisite: BI-165C

**BI-165T Natural History of Tropical Ecosystems**

4 credits, Not Offered Every Year

A field-based lab course studying plants, animals, ecology, geology, and environmental issues of tropical ecosystems. On-site study with varied locations.

**BI-175 Integrated Science Inquiry**

4 credits, Fall

An introductory laboratory course for liberal arts majors emphasizing an evolutionary approach to major topics in science through the use of integrating themes. The themes focus on the scientific discoveries and people that shape our understanding of the world. The course emphasizes an interdisciplinary perspective on science, collaborative scientific investigations and critical thinking. Themes have included: Evolution: the idea that shocked the World; the People and Animals of Africa, and the Lewis and Clark Expedition. Recommended: WRD-098 or placement in WR-121

**BI-176 Integrated Science Inquiry**

4 credits, Winter

An introductory laboratory course for liberal arts majors emphasizing an evolutionary approach to major topics in science through the use of integrating themes. The themes focus on the scientific discoveries and people that shape our understanding of the world. The course emphasizes an interdisciplinary perspective on science, collaborative scientific investigations and critical thinking. Themes have included: Human Evolution; Diseases of Africa, and the Lewis and Clark Expedition. Recommended: WRD-098 or placement in WR-121

**BI-177 Integrated Science Inquiry**

4 credits, Spring

An introductory laboratory course for liberal arts majors emphasizing an evolutionary approach to major topics in science through the use of integrating themes. The themes focus on the scientific discoveries and people that shape our understanding of the world. The course emphasizes an interdisciplinary perspective on science, collaborative scientific investigations and critical thinking. Themes have included Evolution & Contemporary Issues, Africa, and the Lewis and Clark Expedition. Recommended: WRD-098 or placement in WR-121

**BI-204 Elementary Microbiology**

4 credits, Winter

A lab course with a focus on environmental microbiology. Discussion of bacterial cell structure, bacterial biochemistry, bacterial metabolism, microbial ecology, eukaryotic microbial life cycles, and how microbes influence the environment. Laboratory emphasizes bacterial culturing, staining, and biochemical analysis. Labs provide practice with aseptic technique and introduces tools and methods used in the identification of an unknown bacterial species. Prerequisites: WET-110



**BI-211 General Biology for Science Majors (Cellular Biology)**

5 credits, Fall

First quarter of a three quarter sequence of a laboratory class for science majors and pre-professional students. It emphasizes cell biology; including the process of science, cell structure, organization and function, cellular communication, biochemical processes, DNA, cell cycle, protein synthesis, biotechnology, genetics; epigenetics, evolution, and an introduction to tissues, organs and organ systems. Prerequisite or Corequisite: CH-104 or CH-221. Recommended: MTH-111 or placement in MTH-112, WRD-090 or placement in RD-115, and WRD-098 or placement in WR-121

**BI-212 General Biology for Science Majors (Animal Biology)**

5 credits, Winter

Second quarter of a three quarter sequence laboratory course for science majors and pre-professional students. It emphasizes an evolutionary approach to animal biology; including animal diversity, development and the effects of Hox genes and hormones, comparisons of animal body systems including human, homeostasis, and behavior. Prerequisite or Corequisite: CH-105 or CH-222

**BI-213 General Biology for Science Majors (Plant Biology & Ecology)**

5 credits, Spring

Third quarter of a three quarter sequence of a laboratory class for science majors and pre-professional students. It emphasizes an evolutionary approach to plant biology and ecology; including plant diversity, plant organ systems and their functions, photosynthesis and transpiration, productivity and energy transfer, nutrient cycles, population dynamics, ecosystems and environmental issues. Prerequisite or Corequisite: CH-105 or CH-222

**BI-165D Natural History of the Western Deserts**

4 credits, Spring

A lecture and lab course studying plants, animals, geology, ecology and environmental issues of western deserts. This intensive nine-day field course travels through western desert regions. Recommended: One term of college-level science

**BI-231 Human Anatomy & Physiology I**

4 credits, Fall/Winter/Spring/Summer

A lab course designed for students entering the physical education or medically-related fields. Includes body organization, terminology, tissues and systematic study of the integumentary, skeletal, and nervous systems. Animal organ dissection required. Prerequisites: CH-112 (preferred), or CH-104 and CH-105, or CH-221 and CH-222. Prerequisites: BI-112 (preferred), or BI-101 and BI-102, or BI-211

**BI-232 Human Anatomy & Physiology II**

4 credits, Fall/Winter/Spring/Summer

A lab course covering structure function of the muscular, cardiovascular, lymphatic, and respiratory systems. Animal organ dissection required. Prerequisite: BI-231 with a C or better

**BI-233 Human Anatomy & Physiology III**

4 credits, Fall/Winter/Spring/Summer

A lab course covering neuroendocrine control, digestive, excretory, and reproductive systems. Study of fluid, electrolyte, and acid base balance. Animal organ dissection required. Prerequisite: BI-232 with a C or better

**BI-234 Introductory Microbiology**

4 credits, Fall/Winter/Spring

An introductory microbiology course required for health science and science majors. Includes characteristics, physiology and growth requirement of microorganisms, interactions between humans and microorganisms, immunology, infection and principles of microbial control. This course emphasizes critical thinking and analytical skills in a collaborative laboratory environment. Prerequisites: BI-101, BI-112, or BI-211; and CH-104, CH-112, or CH-221

**BT**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Business Technology****BT-101 Introduction to e-Learning**

1 credit, Not Offered Every Term

This is an introductory course for students who are new to web-based, e-learning courses including courses which are web-assisted, hybrid, or full-online. The course will include e-learning fundamentals including the use of e-learning course management software, e-learning readiness and student success tips, support resources, technical requirements, and online research basics.

**BT-120 Personal Keyboarding**

2 credits, Fall/Winter/Spring/Summer

Basic instruction on electronic alphanumeric keyboard. Provides practice for speed and accuracy with individual program. Students will develop the necessary skills to effectively use the Internet, use e-mail, and create simple documents.

**BT-121 Data Entry**

1 credit, Fall/Winter/Spring/Summer

This course is designed to teach the computer numeric keypad by touch with speed and accuracy using industry standards for data entry. The skill is especially helpful to people in the fields of data entry, accounting, office administration, insurance, banking and finance, and any other work that requires numeric input.

**BT-122 Keyboarding Skillbuilding**

2 credits, Fall/Winter/Spring/Summer

Designed to improve typing proficiency using microcomputers. Students will refine and further develop speed and accuracy skills learned in BT-120 Personal Keyboarding. Prerequisites: BT-120

**BT-124 Business Editing I**

3 credits, Fall

Course builds communication skills through the study of correct usage of grammar, spelling, vocabulary usage, effective writing, and editing principles. Recommended: WRD-090 or placement in RD-115

**BT-125 Business Editing II**

3 credits, Winter

Follows BT-124 and uses the second half of the same textbook. It covers additional new grammar rules, in addition to other punctuation, capitalization, and numbers. The course also covers composing business communication documents such as memorandums, letters, and reports, as well as using effective communication in a business environment. Prerequisites: BT-124 with a C or better

**BT-160 Word I**

3 credits, Winter

Introductory-level course where students learn basic concepts of the Word software program. This course is designed for students who have no or little knowledge of Word. Prerequisites: BT-120. Recommended: 35 words per minute typing skill

**BT-161 Word II**

3 credits, Spring

This is an intermediate level course where students learn more advanced features of the Microsoft Word software program. This course is designed for students who have completed BT-160, Word I. Prerequisites: BT-160. Recommended: BT-124 and 40 words per minute typing skill

**BT-172 Introduction to Microsoft Outlook**

2 credits, Not Offered Every Year

Introductory course using Microsoft's Outlook application as a tool to send and receive email, organize schedules and events, maintain contact lists, to-do lists, and tasks. The material covered in this course teaches the necessary skills required in those business environments that use Outlook. Prerequisites: BT-120

**BT-173 Introduction to Microsoft PowerPoint**

2 credits, Spring

Fundamentals in learning the basics of presentation concepts including how to plan, develop, and give a presentation to present data and information using Microsoft's presentation graphics program. Prerequisites: BT-120

**BT-177 Microsoft Project**

3 credits, Winter

Covers the basics of using Microsoft Project to plan, schedule, and track a project. Also addresses communicating project information, assigning and tracking resources and costs, tracing progress, and closing a project. Concludes with students using Microsoft Project to produce management and other reports and to share project information with other audiences and applications

**BT-216 Office Procedures**

4 credits, Spring

Presents critical thinking, problem solving, and collaborative learning; skills and knowledge are applied to business office operations, including communications, technology, records management, safety, travel, meeting management, mail procedures, reprographics, and career planning. Prerequisites: BT-160

**BT-262 Integrated Projects**

4 credits, Fall

Advanced Microsoft Word skills in creating letters, reports, and forms; in creating Excel worksheet reports and budgets; in creating Access databases to generate reports and forms; in creating PowerPoint presentations, and in linking documents and saving as Web pages. Introduction to Acrobat forms and documents. Google Applications such as Word, Excel, and PowerPoint, and Gmail. Prerequisites: BT-161 with a C or better

**BT-271 Advanced Business Projects**

4 credits, Spring

Participate in real-world administrative office experience on the campus of CCC by working as team members in a professional environment. Practice using oral and written communications, analyzing information, event and project planning, problem solving, decision making, prioritizing, applying time management skills, and using industry standard technology skills and tools. Each student will spend 60 to 72 hours per term working in a CCC Office (paired with an Administrative Professional), 2 hours per week within the classroom. Pre-requisites: BA-205, BA-228, BT-125, BT-216, BT-262, & CS-135S. Prerequisites: BA-205, BA-228, BT-125, BT-216, BT-262, and CS-135S

**CDT**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Drafting**

For additional information contact the Manufacturing Department at 503-594-3318.

**CDT-102 Sketching & Problem Solving**

3 credits, Fall

Freehand sketching encountered in drafting engineering projects. Selecting views and implementing drafting standards. Dimensioning, lettering, section and auxiliary views are covered. Problem solving in individual and group settings.

**CDT-103 Computer-Aided Drafting I**

1-4 credits, Winter

Introduction to drafting applications using AutoCAD. Instruction includes problem solving, drawing layout, orthographic multi-view projection, line types, geometric construction and current drafting techniques. Use industry standards for CAD drawing, editing, file management, dimensions and notes. Recommended: CDT-102

**CDT-108A Introduction to SolidWorks**

3 credits, Summer/Winter

Is an introduction to the SolidWorks parametric mechanical design software. Students will design 3D solid parts and assemblies, and develop 2D documentation from them.

**CDT-160 Revit Architecture**

3 credits, Not Offered Every Term

Introduction to the basic principles in Revit Building. From design to construction documents, students will create floor plans using walls, doors, windows, and add furniture fixtures, curtain walls, floors, ceiling grids, and generate elevations, sections, details and schedules directly from the model.

**CDT-223 Inventor Fundamentals**

3 credits, Winter

Introduces parametric and adaptive modeling techniques using Autodesk Inventor. This course will guide students through design environmental setup, creation of simple and complex part geometry, assembly building, animation, and detailed 2D drawing output. Recommended: Basic working knowledge of Windows operating system and Microsoft Excel

**CDT-224 Professional Web Design**

1-3 credits, Spring

Introduction to the design, creation and management of professional web pages. Basic and HTML document creation, introduction to JAVASCRIPT, use and manipulation of graphic image files, animating web page graphics, HTML forms.

**CDT-225 Advanced SolidWorks**

3 credits, Winter

Advanced features of SolidWorks will be discussed and problems will be worked that exemplify them. Subjects include equations, configurations, design tables and dynamics. Prerequisites: CDT-108A

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**CH****Chemistry****CH-104 Introductory Chemistry**

5 credits, Fall/Winter/Spring/Summer

A lab transfer course for students in nursing, allied health fields, and liberal arts. Observation, measurement, composition, stoichiometry, atomic structure, periodic table, bonding, and nomenclature. Prerequisites: MTH-065, MTH-098, or placement in MTH-095; WRD-090 or placement in RD-115.

**CH-105 Introductory Chemistry**

5 credits, Winter/Spring/Summer

A laboratory course discussing heat; molecular and ionic interactions in solids, liquids, gases, and solutions; chemical reactions including acid-base, electron transfer, and equilibrium. Prerequisites: CH-104

**CH-106 Introductory Chemistry**

5 credits, Spring/Summer

A lab course discussing organic and biochemistry. Prerequisites: CH-105

**CH-112 Chemistry for Health Sciences**

4 credits, Fall/Winter/Spring/Summer

One-term preparatory chemistry lab course for students who want to take BI-231, Anatomy and Physiology and/or BI-234, Introductory Microbiology. Includes measurement; atomic structure; periodic table; bonding; nomenclature; heat; molecular and ionic interactions in solids, liquids, and solutions; chemical reactions including acid-base; organic chemistry; and biochemistry. Prerequisite: MTH-065 or MTH-098 with a C or better or placement in MTH-095. Prerequisite: WRD-090 or placement in RD-115. BI-112 strongly recommended.

**CH-114 Chemistry in Art**

4 credits, Summer

An introductory laboratory science course designed specifically for the non-science student. Offers a broad, non-quantitative descriptive survey of scientific principles relevant to art and art-related topics such as light, color, pigments, dyes, solubility, acidity, oxidation, and polymers. Emphasizes an interdisciplinary perspective on chemistry. Recommended: WRD-090 or placement in RD-115

**CH-150 Preparatory Chemistry**

4 credits, Fall

One term preparatory course for students who must take the general chemistry sequence (CH-221/222/223) but have no chemistry background. Prerequisite: MTH-095 with a C or better or placement in MTH-111

**CH-221 General Chemistry**

5 credits, Fall/Winter

Transfer lab course for science, engineering, and professional majors. The nature of chemistry, atomic theory, electron configuration, structure, bonding, properties, composition and nomenclature of covalent and ionic substances. Introduces organic chemistry and biochemistry topics. Prerequisites: A year of high school chemistry or CH-150, or CH-104 and CH-105. Prerequisites: MTH-095 with a C or better or placement in MTH-105 or MTH-111

**CH-222 General Chemistry**

5 credits, Winter/Spring

A lab course discussing reactions, stoichiometry, thermodynamics, organic compounds and polymers, kinetics, and equilibrium. Topics involving organic chemistry and biochemistry are introduced. Prerequisites: CH-221

**CH-223 General Chemistry**

5 credits, Spring/Summer

A lab course discussing states of matter, solutions, acids and bases, electrochemistry, nuclear chemistry, and spectroscopy. Topics involving organic chemistry and biochemistry are introduced. Prerequisites: CH-222

**CH-241 Organic Chemistry I**

5 credits, Fall

First term of a transfer sequence meeting organic chemistry requirement for premedical, dental, veterinary, pharmacy, chiropractic medicine, chemical engineering and biology majors. Prerequisites: CH-223

**CH-242 Organic Chemistry II**

5 credits, Winter

Second term of transfer sequence meeting organic chemistry requirement for premedical, dental, veterinary, pharmacy, chiropractic medicine, chemical engineering and biology majors.

**CH-243 Organic Chemistry III**

5 credits, Spring

Third term of a transfer sequence meeting organic chemistry requirement for premedical, dental, veterinary, pharmacy, chiropractic medicine, chemical engineering and biology majors. Prerequisites: CH-242

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**CJA****Criminal Justice****CJA-101 Criminology**

4 credits, Fall/Winter/Spring

Examines the social problem of crime, including the process of making and breaking laws as well as society's reaction to the phenomenon. Provides a multidisciplinary study of the causes of crime, including its distribution across social strata and demographics. Focuses on theories of criminal behavior and specific types of crime.

**CJA-110 Introduction to Law Enforcement**

4 credits, Fall

Explores theories, philosophies, and concepts of American law enforcement. This course also examines the history of law enforcement, specific components of the system, public safety responses, and the professionals charged with peace keeping.

**CJA-112 Patrol Procedures**

3 credits, Not Offered Every Term

Describes the nature and purpose of patrol activities for the law enforcement officer. Includes routine patrol, emergency procedures and different types of patrols. Examines crime prevention theory and community policing.

**CJA-120 Judicial Process**

3 credits, Winter

Studies the judicial process from arrest through appeals, including search and seizure; interrogation; roles of defense attorneys, prosecutors, juries, grand juries, and judges; plea bargaining and guilty pleas; rights of criminal defendants at trial; appeals and habeas corpus.

**CJA-122 Criminal Law**

4 credits, Fall

Examines the elements, purpose and functions of criminal, traffic, juvenile and liquor laws. Studies historical development and philosophy of law and constitutional provisions. Examines definition and classification of crime, application of administration of justice, legal research, study of case law, methodology and concepts of law as a social force.

**CJA-130 Introduction to Corrections**

3 credits, Spring

Examines the history, organization, and development of corrections in the United States, including sentencing, incarceration, community corrections and the juvenile justice system. Reviews the use of the death penalty. Identifies trends in corrections.

**CJA-134 Correctional Institutions**

3 credits, Winter

Analyzes prisons, jails and other correctional institutions. Discusses punishment history and rationale. Identifies functions of custodial staff and describes institutional procedures: reception, classification, program assignment, and release. Studies prison management systems and examines juvenile facilities.

**CJA-137 Mass Murder and Serial Killers**

3 credits, Not Offered Every Term

Explores the phenomenon of both mass murders and serial killings, and the impact each has both upon society and individual victims. Examines recent and historically notorious cases, while probing issues such as causation, social environmental linkage, and the mindset of offenders.

**CJA-170 Introduction to Field Work in Criminal Justice**

3 credits, Fall

Provides required preparation for participation in Criminal Justice/Corrections Cooperative Work Experience. Discusses the processes of pursuing a career in the criminal justice system, including law enforcement, the practice of law, courts, correction, and private security. Includes topics related to Cooperative Work Experience such as finding a field placement, interviewing, and creating learning objectives. Addresses hiring, promotions, and workplace ethics. Students must successfully complete this course before participating in Criminal Justice/CWE. Prerequisites: CJA-110 with a C or better

**CJA-200 Community Policing in a Culturally Diverse Society**

4 credits, Spring

Examines interrelationships and role expectations of agencies and public policy. Provides information on how law enforcement professionals work effectively with diverse cultural groups. Explores racial and community tension, minority group crime, racial profiling, hate crimes, community policing, police misconduct and alternative lifestyles encountered in law enforcement.

**CJA-201 Juvenile Delinquency**

4 credits, Winter/Spring

Surveys the nature, extent, and causes of delinquent behavior focusing on theories of criminal behavior as they apply to juveniles. Studies historical and contemporary perspectives on juvenile offenders. Provides a multidisciplinary study of the causes of juvenile delinquency. Describes laws, enforcement, court, and correctional procedures within the juvenile system, and explores the differences between adult and juvenile practices.

**CJA-203 Crisis Intervention**

3 credits, Winter

Examines crisis intervention as it applies to emergency service workers. Includes the psychodynamics of family crisis; alcohol/drug related problems; suicide; sexual assault victims; domestic violence; mentally disturbed individuals; neglected, battered, and abused children.

**CJA-210 Criminal Investigation I**

3 credits, Fall

Introduces the history, theory and principles of criminal investigation in the criminal justice system. Describes crime scene investigation and courtroom aspects of crime scenes including interviews, evidence, follow-up, case preparation, and investigative techniques.

**CJA-211 Criminal Investigation II**

3 credits, Winter

Continues the study and application of investigative techniques for specific offenses, including: death investigations, domestic violence, elder abuse and sexual offenses. Identifies similarities, differences, and elements of proof needed under state statutes and documentation of investigations through comprehensive reports. Prerequisites: CJA-210 with a C or better.

**CJA-212 Criminal Investigation III**

3 credits, Spring

Continues the study and application of investigative techniques acquired in CJA-210 Criminal Investigation I and CJA-211 Criminal Investigation II. Includes "hands-on" application of investigative processes from a practical aspect, including: search warrant writing, fingerprinting, evidence collection, and crime scene photography, diagramming, and reconstruction. Prerequisites: Pass CJA-210 and CJA-211 with a C or better

**CJA-213 Interview & Interrogation**

3 credits, Not Offered Every Term

Examines the dynamics of interviews and interrogations including common processes, approaches and techniques. Ethical, legal and psychological issues are also considered. Includes methods of how to analyze statements and behavior for deception and truthfulness.

**CJA-214 Intimate Partner Violence**

3 credits, Not Offered Every Term

This course will analyze the historical, social, legal, and psychological aspects of Intimate Partner Violence. Includes definitions of the problem, demographics, survivors, perpetrators, children who witness, strategies and tactics of abuse and survival, and core strategies for legal intervention.

**CJA-215 Sexual Violence & the Justice System**

3 credits, Not Offered Every Term

This course will explore various aspects of sexual violence in America, including discussion on societal and historical perspectives, victim trauma, sexual predators and community response to these crimes. Core strategies for victim and legal response are introduced.

**CJA-222 Procedural Law**

3 credits, Winter

Discusses the constitutional and statutory provisions related to arrest, search and seizure. Includes use of deadly force, admissions, interrogations, plain view limitations, law of stop and frisk, and officer testimony.

**CJA-223 Criminal Justice Ethics**

3 credits, Winter

Surveys common ethical frameworks and then examines ethical issues, questions, challenges and consequences facing criminal justice professionals, including law enforcement, corrections, the courts and others.

**CJA-232 Corrections Casework**

3 credits, Spring

Introduces interviewing and counseling techniques used by corrections officers and workers in one-on-one and group contacts with clients. Discusses how to supervise the alcoholic, drug addicted, sex offender, mentally ill, juvenile, elderly, and emotionally immature client. Explores a variety of case management materials, with an emphasis placed upon objective case planning and monitoring.

**CJA-243 Drugs, Crime and the Law**

3 credits, Spring

Examines the most common types of drugs consumed in the U.S. and societal problems related to drug use. Discusses potential crimes associated with drugs, and law enforcement strategies used to address drug manufacturing, distribution and use.

**CJA-250 Reporting, Recording & Testifying**

4 credits, Spring

Surveys documentation skills in criminal justice professions. Verbal, nonverbal and written forms of criminal justice related workplace communication are studied and practiced, including communicating with the public, basic interviewing, documentation, courtroom testimony, and report writing. Prerequisites: WR-121 with a C better

**CJA-252 Introduction to Restorative Justice**

3 credits, Fall

Provides a critical introduction to the history, values, principles, and practices of restorative justice. Covers fundamental values and principles of restorative justice, and the experience and interests of key stakeholders (victims, offenders, communities, and systems).

**CJA-280 Criminal Justice/Corrections/CWE**

1-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. Supervised experience in criminal justice, corrections, juvenile corrections, or related occupations. Prerequisites: CJA-170. Corequisites: CWE-281

**CJA-281 Criminal Justice/Corrections/CWE**

1-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. Supervised experience in criminal justice, corrections, juvenile corrections, or related occupations. Prerequisites: CJA-170 and CJA-280. Corequisites: CWE-281

**CJA-290 Issues in Criminal Justice**

1-3 credits, Not Offered Every Term

This course gives students an opportunity to gain knowledge in a specific area relevant to the field of criminal justice. This topic will be pulled from a comprehensive list of areas identified by criminal justice and corrections professionals as having importance for students pursuing work in the field. Credits may vary from 1-3. May be repeated for up to 6 credits.

**CLA**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Clinical Lab Assistant****CLA-100 Introduction to Health Care**

2 credits, Fall

An overview and introduction to health-care systems and career trends, ethical and legal responsibilities, personal and workplace safety, infection control, professionalism, life-long learning, and effective communication.

**CLA-101 Clinical Laboratory Assistant Skills I**

3 credits, Fall

Presents the student with the theory of a clinical laboratory and clinical laboratory Assistant duties, including state and federal regulations, quality assurance practices, laboratory terminology, staffing, and a basic understanding of waived laboratory testing. The majority of the competencies required in the Core Module of NAACLS's Clinical Laboratory Assistant program will be covered. The role of the clinical laboratory in the health care setting will be addressed. Required: Student must be admitted into the current CLA cohort. Corequisite: CLA-101L

**CLA-101L Clinical Laboratory Assistant Skills I Lab**

1 credit, Fall

A companion course to CLA-101, presents the student with the skills required of a clinical laboratory assistant, which includes performance of waived laboratory testing and specimen processing within the boundaries of state and federal regulations and quality assurance practices, insuring a basic understanding of quality laboratory testing. Required: Student must be admitted into the current CLA cohort. Corequisite: CLA-101

**CLA-102 Clinical Laboratory Assistant Skills II**

3 credits, Winter

Addresses hematology and urinalysis theory with assistant level scope of practice. Correct specimen collection will be emphasized. Students will be required to define, assess, and evaluate various waived tests and explain the necessity of accuracy and attention to detail. They will also define and explain the use of controls, standards and laboratory protocols. Required: Students must be admitted into the current CLA cohort. Prerequisite: CLA-100, CLA-101, CLA-101L, CLA-118, CLA-118L, and BI-120 or the equivalent. Corequisite: CLA-102L

**CLA-102L Clinical Laboratory Assistant Skills II Lab**

1 credit, Winter

This course, a companion to CLA-102 addresses hematology and urinalysis skills within assistant scope of practice. Correct specimen collection will be emphasized. Students will be required to perform various waived tests and demonstrate an understanding of the necessity of accuracy and attention to detail and will demonstrate and analyze the correct use of controls, standards and laboratory protocols. Required: Students must be admitted into the current CLA cohort. Prerequisite: CLA-100, CLA-101, CLA-101L, CLA-118, CLA-118L, and BI-120 or the equivalent. Corequisite: CLA-102

**CLA-103 Clinical Laboratory Assistant Skills III**

3 credits, Spring

This course emphasizes Microbiology, Clinical Chemistry and Serology/Immunology theory with regards to laboratory assistant scope of practice and professionalism in the workplace. The course will review controls, standards and laboratory regulation. Required: Students must be admitted into the current CLA cohort, or instructor consent. Prerequisite: Pass CLA-100, CLA-101, CLA-101L, CLA-102, CLA-102L, CLA-118, CLA-118L, BI-120 or the equivalent.

**CLA-103L Clinical Laboratory Assistant Skills III Lab**

1 credit, Spring

This course, a companion to CLA-103, is a skills lab that emphasizes Microbiology, Clinical Chemistry, and Serology/Immunology. Attention to detail and accuracy will be discussed. The student will demonstrate the correct use of controls, standards and laboratory protocols. Required: Students must be admitted into the current CLA cohort, or instructor consent. Prerequisite: Pass CLA-100, CLA-101, CLA-101L, CLA-102, CLA-120L, CLA-118, CLA-118L, BI-120 or the equivalent.

**CLA-115 Laboratory Administrative Skills**

2 credits, Winter

Designed for the clinical laboratory assistant employed in a physician's laboratory, instructing them in laboratory coding, billing practices, and other administrative duties, with emphasis on patient test management and professionalism. EKG techniques will be included as well as other back office skills, as required by NAACLS.

**CLA-118 Phlebotomy for Clinical Laboratory Assistants**

1 credit, Fall

This course is designed to instill a broad understanding of blood collection and specimen handling theory used in the clinical laboratory and to prepare students to perform these tasks safely and effectively in the workplace. Universal and standard precautions and Federal and State Regulations will be emphasized. Customer satisfaction, professionalism, quality control and ethical issues will be addressed. Required: Student must be admitted into the current CLA cohort. Corequisite: CLA-118L

**CLA-118L Phlebotomy for Clinical Laboratory Assistant Lab**

1 credit, Fall

This course is a companion course to CLA-118, is designed for the Clinical Lab Assistant student practice and gain skill and experience in blood collection according to standard operating procedures. They will practice specimen handling and processing techniques used in laboratories. The students will perform these activities effectively and safely, emulating the workplace environment. Universal and Standard Precautions will be stressed. The students will collect blood samples on their lab partners through-out the term. Required: Student must be admitted into the current CLA cohort. Corequisite: CLA-118

**CLA-119 Phlebotomy/Laboratory/Practicum I**

3 credits, Winter

Supervised unpaid assignment to area medical center laboratories to gain practical experience.

**CLA-120 Laboratory/Phlebotomy Practicum II**

4 credits, Spring

Students will participate in a supervised, unpaid assignment, known as a clinical practicum, in area medical center laboratories to gain practical experience. A weekly seminar accompanies this course. Prerequisites: CLA-119

**CLA-125 Introduction to Clinical Research**

2 credits, Spring

Overview of research as applied through clinical studies. Participants will learn elements of proper research techniques as conducted under the supervision of a physician or Ph.D.

**CLA-130 Specimen Collection**

1 credit, Winter

Designed to qualify students to perform drug testing collections under U.S. Department of Transportation (DOT) regulations. The final examination will include a demonstration of collection proficiency. Specimen management, adulteration and quality assessment will be addressed. Required: Students must be enrolled in current CLA cohort

**COMM****Communication Studies****COMM-100 Basic Speech Communication**

3 credits, Fall/Winter/Spring/Summer

Explores interpersonal and small group dynamics and communication skills in day-to-day formal and informal situations. Examines positive self-concept, listening skills, verbal and non-verbal modes of communication, and clarity of expression. Designed for non-transfer students.

**COMM-111 Public Speaking**

4 credits, Fall/Winter/Spring/Summer

Practice in organization, research and delivery of a variety of speeches. Prerequisites: WRD-090 or placement in RD-115 and WRD-098 or placement in WR-121

**COMM-112 Persuasive Speaking**

4 credits, Not Offered Every Year

Persuasive speaking, audience analysis, study of reasoning, and the basic theories of persuasion. Prerequisites: WRD-090 or placement in RD-115 and WRD-098 or placement in WR-121

**COMM-126 Communication Between the Sexes**

4 credits, Fall/Winter

Examines ways women and men are different and similar in their communication behaviors. Traditions, myths, social roles and current issues are discussed. Recommended: WRD-098 or placement in WR-121

**COMM-140 Introduction to Intercultural Communication**

4 credits, Not Offered Every Term

Explores the impact cultural differences have on the communication process; increases awareness of students' own cultural behaviors. Students discover effective ways to deal with difficult situations when a cultural difference causes a problem. Required: Non-native English speakers must have a Student Performance Level of 8 as measured by the BEST Plus. There is not a requirement for native speakers. Recommended: WRD-098 or placement in WR-121

**COMM-212 Mass Media & Society**

4 credits, Not Offered Every Term

This course takes students through a critical study of the production and consumption of mass media, including television, radio, books, film, newspapers, advertising and the Internet. Students also examine the economic and social organization of mass media, the growth of new media technologies, and the relationship between media and the public. Required for journalism majors at the University of Oregon. Recommended: WRD-098 or placement in WR-121

**COMM-218 Interpersonal Communication**

4 credits, Fall/Winter/Spring

The interpersonal communication process is examined through lectures, reading, and exercises. Subjects include goal-setting, first impressions, conflict resolution, non-verbal messages, image building, self-concepts and assertiveness. Recommended: WRD-090 or placement in RD-115, WRD-098 or placement in WR-121

**COMM-219 Small Group Discussion**

4 credits, Winter

Theories and practices of small group communication through group discussions, readings and written exercises. Emphasis on effective group communication, leadership skills, and problem-solving in small groups. Recommended: WRD-098 or placement in WR-121

**COMM-227 Nonverbal Communication**

4 credits, Not Offered Every Term

Explores theories and types of nonverbal behavior in relation to the creative process of human communication. Examines the influence, interpretation and/or management of such qualities as appearance, body movement, facial expression, voice, use of space, touch, and time. Considers how physical environments, social roles, gender, and inter/intra-cultural beliefs and values have an effect on relationships among individuals and groups. Applies theoretical interpretations to nonverbal communication found in various forms of human expression. Recommended: WRD-098 or placement in WR-121

**COMM-280 Speech/CWE**

2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job experience in the field of communications. Corequisite: CWE-281

**CS****Computer Science****CS-090 Fundamental Computer Skills I**

2 credits, Fall/Winter/Spring/Summer

The course covers the basic use of computers running the Microsoft Windows operating system, including: using the mouse and keyboard, creating and editing documents, file management, and basic Internet use. Recommended: Typing skills are helpful

**CS-091 Fundamental Computer Skills II**

2 credits, Fall/Winter/Spring/Summer

Continued development of skills learned in CS-090. Topics include learning intermediate features of the Microsoft Windows operating systems, more work with applications (word processing using the latest version of Microsoft Word, spreadsheets using the latest version of Microsoft Excel, and presentations using the latest version of Microsoft PowerPoint.) Takes place in the computer lab, one student to a computer. Prerequisites: CS-090 or placement in CS-091

**CS-092S Computers for New Users, Spanish**

3 credits, Not Offered Every Year

Este es un curso en español, para aquellas personas sin experiencia alguna en computación. Incluye el uso del ratón, la administración de archivos, introducción a Windows, la creación de documentos, utilizando el programa Microsoft Office Word, cómo enviar y recibir e-mail, y cómo navegar en el Internet. Taught in Spanish; this course requires no computer experience. Includes using a keyboard and mouse, introduces Windows, file management, using Office applications, e-mail, and the Internet. Takes place in the computer lab, one student per computer.

**CS-093S Computers for New Users II, Spanish**

3 credits, Not Offered Every Year

Clase en español para aquellas personas que ya tomaron la clase CS-092S o equivalente. Usted estará disponible para crear, modificar, dar formato e imprimir una hoja de cálculo sencilla utilizando el programa Microsoft Excel. Además, usted creará presentaciones en PowerPoint utilizando diferentes herramientas de diseño, incluyendo audio y video. Por último, usted aprenderá a diseñar diferentes tipos de publicaciones utilizando el programa Microsoft Publisher. For those who have taken CS-092S or equivalent. Create, modify, format, and print simple worksheets in Microsoft Excel. In addition, you will create presentations in PowerPoint using different design tools including audio and video. Finally, you will be creating simple publications in Microsoft Publisher. Prerequisite: Pass CS-092S

**CS-094S Database & Web Design, Spanish**

3 credits, Not Offered Every Year

Este es un curso interactivo que introduce los conceptos generales de base de datos utilizando el programa de Microsoft Access. Además, esta clase introduce conocimientos básicos necesarios para comenzar con el diseño de páginas Web. El curso incluye la creación, actualización y mantenimiento de sitios en la red internacional de datos (Internet) o en una red interna (Intranet) usando el programa Adobe Dreamweaver. This interactive class introduces basic concepts about a relational database using Microsoft Access. In addition, this course includes basic elements of beginning web page design to create, update and maintain web pages in Internet or intranet web sites using Adobe Dreamweaver. Prerequisite: Pass CS-093S or equivalent class.

**CS-120 Survey of Computing**

4 credits, Fall/Winter/Spring/Summer

A computer competency course to familiarize students with computer concept, software applications and the implications of living in the digital age. Introduces students to computer concepts, including, but not limited to the Microsoft Windows environment, Microsoft Office Applications, hardware terminology, social media and the Internet. Prerequisites: CS-090 or placement in CS-120 and WRD-098 or placement in WR-121

**CS-121 Computer Applications**

3 credits, Not Offered Every Year

Continuation of CS-120. Hands-on approach to word processing, database management, and electronic spreadsheets. Microsoft Office Suite (Word, Excel, Access, and PowerPoint.) Prerequisites: CS-120 or placement in CS-121, MTH-060 or placement in MTH-065

**CS-125H HTML & Web Site Design**

3 credits, Fall/Winter/Spring/Summer

Hands-on approach to planning, design, and developing published web sites using HTML tags in a text editor. The class focuses on basic HTML coding using HTML 5 models. Hyperlinks, images, cascading style sheets, forms, accessibility and design principles will be covered, as well as tools such as site management, validators, and page editors. Recommended: CS-120 or equivalent experience

**CS-125R Podcasting**

3 credits, Not Offered Every Year

Introduces audio and video recording and editing for the purposes of podcasting. Writing XML scripts. Includes hands-on projects and exercises.

**CS-133S Introduction to JavaScript & Server-Side Scripting**

3 credits, Winter

Design, programming, testing of scripted web pages using JavaScript for client-side applications and PHP for server-side applications. Introduction to fundamental concepts of interactive web pages and server-side connectivity. Covers the Document Object Model (DOM) and programming constructs like variables, operators, functions, control structures, exception handling. Prerequisite: CS-125H and MTH-065 or equivalent experience. Recommended: MTH-060 or placement in MTH-065

**CS-133VB Visual Basic.NET I**

3 credits, Fall/Winter/Spring

Hands-on approach to software design using object-oriented programming. Planning an application, building a user interface, using variables and constants, calculating, accumulating, counting, making decisions, using functions, and using menus. Prerequisites: BA-131 or CS-120. Recommended: MTH-060 or placement in MTH-065

**CS-135DB Microsoft Access**

3 credits, Fall/Spring

Focuses on the advanced database capabilities using the latest version of Microsoft Access. Topics include design, construction, and documentation of a database management system, designing reports, forms, advanced form techniques, advanced queries, customizing tables, and creating and using an application system with macros. Prerequisites: BA-131 or CS-120. Recommended: MTH-060 or placement in MTH-065

**CS-135I Advanced Web Design With Dreamweaver**

3 credits, Fall/Spring

Plan and publish a standards-based, accessible web site via a variety of tools, including the Adobe Creative Suite. Complete market and user-needs analyses to best target site content and design. Create a graphical web site mock-up, then use CSS scripts and multimedia to realize site goals. Emphasizes professional design techniques. Prerequisites: CS-125H

**CS-135S Microsoft Excel**

3 credits, Fall/Winter/Spring

Focuses on advanced spreadsheet capabilities using the latest version of Microsoft Excel. Topics include design, construction, and documentation of spreadsheets, use of templates, multiple worksheets, complex formulas, functions and filtering, Pivot Tables, advanced chart features, sorting, database capabilities, finding data, creating subtotals, using lookup tables, finding trends and forecasting, creating and editing macros, validating data, and working with controls. Recommended: BA-131 or CS-120; MTH-060 or placement in MTH-065

**CS-135W Microsoft Word**

3 credits, Winter

Focuses on advanced word processing features using the latest version of Microsoft Word. Topics include using tables, merging form letters and data source files, desktop publishing, large document capabilities including master documents and indexes, and linking and embedding objects between Office applications. Recommended: BA-131 or CS-120

**CS-140 Introduction to Operating Systems**

4 credits, Fall/Spring

Introduction to the theory behind operating systems as well as basic functions of Windows, Linux/UNIX, and Macintosh operating systems. Discussion of operating systems interface with input, output, and storage devices and basic network theory. Prerequisites: CS-120 or placement in CS-121; MTH-060 or placement in MTH-065; and WRD-098 or placement in WR-121

**CS-150 Computer Technician Orientation**

3 credits, Fall/Spring

Examines foundational computing subjects used in Computer Science and Information Technology. Topics include computer architecture, electronic logic, data representation, and programming, which are used in successive Computer Science courses. Information about degrees and certifications in Computer Science and Information Technology is also covered. Prerequisite: CS-120 or placement in CS-121, and WRD-098 or placement in WR-121. Recommended: MTH-060 or placement in MTH-065



**CS-151 Networking I**

4 credits, Winter

This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes. This course, along with CS152, cover the topics on the CISCO CCENT exam. Prerequisite: CS-160

**CS-152 Networking II**

4 credits, Spring

Practices the building and servicing of basic computer networks. Topics include physical media, network design, addressing, routing, switching, and management used in common LANs and the Internet. This course, in conjunction with CS-179, covers the topics on the CompTIA Network+ exam. Prerequisites: CS-179 and CS-228

**CS-161 Computer Science I**

4 credits, Fall/Winter

Introduction to fundamental concepts of structured programming, including problem solving, algorithm and program design, data types, loops, control structures, subroutines, and arrays. Learn to write structured programs in a high level programming language. Prerequisites: MTH-111 or placement in MTH-112, or 4 years high school math

**CS-162 Computer Science II**

4 credits, Winter

Effective methods of designing large programs. Elementary and dynamic data structures, data abstraction, object oriented programming, program correctness, verification, and testing. Requires a substantial project. Prerequisites: CS-161

**CS-181 CMS Web Development**

3 credits, Winter

Explores creating dynamic and interactive web sites via the use of a current content management system (CMS) and shopping cart utility. Includes installation of CMS/database, working with templates, creating efficient site navigation, enhancing sites using components, modules, plugins and extensions, and user management. Prerequisites: CS-125H or equivalent experience

**CS-195 Flash Web Development**

3 credits, Winter

Introduces the technologies and techniques behind creating an interactive, media-rich website using Adobe Flash. Topics include, but are not limited to, using the drawing tools, using the timeline, creating frame-based and tween-based animations, adding interactivity through ActionScript, and incorporating existing graphics, sound, and video files. Students will complete a portfolio of Flash creations throughout the class. Prerequisites: CS-125H or equivalent experience

**CS-201 Computer Systems II**

4 credits, Fall

Introduction to computer systems from a software perspective. Topics include: Basic machine organization, system programming in C and assembly language, introduction to system programming tools (gcc, makefile, gdb), data representation (bits & bytes, characters, integers, floating point numbers), implementation of control flow, procedure calls, and complex data types at the machine level, linking and loading, exceptions and interrupts, process control and signals, system calls, file I/O, timing and improving program performance, basic memory hierarchy, and dynamic memory allocation techniques. Prerequisite: CS-162

**CS-202 Program Structures**

4 credits, Winter

Students will become familiar with advanced C++ and Java syntax for object-oriented programming. Use of the file system, operating system calls, and shell-level programming; low-level debugging of high-level programs. Programming exercises will include applications of data structures and memory management techniques. Prerequisite: CS-162

**CS-225 Computer End User Support**

3 credits, Fall

Addresses professional and interpersonal skills needed by technicians who support and manage hardware and software information systems. Customer service skills; troubleshooting; helpdesk operation; product needs analysis, evaluation, purchase, and installation; technical documentation and training. Prerequisites: CS-120 or placement in CS-121 or equivalent experience

**CS-227 Computer Hardware & Repair**

4 credits, Fall

An in-depth course in computer hardware. Covers operational concepts, identification, installation, configuration, and troubleshooting of power supplies, motherboards, microprocessors, memory modules, disk drives, optical drives, and expansion cards. This course, in conjunction with CS-228, covers the topics of the CompTIA A+ certification exam. Prerequisites: CS-140

**CS-228 Computer OS Maintenance & Repair**

4 credits, Winter

An in-depth course in operating system maintenance and troubleshooting. Covers configuration, maintenance, and troubleshooting of desktop and mobile operating systems, the fundamentals of cloud computing, and client network configuration and troubleshooting. This course, in conjunction with CS-227, covers the topics on the CompTIA A+ certification exam. Prerequisites: CS-227

**CS-234J jQuery Web Development**

3 credits, Spring

In-depth exploration of creating dynamic websites using the jQuery function library. Topics include creating AJAX applications, XML and JSON data formats, image effects like sliders and lightboxes, navigation effects, mobile-friendly effects and more.

**CS-234P PHP/MySQL Web Development**

3 credits, Spring

Use PHP and MySQL to develop dynamic web sites for use on the Internet. Develop web sites ranging from simple online information forms to complex online applications. Introduce programming fundamentals including variables, control structures, functions and objects. Applications developed use MySQL as the backend database and will explore database connectivity, querying, and security. Prerequisites: CS-125H or equivalent experience. Recommended: CS-275

**CS-240L Linux Administration**

4 credits, Spring

Hands-on system administration of Linux. Installation, system configuration, file management, disk formatting and partitioning, local file systems, system startup and shutdown, text editing, run levels, backup and restore, printing, basic local area networking, and memory management. Prerequisites: CS-140

**CS-240M MacOS Administration**

3 credits, Winter

Designed to prepare students for the challenges they will face as a networking professional supporting multiple operating systems. Lectures, projects and exercises reinforce skills as they are learned. Specific topic coverage includes: installation and set-up, user accounts, file systems, data management, applications, network configuration, network services, peripherals, startup and troubleshooting. Prerequisites: CS-140

**CS-240W Windows Desktop Administration**

3 credits, Winter

An introduction to the current Windows desktop client operating system. Topics include: installation, managing disks and file systems, file access security, users, profiles and policies, groups, security, backup, remote access, printing and troubleshooting. Prerequisites: CS-140

**CS-245 Project Management-Information Systems**

4 credits, Not Offered Every Term

Study practical approaches for managing, planning, organizing and implementing information systems projects using modern management techniques. Complete hands-on projects requiring management of project resources, scope, timeline costs, scheduling, human and other resources. Use Microsoft Project and other project monitoring tools. Project management is a broad term that can include many areas of business.

**CS-250 Discrete Structures I**

4 credits, Winter

Students will be introduced to discrete structures and techniques for computing. The course, which is the first in the two-term sequence, aims to convey the skills in discrete mathematics that are used in the study and practice of computer science. Topics include: Sets. Graphs and trees; Functions: properties, recursive definitions, solving recurrences; Relations: properties, equivalence, partial order; Proof techniques, inductive proof; Counting techniques and discrete probability. Prerequisite: MTH-251

**CS-251 Discrete Structures II**

4 credits, Spring

Continuation of the introduction to discrete structures and techniques for computing started in CS-250. The course, which is the second in the two-term sequence, aims to convey the skills in discrete mathematics that are used in the study and practice of computer science. Topics include: Logic: propositional calculus, first-order predicate calculus; Formal reasoning: natural deduction, resolution; Applications to program correctness and automatic reasoning; Introduction to algebraic structures in computing. Prerequisites: CS-250.

**CS-260 Data Structures**

4 credits, Spring

Covers common data structures used for the storage and manipulation of data, as well as data abstraction, sorting algorithms, and algorithm analysis. Data structures include linked lists, stacks, queues, binary trees, b-trees, hash tables, and graphs. Prerequisite: CS-162

**CS-275 Database Design**

3 credits, Winter

Focuses on design of a relational database management systems (RDMS). Topics will include database development using the a) requirement b) design c) implementation model, database theory from flat table design to relational systems, entity-relationship models, one-to-one, one-to-many, and many-to-many relationships, referential integrity, normalization of tables, database programming and querying with SQL, and database security. Although other platforms may be demonstrated, the majority of work will be done with MySQL Server. Required: 100 GB or larger USB hard drive. Prerequisite: CS-120 or placement above CS-120 or equivalent experience

**CS-276 Advanced SQL**

4 credits, Not Offered Every Year

Focuses on design, development and implementation of SQL programming for all types of relational database applications including client/server and Internet databases. Learn to write complicated interactive and embedded SQL statements and learn the implications of multi-user database applications.

**CS-279W Windows Server Administration**

4 credits, Spring

Managing a Microsoft Windows server network. Topics include: Network protocols, Active Directory, performance issues, managing web resources, security, and disaster recovery. Prerequisites: CS-179 and CS-240W

**CS-280 Computer Science/CWE**

1-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience provides supervised work experience to supplement the school experience from the academic classroom environment. Examples would be providing user support, work with computer applications or programming languages, install or manage PC computer systems, and developing websites. Can be repeated for up to 9 credits. Prerequisites: BA-131, CS-140, and CS-150. Corequisites: CWE-281

**CS-284 Network Security**

3 credits, Winter

Comprehensive overview of network security. Covers communication security, infrastructure security, cryptography, operations/organizational security, disaster recovery, business continuity, and computer forensics. Prerequisite: CS-279W

**CS-288W Windows Network Administration**

4 credits, Winter

Practices network administration and design using Microsoft Windows Server and other operating systems. Topics include TCP/IP protocols and services such as: IPv4 and IPv6 addressing, DHCP, DNS, routing, filtering, network protection, and remote access. Prerequisite: CS-279W

**CS-289 Web Server Administration**

4 credits, Spring

An introduction to Apache and Microsoft Internet Information Server. Covers installation, administration, securing and troubleshooting, as well as the http, https, and ftp protocols. Prerequisites: CS-240L and CS-240W

**CS-297N Network Capstone**

4 credits, Spring

This class affords students the opportunity to put all the discrete information learned from their program classes together towards the completion of an enterprise computer project.

**CS-297W Website Capstone**

3 credits, Spring

The capstone course for the web development AAS programs. Provides the opportunity to function in a production design environment, work cooperatively with students from other focus areas, and research emerging website technologies. Emphasis will be placed on client interaction, project teams, and accountability, as well as the development of a professional portfolio web site or completion of a research project in an emerging web-related technology. Prerequisites: CS-195 and CS-133S; or CS-195 and CS-135I

**CWE**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Cooperative Work Experience**

**CWE-181 Cooperative Work Experience Preparation**

1 credit, Fall/Winter/Spring/Summer  
Develops skills and documents to assist students in preparing for CWE learning. Includes using online career development tools, cover letters, portfolio documents, informational interviewing, and interacting with HR offices.

**CWE-281 Cooperative Work Experience Seminar**

0 credits, Fall/Winter/Spring/Summer  
The seminar provides an opportunity to develop the career management skills necessary to obtain, sustain, and advance in employment. Prepares students for career success.

**Discipline-Specific Cooperative Work Experience Classes:**

Accounting .....	BA-280
Anthropology.....	ANT-280
Arboriculture .....	HOR-262/263/264
Art.....	ART-280
Auto Body Refinishing.....	ABR-180
Auto Collision Repair/Refinishing ...	AB-280
Auto Mechanics .....	AM-280
Biology .....	BI-280
Business Administration .....	BA-280
Business Management .....	BA-280
Business/Accounting & Accounting Clerk .....	BA-280

Business/Marketing.....	BA-280
Business/Administrative Office Professional/ Administrative Office Assistant.....	BA-280
Career Development Internship.....	HD-180
Computer & Network Administration .....	CS-280
Computer Science .....	CS-280
Corrections.....	CJA-280
Criminal Justice/Corrections....	CJA-280/281
Digital Multimedia Communications .....	DMC-180/DMC-280
Early Childhood Education .....	ECE-280/HDF-280
Education.....	ED-280
Electronic Publishing.....	BA-280
Electronics Engineering Technology .....	SM-280
Emergency Management.....	EM-280
Employment Skills Training.....	EST-180
English .....	ENG-280
Fire Science .....	FRP-180/280
Geology.....	G-280
Geography .....	GEO-280
Gerontology .....	GRN-280
GIS (Geographic Information Systems) .....	GIS-280/281
Health.....	HE-280
History .....	HST-280
Horticulture/Arboriculture.....	HOR-262/263/264
Horticulture/Landscape... ..	HOR-280/281/282
Horticulture/Organic Farming.....	HOR-284/285
Human Resource Management .....	BA-280
Human Services/Generalist I.....	HS-280
Human Services/Generalist II .....	HS-281
Human Services/Generalist III.....	HS-282
Journalism/Public Relations ...	J-280/J-280A
Juvenile Corrections.....	CJA-280
Landscape .....	HOR-280/281/282
Manufacturing .....	MFG-280
Marketing .....	BA-280
Mathematics.....	MTH-280
Microelectronics Systems Technology .....	SM-280
Music Technology .....	MUS-280
Music.....	MUS-280
Occupational Skills Training.....	OST-180
Organic Farming .....	HOR-285
Organic Farming (campus farm) ...	HOR-284
Paraeducator .....	ED-280
Physical Education .....	PE-280
Political Science .....	PS-280
Professional Truck Driver .....	TTL-180
Project Management.....	BA-280
Psychology.....	PSY-280
Religion.....	R-280
Renewable Energy Technology.....	RET-280

Retail Management .....	BA-280
Sociology .....	SOC-280
Spanish.....	SPN-280
Speech .....	COMM-280
Theatre Arts.....	TA-280
Tutoring .....	HD-280
Water & Environmental Technology .....	WET-180/280
Web Design .....	CS-280
Welding Technology .....	WLD-280
Zoology.....	Z-280

**DA**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Dental Assisting**

**DA-101 Dental Radiology I**

2 credits, Fall

Introduction to history and principles of dental radiology, terminology, and basic physics associated with x-rays, biological effects of x-rays, anatomical landmarks and infection control. Corequisite: DA-101L

**DA-101L Dental Radiology I Lab**

1 credit, Fall

Practical instruction in radiation health and safety, types of film, film holders, processing and mounting of dental films, use of x-ray equipment, infection control techniques, disposal of hazardous waste, and exposure techniques on x-ray manikins. Corequisite: DA-101

**DA-102 Dental Radiology II**

2 credits, Winter

Alternative radiographic techniques are discussed as students develop their knowledge in the following areas: bisecting, extra-oral radiography, techniques for children, and patients with special needs. This course provides an in-depth study of the purpose and uses of panoramic imaging, digital imaging, three-dimensional digital imaging, and occlusal examinations. Identification of radiographic interpretation and infection control procedures will also be covered. Required: Admission into the Dental Assistant program. Prerequisite: DA-101 with a C or better. Corequisite: DA-102L

**DA-102L Dental Radiology II Lab**

1 credit, Winter

Knowledge and skills in alternative radiographic techniques are taught as students demonstrate exposure techniques and corrective measures of various alternative radiographic techniques. Students meeting radiographic proficiency on the x-ray mannequin prepare for the Radiation Health and Safety (RHS) proficiency exam. Candidates for the RHS proficiency exam will follow all RHS, Dental Assisting National Board (DANB) and Oregon examination requirements in preparation of patient radiographs. Required: Admission into the Dental Assistant program. Prerequisite: DA-101 with a C or better. Corequisite: DA-102

**DA-104 Clinical Procedures I**

2 credits, Fall

Discussion in the practice of patient care including the collection of patient medical and dental histories and maintenance of accurate treatment records. Explores the history of dentistry, dental ethics and law. The dental health-care team, dental office design and the dental profession will also be discussed. Required: Admission into the Dental Assistant program. Corequisite: DA-104L

**DA-104L Clinical Procedures I Lab**

1 credit, Fall

Prepares the student for basic chairside assisting and general procedures. Application of essential skills in seating and dismissing patients, ergonomics, instrument transfers, oral evacuation, taking and recording vital signs, and infection control are taught and practiced in a dental laboratory setting. Required: Admission into the Dental Assistant program. Corequisite: DA-104

**DA-105 Clinical Procedures II**

2 credits, Winter

A foundational course in preventive dentistry. Examines the study of preventive education, oral hygiene instruction, nutrition, fluoride agents, coronal polishing and sealants. The continuation of oral evacuation and isolation techniques will also be covered. Required: Admission into the Dental Assistant program. Prerequisite: DA-104 with a C or better. Corequisite: DA-105L

**DA-105L Clinical Procedures II Lab**

1 credit, Winter

Further develops the development of chairside skills and introduces the application of preventive procedures such as coronal polishing, fluoride treatment and oral hygiene instruction. Basic knowledge in the application of dental sealants is also taught. Lab skills such as the placement and removal of matrix retainers and rubber dam are taught to provide preparation for chairside dental assisting functions. Aseptic procedures are practiced during all lab skills. Required: Admission into the Dental Assistant program. Prerequisite: DA-104L with a C or better

**DA-106 Clinical Procedures III**

2 credits, Spring

This course provides an in-depth knowledge of dental specialties. Advanced and expanded dental assisting functions, tray set-ups and procedures in endodontics, periodontics, oral surgery, orthodontics and pedodontics are covered. Principles and procedures for amalgam and composite polishing will also be covered.

**DA-106L Clinical Procedures III Lab**

1 credit, Spring

Advanced and Expanded dental assisting procedures in dental specialties are taught. Tray set-up, dental materials and specific specialty procedures will be covered in the following dental specialties: orthodontic, periodontics, oral surgery and endodontics. Laboratory instruction in amalgam and composite polishing will be taught on dental mannequins. Study Cast procedures will also be taught. Required: Admissions into the Dental Assistant program. Instructor consent. Prerequisite: Pass DA-105 with a C or better.

**DA-107 Dental Materials I**

2 credits, Fall

In-depth level of instruction in the composition and manipulation of dental restorative materials, and dental cements. Examination of general dentistry and chairside assisting with direct permanent restorations such as amalgam and composite will also be covered. Required: Admission into the Dental Assistant program. Prerequisite: DA-106 with a C or better. Corequisite: DA-107L

**DA-107L Dental Materials I Lab**

1 credit, Fall

Application of the essential skills necessary in assisting with amalgam and composite restorations. Covers tray-set-ups, pre and post-operative instructions, instrument transfer, and oral evacuation with amalgam and composite procedures. The identification and application of dental cements used in general dentistry will also be covered. Includes manipulation, storage and disposal of hazardous dental materials and cements. Required: Admission into the Dental Assistant program. Prerequisite: DA-106L with a C or better. Corequisite: DA-107

**DA-108 Dental Materials II**

2 credits, Winter

An in-depth knowledge of the properties, uses and manipulation of impression materials, gypsum products and waxes will be covered. Foundational knowledge will prepare students for the fabrication of custom trays, bleaching trays, study casts and provisional restorations. Includes knowledge of fixed and removable prosthodontic procedures and rationale for polishing removable appliances. An overview of dental implants will also be covered. Required: Admission into the Dental Assistant program. Prerequisite: DA-107 with a C or better. Corequisite: DA-108L

**DA-108L Dental Materials II Lab**

1 credit, Winter

Essential skills in the manipulation and application of dental impression materials, gypsum products and waxes will be covered. Through knowledge of laboratory skills in the fabrication of custom trays, bleaching trays, study casts and provisional restorations will be taught. The instrumentation and procedures for fixed and removable prosthodontics will also be covered. Required: Admission into the Dental Assistant program. Prerequisite: DA-107L with a C or better. Corequisite: DA-108

**DA-110 Clinical Practicum I**

1 credit, Fall

Clinical practicum begins in the seventh week of class. Students begin to apply basic dental assisting procedures taught in weeks one through six. All OSHA and HAZ-COM protocols are followed to allow for student and patient safety and protection. A minimum of eight supervised unpaid hours per week is required for term one practicum. Students will participate in two seminars held during the term. Required: Admission into the Dental Assistant program

**DA-115 Dental Science**

2 credits, Fall

Introduction and general study of anatomy, physiology, and oral pathology. An in-depth level course of study in oral anatomy, histology and embryology will also be covered. Required: Admission into the Dental Assistant program

**DA-120 Clinical Practicum II**

5 credits, Winter

Supervised unpaid practice and improvement of clinical skills taught in clinical procedures, dental materials and radiology. Covers advanced Expanded Functions Dental Assisting (EFDA) skills. Implement infection control protocols. Introduce basic business office procedures. Ten hours of community outreach will be required. Participate in three seminars during the term. Required: Admission into the Dental Assistant program. Prerequisite: DA-110 with a C or better

**DA-125 Dental Infection Control**

2 credits, Fall

Introduction and general study of microbiology, major groups of microorganisms, viral and bacterial diseases. Disease transmission, infection prevention, disinfection and instrument processing techniques will also be covered. An in-depth level of the Bloodborne pathogens standards and Hazard Communication will be taught and integrated throughout the didactic, preclinical, laboratory and clinical course of study. Required: Admission into the Dental Assistant program

**DA-130 Clinical Practicum III**

8 credits, Spring

Clinical practicum hours are increased to allow for advancement and completion of clinical competencies. Supervised unpaid practice and improvement of advanced clinical skills in all areas of chairside dental assisting, laboratory procedures, specialties, radiology and Expanded Functions Dental Assisting (EFDA) procedures. Students report to their assigned site three days a week, at a minimum of twenty-four hours per week, for eleven weeks. Clinical competency skills in business office procedures will also be completed in this term (minimum of forty-four hours). Students will be responsible to meet ten hours of community outreach. Students will also participate in three seminars during the term. Radiological proficiency examination will be administered in the first two weeks of this course. Required: Admission into Dental Assistant program. Students are to make arrangements with instructor to take their exam at CCC's dental lab. Prerequisite: DA-120 with a C or better

**DA-135 Pharmacology/Medical Emergencies**

2 credits, Spring

Introduction to pharmacology, common drugs used in dentistry, drug agencies, regulations, and drug actions. The properties of anesthetic, topical anesthetics, and desensitizing agents will also be covered. An in-depth level knowledge of the identification, response and management of medical and dental emergencies in the dental office will be taught utilizing educational manikin simulators. Required: Admission into Dental Assistant program. Instructor consent.

**DA-145 Dental Office Procedures**

2 credits, Spring

Prepares the student for basic knowledge of dental office procedures. Introduction of dental software, management of patient information, maintenance and retention of business records, inventory and recall systems. Examines business ethics and jurisprudence. Written and oral communication are taught to prepare students for employment opportunities. Required: Admission into the Dental Assistant program

**DMC****Digital Media Communications****DMC-100 Introduction to Media Arts**

3 credits, Fall/Spring

Presents an overview of career opportunities in the media industry. Introduces basic principles common to success in the media industry, common media industry entrance strategies and the history of the industry from film to online media. In addition this course will cover basic theories behind what shapes and drives the media industry.

**DMC-104 Digital Video Editing**

4 credits, Fall/Winter/Spring

Students will utilize video editing skills. These skills will include logging and capturing raw video, assembly of shots on a time line, and the use of effects in the creation of a final video sequence. Along with text generation and video compositing, this course will offer students an in-depth overview of the video editing process. Course will explore the history of film editing and the theory behind various forms of film and video editing. Lab component included. Recommended: WRD-090 or placement in WR-121

**DMC-106 Animation & Motion Graphics I**

3 credits, Fall/Winter

Introduction to the fundamentals of animation and motion graphics design. This project-based course will explore experimental and new technological approaches to creating digital effects and animation for video and web-based applications. Students will learn the basics of After Effects to create successful motion graphics projects. Previous experience with computer graphics and digital video is recommended. Recommended: ART-221, ART-225, ART-226, and DMC-104

**DMC-107 Animation & Motion Graphics II**

3 credits, Winter/Spring

This project-based course will explore intermediate aspects of experimental and new technological approaches to creating digital effects and animation for video and web-based applications. Students will learn intermediate features of Adobe After Effects to create successful motion graphics projects. Previous experience with computer graphics and digital video is recommended.

**DMC-108 Animation & Motion Graphics III**

3 credits, Spring

Continuation of the process of animation and motion graphics design. This project-based course will explore advanced aspects of experimental and new technological approaches to creating digital effects and animation for video and web-based applications. Previous experience with computer graphics and digital video is recommended. Students will learn advanced aspects of After Effects to create successful motion graphics projects. Prerequisite: ART-107 or DMC-107. Recommended: ART-221, ART-225, ART-226, and DMC-104

**DMC-109 Introduction to Stop Motion Animation**

1 credit, Not Offered Every Year

Introduces basic stop motion animations tools, materials, techniques and elements of storyboarding, scripting, narrative development, compositing, special effects and audio integration into a final group film. Assignments include character development, rigging, set creation, photography, video compositing, and audio recording and synching. Uses digital cameras, Adobe After Effects and Photoshop, and Dragonframe stop motion software. Recommended: DMC-106 and ART-225

**DMC-132 Video Game 3D Modeling**

3 credits, Not Offered Every Term

This course is intended for students interested in pursuing a career in 3D modeling and/or 3D Video Game Art Production. Upon completion of the course, students will have a working knowledge of tools and navigation in 3Ds Max along with techniques and pipeline familiarity in video game art production. Students will also learn the importance of deadlines, file management and organization. Prerequisites: ART-106 or DMC-106. Recommended: DMC-250, DMC-104, and DMC-107 or ART-107

**DMC-133 Introduction to Video Game Design**

3 credits, Not Offered Every Term

This course is intended for students interested in developing basic skills in game design and development. Upon completion of the course, students will have a working knowledge of a typical game development pipeline consisting of: importing assets from programs such as Adobe Photoshop and 3ds Max into the Unity game engine, authoring prototypic games in Unity, and building deployable games. Students will also learn the importance of deadlines, file management and organization.

**DMC-147 Music, Sound & Moviemaking**

1 credit, Fall/Winter/Spring

Presents the basic components of designing, shooting, recording audio, and post production of movies as well as the history and theory that has led to contemporary film production.

**DMC-170 Introduction to VFX Compositing**

3 credits, Not Offered Every Year

This course is a progression from layer based After Effects into node-based compositing. It will explore basic color theory and introduce the various techniques used in digital compositing. Students will be required to design and complete a series of projects applying basic rotoscoping, paint and keying techniques, using various rendering formats. Ultimately this course will explore "matchmoving concepts" and CG + Live Action integration. Prerequisite: ART-106 or DMC-106. Recommended: DMC-104 and DMC-107, or ART-107 and DMC-250

**DMC-191 Digital Multimedia****Communications Portfolio Project II**

3 credits, Fall/Winter/Spring/Summer

The purpose of this course is to provide students the opportunity to combine their skills, knowledge, and special interests in the revision, refinement, and further development of an original finished product representative of any one of the focus areas included in the Digital Multimedia Communications Program, and to collaborate with peers in the process of integrating their work with one additional DMC focus area.

**DMC-192 Digital Multimedia****Communications Portfolio Project III**

4 credits, Fall/Winter/Spring/Summer

The purpose of this course is to provide students the opportunity to combine their skills, knowledge, and special interests in the production and production management of an original portfolio project that reflects full integration of DMC focus areas.

**DMC-194 Introduction to Film**

4 credits, Not Offered Every Term

Viewing, discussion, and analysis of films from a variety of eras and cultures. Students will learn to analyze a film beyond its surface meaning, drawing on film aesthetics, technology, history, and theory. The interpretive and critical thinking skills they develop can be applied to a variety of modern media. Recommended: WRD-098 or placement in WR-121

**DMC-195 American Film**

4 credits, Not Offered Every Term

This course will focus on the history and theory of American filmmaking from 1895 to the present. Film will be viewed as a visual language and an evolving art form that expresses and influences American culture. Recommended: WRD-098 or placement in WR-121

**DMC-205 Directing for Film & Video**

4 credits, Winter

Offers students interested in filmmaking the skills needed to successfully direct performances specifically for the screen. Lab component included.

**DMC-221 Flash Animation: Design & Techniques**

3 credits, Winter/Spring

Introduces the principles of animation using Adobe Flash software. The course will emphasize design principles, analytical skills and creativity. Students will learn the basics of Flash in order to create successful animated projects. Prerequisite: Pass CS-195 or pass ART-225, equivalent experience, or instructor consent.

**DMC-222 Advanced 2D Animation: Design & Techniques**

3 credits, Spring

Covers advanced principles of animation using Adobe Flash and other software. The course will emphasize professional workflow and techniques of animation production for multimedia platforms.

**DMC-230 Documentary Film Production**

4 credits, Winter

Introduction to the concepts, fundamentals and production of documentary film making. This lecture/lab course will explore traditions and new technological approaches to creating digital documentary films. Previous experience with film studies and digital video is recommended. Prerequisites: DMC-194 and DMC-104. Recommended: WRD-090 or placement in RD-115; WRD-098 or placement in WR-121.

**DMC-242 Field Recording & Sound Design for Media**

1 credit, Spring

This course offers students interested in recording and sweetening audio for film an opportunity to work with student film crews during the shooting and editing process. Corequisite: DMC-265

**DMC-247 Sound for Media**

3 credits, Fall

Introduction to sound as related to moviemaking, animation, and video game production. Students will have the opportunity to create and assemble sound for media into a finished product. Explores the basic components of commercial film/video production as they relate to sound.

**DMC-250 Motion Capture Animation**

4 credits, Spring

Introduction to the fundamentals of Motion Capture Animation for video game development and VFX. This project-based course will prepare students to work in the field of motion capture. Students will plan and direct sessions as well as process data for maximum efficiency. Through this process students will learn how to create professional level, 3D-based motion capture driven projects that can be used in video game development and film. Students will learn the basics of Motion Builder to create successful motion capture projects. Prerequisite: ART-106 or DMC-106. Recommended: DMC-205, DMC-104, ART-107 or DMC-107

**DMC-264 Digital Filmmaking**

4 credits, Winter

Explores the process of translating a written script into a digital film via pre-production, shooting, and post-video production. Recommended: WRD-098 or placement in WR-121

**DMC-265 Advanced Digital Filmmaking**

4 credits, Spring

This course applies filmmaking skills to the production of a short film from a written script. Lab component included.

**DMC-280 Digital Media Communications/CWE**

2-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with on-the-job work experience in the field of media studies. Corequisite: CWE-281

**DMC-295 Revolutionary Film**

4 credits, Not Offered Every Term

Focuses on revolutionary styles of filmmaking from around the world that continue to have an effect on how movies are made today.

**DMC-296 Adaptation: Literature Into Film**

4 credits, Not Offered Every Year

Adaptation: Literature into Film is an exploration in the art of transforming literary text into films. Focuses on various literary genres such as the novel, the short story, the play, and the nonfiction event, and analyzes the process of adapting these stories for page to screen, thereby creating a new art form. Recommended: WRD-098 or placement in WR-121

**EC****Economics****EC-200 Introduction to Economics**

4 credits, Fall/Winter/Spring

General introduction to microeconomics as applied to individual decision-making units and to macroeconomics as applied to the operation of the economy as a whole. Course topics include economic decision making, economic systems, supply and demand models, price determination, elasticity, household income, business ownership, profit maximization, production functions and costs, and competition and market structures. Also includes goals and problems of the macro economy such as fiscal and budgets, the role of financial institutions, money creation, and monetary theory and policy. Recommended: WRD-090 or placement in RD-115

**EC-201 Principles of Economics: MICRO**

4 credits, Fall/Winter/Spring/Summer

Focuses on micro-economic theory dealing with the behavior of individuals and individual firms within different market structures. Covers concepts of competition, consumer decisions, and the price of economic resources, and international trade. Prerequisite: MTH-020 or placement in MTH-098. Prerequisite or Corequisite: WRD-098 or placement in RD-115. Recommended: Sequence of EC-201 and EC-202 taken in order

**EC-202 Principles of Economics: MACRO**

4 credits, Fall/Winter/Spring/Summer

Introduction to economic theory, policy, and institutions. Focuses on macro-economic theory, scarcity, production, money, unemployment, inflation, and international finance. Prerequisite: MTH-020 or placement in MTH-098. Prerequisite or Corequisite: WRD-098 or placement in RD-115. Recommended: Sequence of EC-201 and EC-202 taken in order

**ECE**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Early Childhood Education****ECE-121 Observation and Guidance I in ECE Settings**

4 credits, Winter

Course is designed to help students explore in depth observation of and recording techniques of children's development and learning and to examine various child guidance techniques for children from birth-3rd grade. Students will be provided with strategies to assist them in providing positive guidance to children in a variety of settings and situations.

**ECE-135 Self-Esteem in the ECE Classroom**

1 credit, Not Offered Every Term

Focuses on the feelings of love, selfworth, trust, competency, and even power that begin to form long before the child has the capacity to express them in words. Emphasis is on understanding the importance of facilitating children's feelings of self-esteem, while focusing on the nurturing needs of the children.

**ECE-139 Program Management in ECE**

1 credit, Not Offered Every Term

Focuses on planning and evaluating an early childhood program's specific goals (short and long term) for working with children and their families. Emphasis on administrative tasks such as meeting state and national standards and requirements, maintaining records, and striving for continuous improvement in program quality.

**ECE-142 Media, Technology and the Influences on Child Development**

1 credit, Not Offered Every Term

Focuses on the implication and influences of media and technology on the development of the young child. Emphasizes analysis of media and technology tools for effectiveness in supporting the development of young children.

**ECE-143 Kindergarten Readiness**

1 credit, Not Offered Every Term

Introduces core concepts of kindergarten readiness, including outcomes that are focused on in Pre-K as well as strategies for children as they prepare for kindergarten.

**ECE-144 Working With the Gifted Young Child**

1 credit, Not Offered Every Term

Focuses on understanding the needs of the gifted young child and selecting strategies for supporting their development individually as well as in group settings.

**ECE-145 Understanding Superhero Play in the Classroom**

1 credit, Not Offered Every Term

Develops an understanding of superhero play in the development of young children and explores the role of adults in supporting and guiding their dramatic play. Emphasis will include how adults show children to use power wisely, understand the difference between real violence and pretend violence, settle conflicts without hurting anyone and act with compassion when others need help.

**ECE-150 Introduction to Early Childhood Education & Family Studies**

3 credits, Fall

Focuses on the history of early childhood education and the prominent theorists that have significantly contributed to the field. The types of programs that serve young children, birth-age 8, and their families will be examined. State and national standards in early childhood education and family studies will be explored.

**ECE-154 Language & Literacy Development**

3 credits, Winter

Focuses on language and literacy development of children from birth-age 8. The research foundation and components of language and literacy development will be examined. Practical strategies for promoting optimal development will be emphasized.

**ECE-177 Maximizing the Outdoors in ECE Curriculum**

3 credits, Spring

Focuses on how to plan, create, and implement effective outdoor learning experiences. Topics include the benefits of using the outdoors to build a child's interest in the environment and expand understanding of the world while fostering divergent thinking and creativity. Prerequisite: ECE-240

**ECE-179 The Professional in Early Childhood Education and Family Studies**

2 credits, Spring

Focuses on the role of the professional in Early Childhood Education (ECE) and is individualized to meet the unique professional development needs of each student. Students working on their Child Development Associate (CDA) credential will receive guidance on compiling the resource file, while students pursuing their ECE AAS will receive information and assistance in applying in the Oregon Registry.

**ECE-190 Administration of Early Childhood Programs**

6 credits, Not Offered Every Term

This course focuses on exploration of topics for directors of childhood care and education programs for children ranging in age from birth to twelve in diverse settings. Students will focus on best administrative practices and community relationships to build and sustain quality programs for children and families.

**ECE-221 Observation & Guidance II in ECE Settings**

4 credits, Fall

Designed to help students explore in greater depth the observation and guidance of children from birth-3rd grade within the classroom environment. In this more advanced course, the student focuses on additional observation and guidance techniques for observing groups of children and addresses challenging behaviors and other issues within the early childhood environment. The practitioner's role in using observation to promote his/her own development and to assist in the development of the children is explored in depth. Prerequisite: ECE-121

**ECE-235 Nutrition, Music and Movement In Early Childhood Education**

3 credits, Fall

Course focuses on factors that contribute to childhood obesity. Students explore current standards and evidence-based practices in nutrition education, movement and music in early childhood and explore ways to incorporate developmentally appropriate nutrition, music and movement education into the early childhood environment and curriculum.

**ECE-239 Helping Children and Families Cope With Stress**

3 credits, Spring

Focuses on stressors in society that can affect children and families including environmental stress, divorce and death. Effective strategies teachers can use to support children and families during times of stress are included.

**ECE-240 Environments and Curriculum Planning**

3 credits, Winter

Focuses on an introduction of creating learning environments and curriculum for children from three years old through five years old in home or center-based programs. Course covers theories and relationships between physical and social space, activities, experiences, and materials. Students are introduced to the use of developmentally and culturally appropriate practices in planning and selecting environments and curriculum for young children.



### **ECE-241 Environments and Curriculum Planning: Infants and Toddlers**

3 credits, Fall

Builds upon knowledge and skills learned in ECE-240: Environments and Curriculum Planning. Emphasis is on application of research-based strategies to implement and evaluate early childhood environments and curriculum for children from birth-three years old. Focus is on integrating content knowledge throughout all classroom activities  
Prerequisite: ECE-240

### **ECE-280 Early Childhood Education/CWE**

2-6 credits, Spring

Provides students with on-the-job experience in the field of early childhood education. Students will work nine hours a week in pre-approved educational settings that serve children from six weeks old through age eight. Prerequisites: ECE-150, ECE-121, and ECE-154. Corequisites: CWE-281

### **ECE-289 The Project Approach in Early Childhood Education**

1 credit, Winter

Designed to help participants explore in depth The Project Approach methodology. They will become familiar with the steps involved in setting up this integrated approach to learning within their own classroom, while acquiring knowledge on how this study method supports young children's development in all domains: social, emotional, cognitive, physical, and language-literacy.

### **ECE-291 Practicum II**

4 credits, Winter

Focuses on field experience for students in a variety of educational settings, paralleling duties regularly assigned to early childhood educators. This course allows students to apply knowledge, methods, and skills gained from early childhood education and family studies courses. The seminar covers classroom experiences, best practices and assessment techniques. Prerequisite: ECE-121, ECE-150, ECE-280, HDF-225, and HDF-247

### **ECE-292 Practicum III**

4 credits, Spring

Focuses on field experiences for early childhood education students in a variety of educational settings, serving children from birth through kindergarten. This course allows students to deepen and apply their knowledge, methods, and skills gained from early childhood education and family studies courses as well as the previous terms of practicum and CWE. The seminar covers continuing observation/assessment, assisting the supervising teacher in implementing an integrated approach to curriculum with attention paid to working with diverse children and their families. Students will complete their professional portfolio in this course, documenting how they have achieved the program learning outcomes. Required: Instructor consent. Prerequisite: ECE-154, ECE-240, ECE-291, ED-254, HDF-240.

## **ED**

### **Education**

#### **ED-100 Introduction to Education**

3 credits, Fall/Winter/Spring

Examines career options and pathways in the field of education. Explores the history of and current issues impacting the American educational system. Provides an overview of diversity in educational settings and the characteristics of effective schools and teachers.

#### **ED-113 Instructional Strategies in Reading & Language Arts**

3 credits, Fall

Provides foundational knowledge for the teaching of literacy skills in pre-Kindergarten through secondary settings. Addresses foundations of literacy as well as the developmental stages of literacy. Focuses on instructional strategies for teaching reading and writing to diverse student populations.

#### **ED-114 Instructional Strategies in Math & Science**

3 credits, Spring

Introduces the development of math and science concepts and presents a systematic approach to math and science instruction. Emphasis is on linking math and science instruction and assessment to content standards.

### **ED-130 Comprehensive Classroom Management**

3 credits, Fall

Focuses on creating positive classroom and school climates, organizing and managing classrooms, improving instruction, dealing with classroom discipline problems, developing individualized plans for students experiencing behavioral problems, and developing school-wide student management programs.

### **ED-131 Instructional Strategies**

3 credits, Spring

Examines the knowledge, skills, and characteristics of effective teachers. Focuses on successful instructional planning and delivery of curriculum. Covers teacher-centered and student-centered instructional strategies and ways to differentiate instruction for diverse learners.

### **ED-150 Creative Activities for Children**

3 credits, Summer

Focus is on understanding and implementing developmental approach to creative activities for young children; involves hands-on experience with a variety of mediums including art, music, movement, and creative dramatics.

### **ED-169 Overview of Students With Special Needs**

3 credits, Winter

Provides an introduction to the categories of disability described in the Individuals with Disabilities Education Act (IDEA). Topics include definitions under federal law, implications in school settings, and intervention strategies to meet students' special needs.

### **ED-200 Foundations of Education**

3 credits, Winter

Provides an overview of the American educational system, including historical, legal and philosophical foundations of education. Explores the financing, governance and organization of education in the U.S. Examines the roles and ethical obligations of professional educators.

**ED-220 Foundations of Career Technical Education**

3 credits, Summer

Provides an introduction to the field of Career and Technical Education (CTE). Examines the historical and legislative foundations of CTE in the United States. Discusses the role of special populations in CTE programs. Provides an overview of CTE programs, teacher certification, and student organizations. Addresses current trends and issues in the field.

**ED-229 Learning & Development**

3 credits, Winter

Focuses on foundational ideas, concepts, principles, and theories in the field of educational psychology that have a significant influence on educational practice. Provides students with an overview of psychological theories regarding human development, intelligence, motivation, and the learning process. Students learn how to apply strategies and techniques derived from these theories in the classroom.

**ED-235 Educational Technology**

3 credits, Fall

Prepares students for the use of media and technology in educational settings. Develops an understanding of the role of media in learning and methods for incorporating technology in instruction. Focuses on the use of technology tools to support how teachers create and evaluate learning experiences for students.

**ED-246 School, Family & Community Relations**

4 credits, Summer

Focuses on the knowledge and skills to work effectively with families and community professionals in early childhood education (6 weeks of age through 3rd grade). Emphasis is on building and maintaining positive relationships to foster cooperation and mutual respect between early childhood professionals and the families of the children with whom they are working.

**ED-254 Instructional Strategies for Dual Language Learners**

3 credits, Winter

Examines pedagogical and cultural approaches which lead to successful development of English language skills and content knowledge for children who speak a home language other than English.

**ED-258 Multicultural Education**

3 credits, Spring

Covers the philosophy, activities, and techniques appropriate to a culturally sensitive classroom for children from birth through post-secondary. Emphasis will be on understanding the impact of culture on individual perception and learning and group dynamics.

**ED-280 Practicum/CWE**

2-6 credits, Fall/Winter/Spring

Supervised practicum in an elementary, secondary, or post-secondary educational setting. Participants will utilize and develop knowledge, skills, and attitudes relevant to working in schools and with students. Allows students to gain classroom experience and apply knowledge gained in education courses. Prerequisite or Corequisite: ED-100. Corequisites: CWE-281. Required: Instructor consent.

**EET**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Electronics Systems Technology**

Courses listed with the EET prefix are the main core classes for the Electronics Engineering Technology program. For additional information contact the Manufacturing department at 503-594-3318.

**EET-112 Electronic Test Equipment & Soldering**

3 credits, Fall

Provides basic understanding, operation and set-up of electronic test equipment. Students will set-up, operate, and make measurements using meters, function generator, digital storage oscilloscope and logic analyzer and solder to IPC 610A standards.

**EET-127 Semiconductor Circuits I**

4 credits, Spring

Introduction to the basic concepts of semiconductor devices and the fundamental principles of the device operation. Industry standard devices will be used. Prerequisite: EET-137

**EET-137 Electrical Fundamentals I**

4 credits, Fall

Introduction to basic concepts of voltage, current, resistance and their relationships in DC circuits. Analysis of series, parallel and series-parallel circuits will be made using Ohm's and Kirchhoff's laws and DC Network theorems. Recommended: MTH-050 or higher

**EET-139 Principles of Troubleshooting I**

2 credits, Winter

Emphasizes theories and practices useful in troubleshooting failures in any application. Focuses on the overall philosophy and strategy of troubleshooting, as opposed to detailed tactics of specific applications. Includes a computer applications laboratory. Recommended: MFG-109 or MFG-209

**EET-141 Electrical Fundamentals II**

4 credits, Winter

Introduction to basic concepts of source conversion and current sources. Network theorems, inductors, capacitors, magnetics, and transient analysis of RC and RL circuits will also be covered. Prerequisite: EET-137

**EET-142 Electrical Fundamentals III**

4 credits, Spring

AC circuits analysis, peak, average, RMS, and peak-to-peak voltages in relation to AC circuits. Power, energy, frequency, and transformers are covered. Prerequisite: EET-141

**EET-157 Digital Logic I**

3 credits, Winter

Introduction to digital logic principles, numbering systems and conversions and gate operations. Using principles, circuit analysis will be used to minimize logic networks. Industry standard devices will be used. Recommended: EET-137 and MTH-050

**EET-215 Electromechanical Systems I**

2 credits, Fall

This course emphasizes applied electromechanical principles. The theory and application of force, work, torque, energy power and force transformers are explored. Covers motion control systems, basic relay circuits and sensors, stepper and servo motors and power transmission systems. Introductory mechanics areas also covered, including simple machines and an introduction to static and dynamic forces. Prerequisite or Corequisite: EET-137 or MFG-130

**EET-227 Semiconductor Circuits II**

3 credits, Fall

Second in series concentrating on the application, design and circuit analysis of transistor amplifying and switching circuits. Industry standard devices will be used. Prerequisite: EET-127

**EL****Study Skills**

See also Reading (RD)

**EL-085 Study Skills for Math**

1 credit, Winter/Spring

Focuses on study strategies specific to math, including note taking; reading math textbooks; preparing for, taking, and analyzing math tests. Addresses math anxiety, memory techniques and effective habits for success in math.

**EL-090 Applied Study Skills**

3 credits, Fall/Winter/Spring/Summer

Emphasizes practical study skills. Strategies for organizing study materials and time, remembering information, studying textbooks and taking lecture notes will be applied. Methods of preparing for tests, taking tests, and managing online course components such as Moodle are addressed. Recommended: WRD-098 or placement in WR-121

**EL-103 Taking Effective Notes**

1 credit, Fall/Winter/Spring/Summer

Designed to help students develop effective note-taking skills. Several note-taking systems are introduced and practiced. Prerequisites: Pass WRD-080 or placement in WRD-090

**EL-111 College Study Skills**

3 credits, Fall/Winter/Spring

Emphasizes time management, listening/notetaking, testing skills/anxiety, college resources, learning styles, reading strategies, textbook reading, and concentration skills. Prerequisites: WRD-080 or placement in WRD-090

**EMT**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Emergency Medical Technician****EMT-101 Emergency Medical Technology Part I**

5 credits, Fall/Winter/Spring/Summer

Develops skills and training at the basic life support (BLS) level. Includes signs and symptoms of illness and injury, initial treatment, stabilization, and transportation. Focus on: airway management, and patient assessment. Required: AHA CPR Healthcare Provider or equivalent. Prerequisite: WRD-090 or placement in RD-115, WRD-098 or placement in WR-121, and MTH-060 with a C or better or placement in MTH-065

**EMT-102 Emergency Medical Technology Part II**

5 credits, Fall/Winter/Spring/Summer

Continuation of EMT-101. Focus on: medical and trauma emergencies, EMS operations, and special populations. Includes 16 hours of observational time in an emergency department and with an EMS unit. Prerequisite: EMT-101

**EMT-105 Introduction to Emergency Medical Services**

3 credits, Fall

Introduces the student to EMS. Examines the career path for paramedics. Explores structure and function of EMS systems. Includes roles and responsibilities, operations, medico-legal consideration, stress management, blood borne pathogens, and other Oregon specific content.

**EMT-107 EMT Rescue**

3 credits, Spring

Covers EMS operational areas including rescue practices, standard and rapid patient extrication, introduction to heavy extrication, control of rescue operations, scene safety, and more. Prerequisite: EMT-101

**EMT-108 Emergency Response Patient Transportation**

2 credits, Spring

Covers ambulance operations, laws, maintenance and safety, emergency response driving and route planning. Prerequisite: EMT-101

**EMT-109 Emergency Response Communication/ Documentation**

2 credits, Winter

Covers principles of communication via verbal, written and electronic modes in the provision of EMS. Documentation of the elements of patient assessment, patient care and transport, communication systems, radio types, reports, codes and correct techniques. Prerequisite: EMT-101

**EMT-217 Basic EKG Interpretation I for Emergency Medical Technicians**

1 credit, Spring

Presents the student with an introductory overview related to the anatomy and physiology of the heart. It also explores normal electrical conduction as well as common variations as evidenced by changes in the waveform on the cardiac monitoring device. The course will also focus on the student's ability to perform cardiac monitoring via 3, 5 and 12-lead monitoring devices.

**EMT-218 Basic EKG Interpretation II for Emergency Medical Technicians**

1 credit, Spring

Builds upon the knowledge gained in EMT-217. The course will focus on the student's ability to understand and recognize variations in the electrical conduction of the heart as evidenced by changes on the 12-lead EKG. The course will encompass the recognition and treatment modalities of sinus, atrial, junctional and ventricular rhythms as well as heart block. Recognition and treatment of electrical conduction problems related to ischemia, injury and drug/electrolyte imbalances will also be discussed.

## ENG English

### ENG-104 Introduction to Literature: Fiction 4 credits, Summer/Fall

An introduction to American and international short stories, with a focus on the fundamental elements of fiction. Also examines the historical, social, and cultural background and significance of fiction. Students engage in literary analysis, use literary terminology, and develop personal and scholarly responses to fiction. Recommended: WRD-098 or placement in WR-121

### ENG-105 Introduction to Literature: Drama 4 credits, Winter

ENG-105 Course Description:  
An introduction to American and international drama, emphasizing reading, appreciation, discussion, and literary analysis. Focuses on defining the genre and elements of drama, encouraging students' personal reflections and cultural understanding, incorporating relevant literary theories, and practicing the close reading and analysis of dramatic works. Recommended: WRD-098 or placement in WR-121

### ENG-106 Introduction to Literature: Poetry 4 credits, Spring

An introduction to American and international poetry. Explores the fundamental elements of poetry and examines the historical, social, and cultural significance of various poems. Students engage in literary analysis, use literary terminology, and develop personal and scholarly responses to poetry. Recommended: WRD-098 or placement in WR-121

### ENG-107 World Literature: Ancient 4 credits, Fall

Literature of the ancient world: epic, lyric, and dramatic literature with an emphasis on Greek, Roman, Hebrew, Egyptian, and Hindu works. Through class discussion and written work, students practice close reading and literary interpretation, explore the readings' contemporary relevance, and relate the readings to their own lives and the world. Recommended: WRD-098 or placement in WR-121

### ENG-108 World Literature: Medieval Through Enlightenment 4 credits, Winter

Readings from the Middle Ages through the eighteenth century 'Enlightenment' period, emphasizing Cervantes, Dante, and Voltaire. Through class discussion and written work, students practice close reading and literary interpretation, explore the readings' contemporary relevance, and relate the readings to their own lives and the world. Recommended: WRD-098 or placement in WR-121

### ENG-109 World Literature: Romantic Through Modern 4 credits, Spring

Readings from the late eighteenth century 'Romantic' period through modern times, ranging from Russia to Nigeria to Columbia. Through class discussion and written work, students practice close reading and literary interpretation, explore the readings' contemporary relevance, and relate the readings to their own lives and the world. Recommended: WRD-098 or placement in WR-121

### ENG-116 Introduction to Literature: Comics 4 credits, Fall

Examines the intrinsic literary and artistic qualities of comics, as well as their connections to classic literature, and the literature and other art they have inspired. Prerequisites: WRD-098 or placement in WR-121

### ENG-121 Mystery Fiction 4 credits, Fall

An introduction to the genre of detective or "mystery" fiction. Students will read, discuss, and analyze short stories and novels by writers including Mystery novels and short stories by such writers including Edgar Allan Poe, Sir Arthur Conan Doyle, Agatha Christie, Dorothy Sayers, Raymond Chandler, and Sue Grafton. Recommended: WRD-098 or placement in WR-121

### ENG-130 Leadership in Literature

4 credits, Not Offered Every Year

Examines the nature of leadership by analyzing characters who are leaders in major literary works. Students will read and analyze texts, discuss character motivation, and determine an alternate resolution if possible. Recommended: WRD-098 or placement in WR-121

### ENG-194 Introduction to Film

4 credits, Not Offered Every Year

Viewing, discussion, and analysis of films from a variety of eras and cultures. Students will learn to analyze a film beyond its surface meaning, drawing on film aesthetics, technology, history, and theory. The interpretive and critical thinking skills they develop can be applied to a variety of modern media. Recommended: WRD-098 or placement in WR-121

### ENG-195 American Film

4 credits, Winter

This course will focus on the history and theory of American filmmaking from 1895 to the present. Film will be viewed as a visual language and an evolving art form that expresses and influences American culture. Recommended: WRD-098 or placement in WR-121

### ENG-201 Shakespeare

4 credits, Fall

Selected comedies, histories, tragedies, romances, and poetry. Students focus on reading and discussion, literary interpretation, and relating Shakespeare's work to their lives and the world. Works from ENG-201 will not be repeated in CCC's other Shakespeare course, ENG-202. Recommended: WRD-098 or placement in WR-121

### ENG-202 Shakespeare

4 credits, Winter

Selected comedies, histories, tragedies, romances, and poetry. Students focus on reading and discussion, literary interpretation, and relating Shakespeare's work to their lives and the world. Works from ENG-202 will not be repeated in CCC's other Shakespeare course, ENG-201. Recommended: WRD-098 or placement in WR-121

**ENG-204 Survey of English Literature, Part 1**

4 credits, Fall

Representative study of British literature, including major works, writers, and literary forms, from its beginnings through early eighteenth century. Readings from the Anglo-Saxon, Middle English, Renaissance, Earlier Seventeenth century, and Restoration periods. Recommended: WRD-098 or placement in WR-121

**ENG-205 Survey of English Literature, Part 2**

4 credits, Winter

Representative study of British literature, including major works, writers, and literary forms. Late eighteenth century through modern. Representative readings from the Romantic, Victorian and modern periods. Recommended: WRD-098 or placement in WR-121

**ENG-213 U.S. Latino Literature**

4 credits, Not Offered Every Year

Survey of U.S. Latino/a literature of various genres and historical periods. Literary contributions by writers of varied cultural heritage, including Chicano, Cuban-American, Puerto-Rican and more. Prerequisites: WRD-098 or placement in WR-121

**ENG-214 The Graphic Memoir**

4 credits, Winter

Explores memoirs and other works of creative non-fiction executed in the medium of comics. Specific attention is given to the unique ways comics amplify the rhetorical and aesthetic impact of autobiographical storytelling upon its creators and audiences, as well as the social-historical contexts for such work. Prerequisites: WRD-090 or placement in WR121 and RD-115;. Recommended: ENG-116

**ENG-218 Arthurian Literature**

4 credits, Not Offered Every Year

Origins and development of Arthurian literature from medieval to modern times. Examines topics such as knight-hood, chivalry, the hero's quest, abduction and adultery, courtly love, the Round Table. Prerequisites: WRD-098 or placement in WR-121

**ENG-225 Creative Nonfiction Literature**

4 credits, Not Offered Every Year

Discussion and analysis of various types of creative nonfiction such as literary journalism, memoirs, nature or science writing, literary travel writing, and personal essays. Prerequisites: WRD-098 or placement in WR-121

**ENG-226 Popular Literature**

4 credits, Winter/Spring

Focuses on genre work within prose, film, comics and/or videogames that is specific in theme and targeted towards a more mass audience than traditional literary work. Genres might include but not necessarily be limited to horror, fantasy, science-fiction, romance, and/or westerns. Prerequisites: WRD-098 or placement in WR-121

**ENG-230 Documentary Film**

4 credits, Not Offered Every Term

This course will focus on documentary film history and theory. Students will learn to analyze documentary film and appreciate its value as a mode of cultural expression and influence. Recommended: WRD-098 or placement in WR-121

**ENG-240 Native American Mythology**

4 credits, Not Offered Every Year

Explores Native American mythology and its cultural, social, and literary significance; views Native American mythology in its historical and geographic positions and in the larger context of world literary tradition; considers how studying myth affects and influences reading other works; introduces theoretical approaches to mythology and basic literary elements and terminology. Prerequisites: WRD-090 or placement on WR-121 and RD-115

**ENG-241 Norse Mythology**

4 credits, Not Offered Every Year

Explores Norse mythology and its cultural, social, and literary significance; views Norse mythology in its historical and geographic positions and in the larger context of Western literary traditions; introduces theoretical approaches to mythology and basic literary elements and terminology; considers how studying myth affects and influences reading other works; connects Norse myth to medieval European and modern fantasy literature. Recommended: WRD-098 or placement in WR-121

**ENG-242 Middle Eastern Mythology**

4 credits, Not Offered Every Year

Explores Middle Eastern mythology and its cultural, social, and literary significance; views Middle Eastern mythology in its historical and geographic positions and in the larger context of Western literary tradition; introduces theoretical approaches to mythology and basic literary elements and terminology; considers how studying myth affects and influences reading other work; explores Middle Eastern myth's influence on the Hebrew Bible. Recommended: WRD-098 or placement in WR-121

**ENG-250 Greek Mythology**

4 credits, Not Offered Every Term

Explores the historical, cultural, social, and literary significance of Greek myths; views Greek mythology in its historical and geographic positions and in the larger context of Western civilization and literary tradition; considers how studying myth affects and influences reading other works; introduces theoretical approaches to mythology and basic literary elements and terminology. Recommended: WRD-098 or placement in WR-121

**ENG-251 Celtic Mythology**

4 credits, Not Offered Every Year

Explores the historical, cultural, social, and literary significance of Celtic myths; views Celtic mythology in its historical and geographic positions and in the larger context of Western civilization and literary tradition; considers how studying myth affects and influences reading other works; introduces theoretical approaches to mythology and basic literary elements and terminology. Recommended: WRD-098 or placement in WR-121

**ENG-252 Hindu Mythology**

4 credits, Not Offered Every Year

Explores the historical, cultural, social, and literary significance of Hindu myths; views Hindu mythology in its historical and geographic positions and in the larger context of world civilization and literary tradition; considers how studying myth affects and influences reading other works; introduces theoretical approaches to mythology and basic literary elements and terminology. Recommended: WRD-098 or placement in WR-121

**ENG-253 American Literature, Part 1**

4 credits, Winter

American literature from the pre-colonial to nineteenth century, both major and lesser-known writers. Recommended: WRD-098 or placement in WR-121

**ENG-254 American Literature, Part 2**

4 credits, Spring

Representative readings from the mid-nineteenth century to twentieth centuries. Surveys the development of American fiction, nonfiction, poetry, and drama through the study of the works of both major and lesser-known writers. Recommended: WRD-098 or placement in WR-121

**ENG-255 American Literature**

4 credits, Not Offered Every Year

Focus on selected authors and works of modern American fiction, poetry, nonfiction, and drama. Recommended: WRD-098 or placement in WR-121

**ENG-260 Introduction to Women Writers**

4 credits, Not Offered Every Year

The study of the works (e.g. plays, poems, fiction, new media) created by women writers, both classic and contemporary, with an emphasis on women's evolving social, historical, and economic roles. Recommended: WRD-098 or placement in WR-121

**ENG-261 Literature of Science Fiction**

4 credits, Not Offered Every Year

Introduction to the literature of science fiction in print and film, exploring historical and contemporary themes. The course covers a variety of authors and films, and examines the art and function of this genre of fiction. Recommended: Pass WRD-098 or placement in WR-121.

**ENG-266 The Literature of War**

4 credits, Spring

Fiction, poetry, nonfiction, and popular song lyrics dealing with the experience of war. Crane, Remarque, Trumbo, Heller, Vonnegut, Owen, Sassoon, and writers of the Vietnam War will be examined and discussed. Literature emerging from the wars in Afghanistan and Iraq will also be covered. Recommended: WRD-098 or placement in WR-121

**ENG-270 Introduction to Literary Criticism**

4 credits, Spring

Students will closely study famous literary texts through a variety of critical approaches such as Feminism, Psychoanalysis, Marxism, reader-response, and New Historicism.

**ENG-280 English/CWE**

2-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with on-the-job experience in the field of English studies. Corequisite: CWE-281

**ENG-295 Revolutionary Film**

4 credits, Not Offered Every Term

This course focuses on revolutionary styles of filmmaking from around the world that were socially transformative, in addition to changing the way movies are made. Recommended: WRD-098 or placement in WR-121

**ENG-296 Adaptation: Literature Into Film**

4 credits, Not Offered Every Year

Adaptation: Literature into Film is an exploration into the art of transforming literary texts into films. The course focuses on various literary genres such as the novel, the short story, the play, and the nonfiction event, and analyzes the process of transforming these stories from page to screen, thereby creating a new art form. Note: This is a literature and not a writing class. Recommended: WRD-098 or placement in WR-121

**ENG-297 A.S. Degree Portfolio**

1 credit, Fall/Winter/Spring/Summer

This course provides the opportunity for A.S. Degree students to revise, edit, reflect upon, and compile their best work from their various focus areas to meet the outcomes for the program and prepare for transfer to a university. Recommended: WRD-098 or placement in WR-121. Required: Students must be in the second year of their course of study, and have the majority of their focus area and transfer requirements complete.

**ENGR****Engineering****ENGR-111 Introduction to Engineering**

3 credits, Fall/Winter/Spring

Introduction to basic ideas and tools of the engineering profession. Rudiments and methods of engineering analysis, design, and problem solving culminating in a design project. The class will cover all facets of design, including background research, requirement specification and prioritization, development, prototype construction, testing, and evaluation for future redesigns. Prerequisite or Corequisite: Take MTH-112 or higher

**ENGR-112 Engineering Programming**

3 credits, Fall/Winter/Spring

Introduction to basic scientific and engineering computing using MATLAB. Rudiments and methods of engineering analysis, design, and problem solving with computational tools. Emphasis on developing proficiency in writing functions and programs. Prerequisite or Corequisite: MTH-112 or higher

**ENGR-115 Engineering Graphics**

3 credits, Spring

Mechanical design automation software used to design parts and assemblies, design methods used to build, maintain and modify parts. Covers 2D documentation and isometric views cooperated with ASME standards. Includes real time shaded 3D modeling. Prerequisite or Corequisite: MTH-112 or higher

**ENGR-171 Digital Logic**

4 credits, Winter

The first course in digital design covers basic logic gates, Boolean algebra, Karnaugh mapping, number systems, timing analysis, and state machines. Students will become proficient with computational tools including schematic capture programs and circuit simulators. Prerequisite: MTH-111

**ENGR-211 Statics**

4 credits, Fall

First term of engineering mechanics sequence. This course focuses on the study of force systems acting on particles or rigid bodies under equilibrium conditions. Prerequisites: MTH-252. Corequisites: PH-211

**ENGR-212 Dynamics**

4 credits, Winter

Kinematics, kinetics, work-energy, and impulse-momentum relationships of engineering systems. The course examines the fundamental principles of Newton's laws of motion, with applications to basic particles and rigid bodies in one, two, and three dimensions. Prerequisites: ENGR-211 and PH-211

**ENGR-213 Strength of Materials**

4 credits, Spring

Introduces the relation of externally applied loads and their internal effects on deformable bodies, such as columns, shafts, beams and statically indeterminate structures or systems made up of such members. Prerequisite: ENGR-211

**ENGR-221 Electrical Circuit Analysis**

4 credits, Fall/Spring

Designed to give the student a thorough understanding of basic electrical circuit theory, this course covers voltage and current relationships and fundamental methods of circuit analysis. Electrical circuit parameters such as resistance, inductance, and capacitance will be examined through theory and laboratory experiments. Prerequisite: MTH-252

**ENGR-222 Electrical Circuit Analysis II**

4 credits, Winter

Expands upon the techniques of circuit analysis begun in ENGR-221 through theory and laboratory experiments. Covers the time response of first- and second-order circuits, the steady-state circuit behavior of circuits driven by sinusoidal sources, and the use of Laplace transforms to analyze the transient and steady-state behavior for a number of signal types. Prerequisite: ENGR-221

**ENGR-223 Electrical Circuit Analysis III**

4 credits, Spring

Final course in the electrical circuits sequence. The main emphases of the course are frequency response of circuits, the design and analysis of filters, A/C steady state circuits with Laplace transform analysis, three-phase power, and two-port networks. The laboratory portion of the course will consist of one project involving significant design and analysis. Prerequisite: ENGR-222

**ENGR-231 Properties of Materials**

4 credits, Winter

This course is an introduction to materials science, a field that describes the behavior of materials by utilizing principles of chemistry and physics to engineer new materials and predict their resultant properties. The course will focus on describing the microscopic physical and chemical structure of materials and relating that structure to the macroscopic thermal, electrical, and mechanical properties. The course will also cover the connection between atomic/crystal structure and materials processing. Prerequisite: CH-221

**ENGR-271 Digital Systems**

4 credits, Spring

The second course in digital design covers synchronous state machine circuits, microprocessor architecture, shift register devices, and the design of memory systems. Prerequisite: ENGR-171

**ESH**

Courses with this prefix may not transfer with to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Environmental Safety & Health****ESH-100 Environmental Regulations**

1-3 credits, Fall/Winter/Spring

An overview of environmental regulations as they pertain to industry, agriculture, schools and the general public. Major points of environmental law, federal and state regulatory statutes and regulations, and the agencies responsible for their enforcement. This course has been developed with the cooperation of DEQ.

**ESH-101 Hazardous Waste Management**

2 credits, Fall/Winter/Spring

DEQ authorized class. This class offers ways to reduce, identify, store, and dispose of hazardous waste in Oregon. Certificate available from DEQ.

**ESL**

Courses with this prefix will not transfer to a four-year institution. Courses are intended for ESL students.

**English as a Second Language****ESL-010 Beginning Grammar**

0 credits, Not Offered Every Term

English language learners study and practice the simple present tense of the verb "to be," nouns, descriptive and possessive adjectives, prepositions of place and time, and simple sentence structures in written and spoken English. Required: Minimum Student Performance Level (SPL) of 2

**ESL-012 Beginning ESL**

0 credits, Fall/Winter/Spring/Summer

English language learners speak and listen to simple words, phrases, questions, statements and commands using common English vocabulary in simple, highly-structured tasks.

**ESL-014 Beginning Reading & Writing**

0 credits, Fall/Winter/Spring/Summer

English language learners read and write the alphabet, sight words, and simple sentences.

**ESL-016 Integrated Beginning ESL**

0 credits, Fall/Winter/Spring/Summer

English language learners are introduced to the basic language necessary to function in day-to-day American society; language functions are taught in the contexts of work, family and community.

**ESL-020 Upper Beginning Grammar**

0 credits, Fall/Winter/Spring/Summer

English language learners study and practice basic verb forms (simple present and present progressive), and adverbs of frequency, in written and spoken English.

**ESL-024 Upper Beginning Reading & Writing**

0 credits, Fall/Winter/Spring/Summer

English language learners read short texts to improve reading skills, write simple, compound, and complex sentences, and write related sentences in paragraph form for the contexts of school, work, family and community.

**ESL-025 Upper Beginning Writing**

0 credits, Not Offered Every Term

English language learners write simple, compound, and complex sentences, and write related sentences in paragraph form for the contexts of school, work, family and community.

**ESL-030 Intermediate Grammar A**

0 credits, Not Offered Every Term

One of a two-part series. English language learners extend their understanding of basic verb forms (simple present, simple past, and present progressive), study and practice past progressive, used to, future time formations, and wh-questions in written and spoken English.

**ESL-031 Intermediate Grammar B**

0 credits, Not Offered Every Term

One of a two-part series. English language learners study and practice present perfect verb forms with time expressions and adverbs of frequency, modals of ability, permission, and advice, and comparative and superlative adjectives in written and spoken English.

**ESL-032 Intermediate Conversation**

0 credits, Fall/Winter/Spring/Summer

English language learners study and practice speaking and listening skills and strategies in structured tasks to improve fluency in the contexts of school, work, family and community.

**ESL-034 Intermediate Reading & Writing**

0 credits, Fall/Winter/Spring/Summer  
English language learners read a variety of texts to improve reading skills, and write paragraphs focused on a single topic developed with logically organized facts and details for the contexts of school, work, family and community.

**ESL-035 Intermediate Writing**

0 credits, Not Offered Every Term  
English language learners write paragraphs focused on a single topic developed with logically organized facts and details for the contexts of school, work, family and community.

**ESL-040 Upper Intermediate Grammar A**

0 credits, Not Offered Every Term  
One of a two-part series. English language learners study and practice verb forms that frequently occur together, gerunds, infinitives, and causative verbs in written and spoken English.

**ESL-041 Upper Intermediate Grammar B**

0 credits, Not Offered Every Term  
One of a two-part series. English language learners study and practice adjective clauses, phrasal verbs, and passive voice in written and spoken English.

**ESL-042 Upper Intermediate Conversation**

0 credits, Fall/Winter/Spring/Summer  
English language learners study and practice speaking and listening skills and strategies for independent communication to improve fluency in the contexts of school, work, family and community.

**ESL-044 Upper Intermediate Reading & Writing**

0 credits, Fall/Winter/Spring/Summer  
English language learners read a variety of texts to improve reading skills, and produce basic multi-paragraph texts for the contexts of school, work, family and community.

**ESL-045 Upper Intermediate Writing**

0 credits, Summer  
English language learners read a variety of texts to improve reading skills, and produce basic multi-paragraph texts for the contexts of school, work, family and community.

**ESL-046 Editing for Better Writing**

0 credits, Fall/Winter/Spring/Summer  
English language learners improve their writing through editing. They also engage in extended reading to provide a context for writing.

**ESL-047 Editing Part 1**

0 credits, Not Offered Every Year  
English language learners improve their writing through editing.

**ESL-048 Editing Part 2**

0 credits, Not Offered Every Term  
English language learners improve their writing through editing.

**ESL-050 Advanced Grammar A**

0 credits, Not Offered Every Term  
One of a three-part series. English language learners study and practice modals, adverb clauses, and discourse connectors in written and spoken English.

**ESL-051 Advanced Grammar B**

0 credits, Not Offered Every Term  
One of a three-part series. English language learners study and practice count/non-count nouns, definite/indefinite articles, and some modals in written and spoken English.

**ESL-052 Advanced Communication Skills 1**

0 credits, Not Offered Every Term  
English language learners practice speaking and listening strategies for effective communication in discussions, presentations, lectures, note-taking, and group projects. The course builds vocabulary, critical thinking skills, and an awareness of non-verbal communication. The focus of this course is to prepare students for college success.

**ESL-053 Advanced Communication Skills 2**

0 credits, Not Offered Every Term  
English language learners practice speaking and listening strategies for effective communication for discussions, interviews, presentations, and note-taking to improve fluency in speaking and listening. Students will study the important effect intonation and body language have on meaning, build vocabulary and critical thinking skills, and develop confidence in speaking with purpose. The focus of this course is to prepare students for success in the workplace and community.

**ESL-054 Advanced Reading & Writing**

0 credits, Fall/Winter/Spring/Summer  
English language learners develop writing skills including summarizing, response writing, and paraphrasing, and improve writing fluency. Develop reading skills and fluency through reading a range of texts on a variety of topics.

**ESL-055 Advanced Grammar C**

0 credits, Not Offered Every Term  
One of a three-part series. English language learners study and practice gerunds, infinitives, passive voice, and adjective clauses in written and spoken English.

**ESL-060 Vocabulary Building 1**

0 credits, Not Offered Every Term  
One of a two-part series. English language learners develop their passive and active vocabularies through numerous exposures to selected words from the General Service List and the Academic Word List, and develop their vocabulary acquisition skills.

**ESL-061 Vocabulary Building 2**

0 credits, Not Offered Every Term  
One of a two-part series. English language learners develop their passive and active vocabularies through numerous exposures to selected words from the General Service List and the Academic Word List, and develop their vocabulary acquisition skills.

**ESL-062 ESL Reading 1**

0 credits, Not Offered Every Term  
English language learners at all levels improve their reading fluency and expand and solidify their English vocabulary as needed for more advanced ESL and everyday life.

**ESL-063 ESL Reading 2**

0 credits, Not Offered Every Term  
English language learners at all levels improve their reading fluency and expand and solidify their English vocabulary as needed for more advanced ESL and everyday life. The course can be repeated, as learners read texts of progressively greater challenge, up to the college reading level. Students who have completed ESL Reading 1 will develop their reading skills at a higher level in ESL Reading 2.

**ESL-065 Film, Internet, and Culture**

0 credits, Not Offered Every Term  
English language learners develop their English speaking and listening skills in the context of contemporary media and U.S. culture. Students use speaking and listening skills to recognize and explain different cultural situations.



**ESL-066 Bridge to College and Career**

0 credits, Not Offered Every Term  
English Language Learners apply their developing English language skills to read, write, speak and listen in real world contexts provided by college and career-related materials, intensifying their language acquisition process while preparing to move beyond the ESL program.

**ESL-067 Spelling**

0 credits, Not Offered Every Term  
English language learners learn about and practice English spelling patterns and rules and individualize instruction to address spelling challenges.

**ESL-068 Bridge to Computers**

0 credits, Not Offered Every Term  
English language learners beyond the beginning level are introduced to computer technology. The course includes an overview of computer components and terminology and an introduction to applications such as word processing, Internet, e-mail, presentation, and other software. English reading, writing, speaking, and listening skills are developed through a variety of computer projects and interactive classroom work.

**ESL-069 Pronunciation**

0 credits, Not Offered Every Term  
English language learners develop pronunciation skills and knowledge to improve speech clarity, listening effectiveness, and pronunciation of written words.

**ESL-080 ESL Tutoring**

0 credits, Fall/Winter/Spring/Summer  
Adult students meet one-on-one or in a small group with a tutor to focus on specific learning needs. The sessions are held in various public places throughout Clackamas County, such as libraries, schools, churches and the college campuses and outreach sites. Tutors help set student goals and a plan of learning. This class is a supplement to other ESL, ABE, or GED classes.

**ESL-082 Assess/Evaluate New Students**

0 credits, Fall/Winter/Spring/Summer  
New students in the ESL program receive information about classes offered, departmental and college policies, college services available, campus facilities, student responsibilities, and community resources. Students are tested to determine their language levels and class placement.

**ESL-083 Educational Planning for Returning Students**

0 credits, Fall/Winter/Spring/Summer  
Designed for returning students in the ESL program at CCC. Students meet with their instructors to review their progress, revisit their goals, register for classes, and learn how to transition to other educational and training opportunities at the college and in other community programs.

**ESL-088 Beginning ESL Computer Skills Lab**

0 credits, Fall/Winter/Spring/Summer  
English language learners acquire basic computer skills.

**ESL-091 ESL Skills Lab**

0 credits, Fall/Winter/Spring/Summer  
English language learners are provided the opportunity to intensify their learning at each level. Students build on the language learning skills and strategies acquired during the previous and current terms.

**ESR****Environmental Science****ESR-171 Environmental Science**

4 credits, Fall  
Introduction to environmental science issues, the scientific method, systems and feedback, biogeochemical cycles, human population growth, communities and ecosystems, productivity and energy flow, world food supply, environmental effects of agriculture, and endangered species. Recommended: MTH-060 or MTH-098 with a minimum grade of C or placement in MTH-065; WRD-098 or placement in WR-121

**ESR-172 Environmental Science**

4 credits, Winter  
Introduction to planning of parks and preserves, the scientific method, energy principles, fossil fuel recovery and use, renewable energy sources, nuclear energy, environmental toxicology, air pollution, indoor air pollution, ozone depletion, and climate change. Recommended: MTH-060 or MTH-098 with a C or better or placement in MTH-065 WRD-098 or placement in WR-121.

**ESR-173 Environmental Science**

4 credits, Spring  
Introduction to minerals and the environment, the scientific method, environmental economics, waste management, biological diversity, biogeography and invasive species, ecological succession and restoration, water management, water pollution, urban environments and environmental sustainability. Recommended: MTH-060 or MTH-098 with a C or better or placement in MTH-065, WRD-098 or placement in WR-121.

**EST**

Courses with this prefix may not transfer to a four-year institution.

**Employment Skills Training****EST-180 Employment Skills Internship**

1-12 credits, Fall/Winter/Spring/Summer  
Develop entry level skills in a specific occupation and practice the career management skills necessary to obtain, sustain, and advance employment. A comprehensive employment plan is developed with a focus on a career path.

**FN****Food & Nutrition****FN-110 Personal Nutrition**

3 credits, Fall/Winter/Spring/Summer  
Explores how nutrition affects health and fitness for the individual and the family. Students apply knowledge of nutrition guidelines to analyze personal diet and improve current food preparation and habits. Basic nutrition course for student with little or no science background.

**FN-225 Nutrition**

4 credits, Fall/Winter/Spring/Summer  
Explores the role of nutrients in the development and maintenance of a healthy body. Examines the relationship between diet and health. Students apply knowledge of nutritional adequacy through computer-aided analysis. Discusses current nutrition recommendations and controversies. Meets requirement for most nursing programs. Strong background in anatomy and physiology, biology or chemistry is recommended. Recommended: Strong background in anatomy and physiology, biology, or chemistry

**FR****French****FR-101 First-Year French I**

4 credits, Fall

First term of a three-term foundational, multimedia course in beginning French designed to give the student a fundamental knowledge of pronunciation and intonation, structure and syntax as well as comprehension skills sufficient for basic communicative proficiency in the language. Student learning is assessed by means of oral interviews, written tests, written homework and classroom participation. Recommended: WRD-098 or placement in WR-121

**FR-102 First-Year French II**

4 credits, Winter

Second term of a three-term foundational, multimedia course in beginning French designed to give the student a fundamental knowledge of pronunciation and intonation, structure and syntax as well as comprehension skills sufficient for basic communicative proficiency in the language. Student learning is assessed by means of oral interviews, written tests, written homework and classroom participation. Prerequisites: FR-101

**FR-103 First-Year French III**

4 credits, Spring

Third term of a three-term foundational, multimedia course in beginning French designed to give the student a fundamental knowledge of pronunciation and intonation, structure and syntax as well as comprehension skills sufficient for basic communicative proficiency in the language. Student learning is assessed by means of oral interviews, written tests, written homework and classroom participation. Prerequisites: FR-102

**FR-201 Second-Year French I**

4 credits, Fall

The second year of academic French expands on first-year French in the review of grammar and in the cultural reading material. Communication skills are emphasized stressing oral proficiency. Prerequisites: FR-103

**FR-202 Second-Year French II**

4 credits, Winter

The second year of academic French expands on first-year French in the review of grammar and in the cultural reading material. Communication skills are emphasized stressing oral proficiency. Prerequisites: FR-201

**FR-203 Second-Year French III**

4 credits, Spring

The second year of academic French expands on first-year French in the review of grammar and in the cultural reading material. Communication skills are emphasized stressing oral proficiency. Prerequisites: FR-202

**FR-211 Intermediate French Conversation**

3 credits, Fall

Development of speaking and listening proficiency through creative activities such as discussions of excerpts from contemporary French-language media, presentations, games and interviews of classmates. Major topics and level of conversational difficulty will parallel FR-201. Prerequisite: FR-103 with a C or better

**FR-212 Intermediate French Conversation**

3 credits, Winter

Development of speaking and listening proficiency through creative activities such as discussions of excerpts from contemporary French-language media, presentations, games and interviews of classmates. Major topics and level of conversational difficulty will parallel FR-202. Prerequisites: FR-103 with a C or better

**FR-213 Intermediate French Conversation**

3 credits, Spring

Development of speaking and listening proficiency through creative activities such as discussions of excerpts from contemporary French-language media, presentations, games and interviews of classmates. Major topics and level of conversational difficulty will parallel FR-203. Prerequisites: FR-103 with a C or better

**FRP**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Fire Science (Wildland)**

The National Wildfire Coordinating Group (NWCG) is the governing body for wildland firefighting.

**FRP-101 Basic Forest Management**

3 credits, Not Offered Every Term

An introduction to forestry and forest land management activities and practices related to forest stewardship. Students will gain an understanding of how social, economic and environmental values influence current forest policies and regulations. Corequisite: Take FRP-102 concurrently

**FRP-102 Basic Forest Management Lab**

1 credit, Not Offered Every Term

Provides lab and field exercises to provide experience using forest management field equipment discussed in FRP-101. The Lab includes the use of diameter tape, loggers tape, compass, clinometer, increment borer and wedge prism to measure tree height, diameter, tree age, diameter increment and basal area. Use fixed plot and variable plot forest sampling methods to gain the skills to gather data necessary to calculate stocking, volume, growth and determine timber appraised value. Corequisite: FRP-101

**FRP-107 Wildland Fire Career Portfolio**

3 credits, Not Offered Every Term

Create a job-marketing tool that reflects knowledge, education and skills related to the wildland fire industry. Students will create a portfolio consisting of a resume, reference letters, work samples and other content that accurately reflects the student's employment fitness. Skills and knowledge related to the field of wildland fire and or forest management will be discussed.

**FRP-110 Basic Wildland Fire Investigation (FI-110)**

1 credit, Not Offered Every Term

An introduction to the roles and responsibilities of wildland firefighters in determining a wildland fire origin. Students will identify the wildland fire categories, wildland fire behavior and the initial observations made by the firefighter responding to and arriving at a wildland fire. The primary emphasis of this course is to teach sound wildland fire observations and origin scene protection practices that enable first responders to a wildland fire scene to perform proper origin scene protection procedures. Prerequisites: FRP-130

**FRP-130 Introduction to Wildland Firefighting (S-130/S-190/L-180)**

4 credits, Not Offered Every Term

This course provides an introduction to wildland fire behavior, wildland firefighting safety and wildland firefighting techniques. The course provides the student with the basic skills necessary to fight wildland fires under close supervision.

**FRP-131 Advanced Firefighter Training (S-131/S-133)**

1 credit, Not Offered Every Term

This course provides instruction that meets the training requirements for the Wildland Firefighter Type 1 position and/or Incident Commander Type 5 (ICT5). Prerequisite: Pass FRP-130

**FRP-200 Basic Incident Command System (I-100), (I-200), (IS-700), (IS-800)**

4 credits, Not Offered Every Term

Introduces the knowledge and skills to function efficiently during an incident or event within the Incident Command System (ICS). National Incident Management System (NIMS) and the National Response Framework (NRF) provide a consistent nationwide template to enable all government, private-sector, and nongovernmental organizations to work together during domestic incidents.

**FRP-201 Advanced Forest Management**

3 credits, Not Offered Every Term

Discuss and explore forest management concepts and principles through classroom lecture and field trips. Contrast forest management decisions made dependent on public or private land-owner objections, economics and federal and state laws that provide for protection of soil, water, air, fish, and wildlife and consideration of recreation values. Prerequisites: FRP-101 and FRP-102

**FRP-205 Forest Management Assessments and Inventories**

3 credits, Not Offered Every Term

Provides forest technicians, wildland firefighters and other natural resource employees the ability to conduct various forest management and recreation management assessments and inventories. The students will gain the ability to gather data for making forest management and fire management decisions. Prerequisites: FRP-101 and FRP-102. Recommended: FRP-201

**FRP-211 Portable Pumps and Water Use (S-211)**

2 credits, Not Offered Every Term

This course is designed to provide knowledge and skills to design, setup, operate, troubleshoot, and shut down portable water delivery systems. The focus is on portable pumps; it does not address water delivery for engines. There is also a field exercise where students will apply what they learned in the classroom. Recommended: take FRP-130

**FRP-212 Wildfire Power Saws (S-212)**

2 credits, Not Offered Every Term

This course introduces the function, maintenance and use of internal combustion engine powered chain saws in wildland firefighting operations. Prerequisites: FRP-130 and FRP-250. Required: Instructor consent. Adequate footwear will be required for the field exercises. Adequate footwear includes a boot or hiking style boot with a minimum of an 8 inch upper (measured from the bottom of the heel to the top of the shoe/boot). A traction type ( non-slip ) tread is also required. The boot may either lace up or zip up. Students must be at least 18 years of age.

**FRP-215 Fire Operations in the Urban Interface (S-25)**

2 credits, Not Offered Every Term

Assess homes and structures located in and around forest, grass and brush lands (urban interface) for vulnerability to a wildland fire. Prerequisite: Take FRP-130 (S-130, 190, L-180)

**FRP-216 Driving for the Fire Service (S-216)**

2 credits, Not Offered Every Term

NWCG S-216 certified. Knowledge and skills required of drivers to safely and efficiently operate fire vehicles in the fire environment.

**FRP-220 Initial Attack Incident Commander (S-200)**

1 credit, Not Offered Every Term

The course provides the students with the basic skills to lead the initial attack resources on small non-complex wildland fires. Provides the students with the knowledge to prepare for the assignment, assess the fire, determine resources needs and complete the necessary administrative functions required of an Initial Attack Incident Commander Type 4. Prerequisites: FRP-130, FRP-230, and FRP-231

**FRP-230 Crew Boss (Single Resource) (S-230)**

2 credits, Not Offered Every Term

The course provides the student with the basic knowledge required of a crew leader (Crew Boss) of a wildland firefighting crew for a Federal, State or Contract Agency fire organization. Prerequisites: FRP-130 and FRP-131. Recommended: FRP-290 (S-290) taken within the last 3 years.

**FRP-231 Engine Boss (Single Resource) (S-231)**

1 credit, Not Offered Every Term

The course provides the student with the required initial training to perform as a wildland fire engine supervisor (Engine Boss) for a Federal, State or Contact Fire organization. Prerequisites: FRP-130 (S-130, 190, L-180), FRP-131 (S-131). Corequisites: FRP-230. Recommended: FRP-290 (S-290) in the last 3 years.

**FRP-236 Heavy Equipment Boss (s-236)**

2 credits, Not Offered Every Term  
Provides the student with the basic knowledge to perform the administrative tasks, equipment inspection procedures, safety procedures, communications procedures, and preparation of heavy equipment used in wildland firefighting and all hazard type non-fire incident response. Prerequisites: FRP-130 (S-130, 190, L-180), FRP-131 (S-131). Recommended: FRP-290 (S-290) in the last 3 years.

**FRP-243 Wilderness I: Psychology of Survival**

2 credits, Not Offered Every Term  
Student will learn how to be mentally and physically prepared to survive in the wilderness, the psychology of surviving, and what to do when things go wrong. The course explores the science of survival. Other topics include disaster preparedness, ropes and knots, heat related injuries and increasing situation awareness.

**FRP-244 Wilderness II: Basic Land Navigation**

3 credits, Not Offered Every Term  
Students will learn how to make and document field observations, how to produce hand drawn and GPS field maps, and how to navigate using a map, compass, and GPS.

**FRP-245 Survivor Iii: Weather of the NW**

2 credits, Not Offered Every Term  
Designed for the wildland firefighter, mariner, hiker, hunter and others who need to know the basics of weather forecasting.

**FRP-246 Wilderness IV: Backcountry CPR/ First Aid/AED**

2 credits, Not Offered Every Term  
Introduction to general medical concepts and basic life support skills. It is targeted to the outdoor enthusiast on day trips or short adventures. Course results in CPR, 1st Aid & AED certification.

**FRP-248 Wilderness VI: Intro Search/Rescue**

2 credits, Not Offered Every Term  
This course introduces students to the philosophy, tactics, and operations of search and rescue techniques and strategies. It will also address how people behave and respond when they become lost.

**FRP-249 Followership to Leadership (L-280)**

2 credits, Not Offered Every Term  
The course prepares the student for a basic wildland fire leadership role. Students will be able demonstrate basic leadership skills through interactive classroom discussions and scenario based exercises.

**FRP-250 Wilderness VI: Basic Tool Use and Care**

1 credit, Winter  
Selection, operation, and maintenance of power driven machines, such as chain saws, and hand tools to include shovels, Pulaski, single and double bit axes, hand saws, machetes and various other tools used in forestry, firefighting and survival activities. Class includes a lab component.

**FRP-259 Task Force/Strike Team Leader (S-330)**

2 credits, Not Offered Every Term  
The course provides students with the initial required classroom training to perform as a leader of several wildland firefighting apparatus assigned to a wildland fire. This course provides the students with interactive group exercises and scenarios in which the students will gain experience managing multiple resources both on and off assignment at an incident.

**FRP-270 Basic Air Operations (S-270)**

2 credit, Not Offered Every Term  
The course introduces students to basic air operations, including different types of aircraft used in wildland firefighting operations. The course provides the students with a basic knowledge of aircraft mission planning, aircraft use risk management, aircraft safety and aircraft communications. Recommended: FRP-130.

**FRP-271 Helicopter Crewmember (S-271)**

4 credits, Not Offered Every Term  
The course provides the student with the helicopter aviation classroom and field training required for the Helicopter Crew Member (HECM) position for wildland firefighting operations and support activities. Through exercises the students will demonstrate proper radio communications with helicopters, the identification and application of helicopter performance/limitations and load calculations, the application of standard risk management and safety principles and the proper techniques for preparing equipment or passengers for a helicopter mission. Prerequisites: Successful completion of FRP-130 and FRP-270

**FRP-280 Wildland Fire/Advanced CWE**

2-6 credits, Not Offered Every Term  
Work-based learning experience in a wildland firefighting capacity meeting requirements as set forth in the wildland firefighting task book. Prerequisite: FRP-131

**FRP-290 Intermediate Wildland Fire Behavior (S-290)**

3 credits, Not Offered Every Term  
This course provides the student with the basic skills to determine the characteristics of fuels(vegetation) when involved in a wildland fire, the effects weather has on a wildland fire, the various topographic features that impact wildland fire and the fire behavior patterns of a wildland fire. Prerequisite: FRP-130 (S-130/S-190/L-180)

**FRP-294 Intermediate Incident Command System (I-300)**

2 credits, Not Offered Every Term  
This course provides students with a description and the functions of the positions and their duties found in the Incident Command System. The students will apply the appropriate titled functional positions with the Incident Command System to various exercises in order to create an Incident Action Plan that is designed to manage large or complex incidents or events.

**FRP-295 Advanced Incident Command System (s-400)**

1 credits, Not Offered Every Term

This course provides the student with the advanced level instruction and application of the functional positions and organizations found within the Incident Command System (ICS). Through exercises, the students will apply the functional titles and positions within ICS in order to identify and address incident or events needs and define the inter-agency coordination required to effectively manage large scale incidents or events. Prerequisites: Pass FRP-294 (I-300)

**FRP-296 Introduction to Wildland Fire Behavior Calculations (S-390)**

4 credits, Not Offered Every Term

This course introduces the students to the fire behavior calculations used to estimate wildland fire behavior and fire spread. Students will apply the calculations using graphs and scales based on modeling to determine the characteristics of fuels, the weather and topography that influences fire behavior and document these calculations using the manual methods.

**FYE****First-Year Experience (FYE)****FYE-101 First-Year Experience Level I**

2 credits, Fall/Winter/Spring

This is the first course in the sequence which is designed to help students adjust to a new campus, connect with other students, understand college expectations and systems, and access services available through the college. The First-Year Experience Level I course is designed to help students in developing relationships with both students and faculty, and to build student behaviors for successfully completing classes and continuing college through to completion.

**FYE-102 First-Year Experience Level II**

1 credit, Fall/Winter/Spring

This course is a second in the First-Year Experience sequence offered to new CCC students. This course is designed for students who want to continue to delve in depth into future educational and career planning, financial aid and scholarships, applied study skills, and college and community resources. Prerequisite: FYE-101

**FYE-103 First-Year Experience Level III**

1 credit, Fall/Winter/Spring

This is the third course in the First-Year Experience sequence. This course is designed to help students prepare for their future, including transferring to another school or university, how to search for employment, becoming proficient in the use of test taking skills, and how to break large projects and assignments into more manageable chunks for successful completion. Prerequisite: FYE-102

**G****Geology****G-101 General Geology**

4 credits, Fall

For non-science majors. A lab course introducing geologic principles and concepts, Earth structure, igneous, sedimentary, and metamorphic rock environments; volcanic activity, and landforms. Lab requires students to identify ore minerals, rock forming minerals, igneous, metamorphic and sedimentary rocks. Recommended: WRD-090 or placement in RD-115. Corequisite: G-101L

**G-102 General Geology**

4 credits, Winter

For non-science majors. An introductory lab course that explores the Earth's systems and surface features. Systems/processes/hazards explored include rivers, mass wasting, glaciers, groundwater, deserts and beaches. Labs focus on geologic and topographic maps and how they are used to understand geologic features and local geology.

**G-103 General Geology**

4 credits, Spring

For non-science majors. A lab course that examines the geological development of the North American continent through topics such as geologic time, plate tectonics, mountain building earthquakes/faults, and fossils. Examines important events in each geologic era and includes fossil ID, compass use, field techniques and GPS.

**G-145 Geology of the Pacific NW**

4 credits, Not Offered Every Term

A lab course that explores the scenic geology of Northwest landscapes, historic development and current problems in environmental geology. Introduction to rock types, geologic processes, and hazards of the Northwest from the Blue Mountains to the coast. Required: Two Saturday field trips

**G-148 Volcanoes & Earthquakes**

4 credits, Not Offered Every Term

A lab course that examines the geological processes that create volcanoes and earthquakes and the hazards associated with them. Examines basic geologic features, monitoring techniques, hazards, prediction methods, and future events, using historic episodes of volcanic eruptions and earthquakes. Required: Two Saturday field trips

**G-201 General Geology**

4 credits, Fall

For science majors. A lab course introducing geologic principles and concepts, weathering, soils, Earth structure, igneous, sedimentary, metamorphic rocks, volcanic activity, and landforms. Introduction to environmental geology. Recommended: WRD-090 or placement in RD-115 and MTH-065 or placement in MTH-095

**G-202 General Geology**

4 credits, Winter

For science majors. A lab course that explores surface features of the Earth and the systems that form those features. Systems/processes explored include beaches, rivers, mass wasting, glaciers, groundwater and deserts. Topographic/geologic maps are used to understand geologic features and local geology. Recommended: WRD-090 or placement in RD-115, MTH-065 or placement in MTH-095

**G-203 General Geology**

4 credits, Spring

For science majors. A lab course that examines the geological development of the North American continent through topics such as geologic time, plate tectonics, mountain building earthquakes/faults, and fossils. Examines important events in each geologic era and includes fossil ID, compass use, field techniques and GPS. Recommended: WRD-090 or placement in RD-115; MTH-065 or placement in MTH-095

**G-280 Geology/CWE**

2-6 credits, Not Offered Every Term  
Cooperative work experience. Provides students with on-the-job work experience in the field of geology.

**GBC****Green Building Construction****GBC-101 Introduction to Green Building**

2 credits, Not Offered Every Year  
This course introduces students to the tools and techniques of carpentry. It is intended to teach the elements of measurement, materials, layout and the safe use of hand and power tool in shop and field environments. It explores green building construction, materials and rating systems used in the industry.

**GED**

Courses with this prefix will not transfer to a four-year institution.

**Basic Academic Skills****GED-011 GED en Espanol**

0 credits, Fall/Winter/Spring/Summer  
Instrucción del desarrollo de habilidades básicas ofrecida en español. El examen de diagnostic determina las necesidades académicas del alumno. Entrada y salida de la clase todo el tiempo, se ofrece en el colegio principal: Se requiere el consentimiento del Instructor para registrarse. Basic academic skill-development instruction offered in Spanish. Diagnostic tests determine individual academic needs. Open-entry, open-exit class offered at Dye Learning Center.

**GED-012 GED Preparation**

0 credits, Fall/Winter/Spring/Summer  
Basic academic skill development targeting skills needed to pass the 2014 GED test. Diagnostic tests determine individual academic needs. Open-entry, open-exit classes offered at Clackamas County Corrections Facility. Required: Instructor consent.

**GED-015 GED Preparation**

0 credits, Fall/Winter/Spring/Summer  
Basic academic skill development preparing for the GED 2014 tests and transition to career or post-secondary education. Course focuses primarily on language arts, math and technology skills. Provides direction and support for transitioning students.

**GED-049 Latino GED & Life Skills**

0 credits, Fall/Winter/Spring  
Desarrollo de habilidades académicas básicas, ofrecida en español con énfasis en los requerimientos para presentar el test del GED para obtener el certificado equivalente a la High School. También se enfoca en habilidades básicas de la vida, metas personales e interés de carreras. Se requiere el consentimiento del Instructor para registrarse. Offered in Spanish. Basic academic skill development with emphasis on requirements to take the GED test to obtain a high school equivalency certificate. Also focuses on basic life skills, personal and career goals and interests.

**GEO****Geography****GEO-100 Introduction to Physical Geography**

4 credits, Not Offered Every Term  
Analyzes the physical elements of the Earth's surface and atmosphere. Focuses on natural processes that create physical diversity on the Earth including weather and climate, biosphere, soils and landforms. Recommended: WRD-090 or placement in RD-115

**GEO-110 Cultural & Human Geography**

4 credits, Not Offered Every Term  
Introduces geographical perspectives on human population, agriculture, political pattern, language, religion, folk culture, popular culture, ethnic culture, urban development, industry, and transportation as these play out on the landscapes of the world. Recommended: WRD-090 or placement in RD-115

**GEO-121 Regional Geography of the Developing World**

4 credits, Not Offered Every Term  
Provides students with the fundamental knowledge of the cultural and physical geography of developing world regions including Middle America, South America, SW Asia & North Africa, Sub-Saharan Africa, South Asia, Southeast Asia, East Asia and the Pacific world. Recommended: WRD-090 or placement in RD-115

**GEO-122 Regional Geography of the Developed World**

4 credits, Not Offered Every Term  
Provides students with the fundamental knowledge of the cultural and physical geography of developing world regions including Anglo-America; Europe; Russia; East Asia: Japan, Taiwan, South Korea; Australia and New Zealand. Recommended: WRD-090 or placement in RD-115

**GEO-130 Introduction to Environmental Geography**

4 credits, Not Offered Every Term  
Explores contemporary global environmental problems such as: overpopulation, over consumption, ozone layer depletion, pollution, acid rain, deforestation, desertification, and waste. Examines alternative sources of energy to fossil fuel and sustainable development strategies. Recommended: WRD-090 or placement in RD-115

**GEO-208 Geography of the United States & Canada**

4 credits, Not Offered Every Term  
Provides students with the fundamental geographical knowledge of the United States and Canada and their paths of development. Presents the spatial arrangement of culture, economics, politics, and the natural environment. Recommended: WRD-090 or placement in RD-115

**GEO-280 Geography/CWE**

2-6 credits, Fall/Winter/Spring  
Cooperative work experience. Provides students with on-the-job work experience in the field of geography. Corequisite: CWE-281

**GER****German****GER-101 First-Year German I**

4 credits, Fall  
Introduces the sound system and basic structural patterns of German. Develops the skills of listening comprehension, speaking, reading, and writing. Teaches recognition of cultural similarities and differences. First of a three-term 1st year sequence. Recommended: WRD-098 or placement in WR-121

**GER-102 First-Year German II**

4 credits, Winter

Introduces the sound system and basic structural patterns of German. Develops the skills of listening comprehension, speaking, reading, and writing. Teaches recognition of cultural similarities and differences. Second of a three-term 1st year sequence. Prerequisites: GER-101

**GER-103 First-Year German III**

4 credits, Spring

Introduces the sound system and basic structural patterns of German. Develops the skills of listening comprehension, speaking, reading, and writing. Teaches recognition of cultural similarities and differences. Third of a three-term 1st year sequence. Prerequisites: GER-102

**GIS**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Geographic Information Systems**

For additional information contact the Manufacturing Department at 503-594-3318.

**GIS-201 Introduction to Geographic Information System**

3 credits, Fall

Provides key GIS concepts, methodologies, and techniques. Emphasis is on developing an understanding of GIS applications, technical GIS concepts, terminology, methodology and problem solving techniques.

**GIS-232 Data Collection & Application**

3 credits, Spring

Introduction to data collection techniques using global positioning systems, PDAs, and related software. Emphasis on different ways to create data through existing surveys, compilation of data from many sources and merging data from differing sources, etc. Prerequisite: GIS-201

**GIS-236 Programming for Geographic Information Systems (GIS)**

1 credit, Fall

The course is an introduction to programming in Geographic Information Systems (GIS). The course will attempt to give the student the ability to customize software and write basic programming scripts in the ArcGIS environment.

The basics of the Python programming language are explained and put into practice. This is intended to allow students to add or streamline functionality in the ArcGIS environment. Prerequisite: MFG-109

**GIS-237 Advanced Programming for GIS**

1 credit, Winter

Advanced training in programming for GIS. The course focuses on the Python programming language both inside and outside the ArcGIS Environment. Python is used to program objects to execute specific GIS tasks in the ArcGIS environment. Prerequisite: GIS-236

**GIS-255 Introduction to ArcGIS**

1 credit, Not Offered Every Term

An introduction to the ArcGIS software. It covers fundamental GIS concepts. Students learn the basics of viewing, analyzing and mapping GIS data in the ArcGIS environment.

**GIS-280 GIS/CWE**

2-6 credits, Fall/Winter/Spring/Summer

Cooperative Work Experience (co-op) is a process of education that integrates classroom work with experience obtained through a cooperating employer. Corequisite: CWE-281

**GIS-281 ArcGIS I**

3 credits, Summer/Winter

Introduces the essential skills needed to navigate and operate ArcGIS at a basic level. Includes how to utilize GIS concepts, methods and techniques in conjunction with problem solving techniques to accomplish assigned real world examples. Prerequisite:

**GIS-201 Introduction to Geographic Information System**

3 credits, Spring

Introduction to the object-oriented data model. Working with geodatabases, datasets and feature classes. Additional topics include: establishing topological relationships, versioning, and analysis of geometric networks. Advanced surface and cell-based modeling will also be covered. Prerequisite: GIS-281

**GIS-286 Remote Sensing**

3 credits, Winter

Covers the overview of data sources, methodology for remotely sensed data, application of data, and transformation of remotely sensed data into GRID. Prerequisite: GIS-201

**GRN**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Gerontology****GRN-165 Activity Programs in Long Term Care Facilities**

3 credits, Not Offered Every Term

Provides training for activity professionals in long-term care and residential facilities. Focuses on creating person-centered programs that provide meaningful activities for adults of all levels of cognitive ability. Includes federal guidelines for activities, as well as documentation. Course fulfills requirements for basic certification in the State of Oregon for Activity Professionals.

**GRN-180 Careers in Gerontology**

1 credit, Fall

This course provides students an introduction to the multidisciplinary field of gerontology. Focus will be on the varied areas students can utilize a gerontology education including healthcare, housing, fitness, community development, and advocacy.

**GRN-181 Issues in Aging**

3 credits, Fall

Provides an introduction to gerontology including the history of aging and current issues. Covers: myths, stereotypes, economic and political aspects, demographics and service availability for aging populations.

**GRN-182 Aging and the Body**

3 credits, Winter

Focuses on how aging affects physical health and well-being: impact on body systems, illness, disability, longevity research, wellness and health promotion. For students interested in working with the elderly and those in the field.

**GRN-183 Death and Dying**

3 credits, Spring

Introduces effective interaction with those experiencing a death or grief process. Includes: historical and cross cultural perspectives, funeral and death rites, grief across the lifespan, hospice and palliative care, ethical considerations and physician-assisted suicide.

**GRN-184 Aging & the Individual**

3 credits, Winter

This course explores the impact of aging on the individual as well as family members, caregivers, and professionals. Topics include: dementia, cognitive issues, stress, coping, life transitions, and intelligence. Course will also discuss the concept of successful aging from cross-cultural perspectives.

**GRN-280 Gerontology/CWE**

2-6 credits, Not Offered Every Term

Work-based experience to acquaint gerontology students with the roles and related activities of organizations serving the elderly. This course provides an opportunity to apply theories and techniques learned in the classroom. Prerequisite Or Corequisite: HS-170. Corequisite: CWE-281

**GRN-290 Special Topics in Gerontology**

1 credit, Not Offered Every Term

This course gives students an opportunity to gain knowledge in a specific area relevant to the field of aging. This topic will be pulled from a comprehensive list of areas identified by gerontology and healthcare professionals as having importance for students pursuing work in the field. May be repeated for up to 6 credits.

**GS****General Science**

See also Arts and Sciences (ASC).

**GS-104 Earth System Science**

4 credits, Fall

A lab course designed to give an overview of the physical sciences by examining the relationship between physics, chemistry and geology in the natural world. Topics include plate tectonics, the Earth's structure, earthquakes/hazards, mineral chemistry, igneous rocks, and volcanoes/hazards. Recommended: MTH-065 or placement in MTH-095

**GS-105 Earth System Science**

4 credits, Winter

A lab course examining the chemistry and geology of scientific dating techniques, sedimentary rocks, surface processes, fossils, energy resources and the physics and chemistry of energy resources and mass wasting. Recommended: MTH-065 or placement in MTH-095

**GS-106 Earth System Science**

4 credits, Spring

A lab course examining the relationship between chemistry/physics/geology with regards to the hydrosphere and atmosphere. Topics include atmospheric processes, rivers and ground water, beach/ocean processes and climate change. Recommended: MTH-065 or placement in MTH-095

**GS-107 Astronomy**

4 credits, Fall/Winter

A lab course including the history of astronomy, the Earth and Moon, all the planets in our solar system, along with asteroids, meteors, and comets. Recommended: WRD-098 or placement in WR-121, Math-095 with a C or better or placement in MTh-105 or MTH-111

**HD****Human Development & Career Planning****HD-100 College Survival**

1-6 credits, Not Offered Every Term

Covers various topics supporting student success and retention. May be repeated for up to 6 credits.

**HD-102 Service Learning Experience**

1-6 credits, Fall/Winter/Spring

Provides students with a service learning experience in a community setting. Students complete 30-180 hours of volunteer work and participate in seminars/discussions to connect volunteer work with an area of study.

**HD-120 College Success**

1 credit, Fall/Winter/Spring

Provides strategies for creating college success including self-awareness, personal responsibility, understanding self-management, increasing motivation, meaningful goal setting, effective study habits, use of on and off campus resources.

**HD-121 College Success Expanded**

3 credits, Fall/Winter/Spring

Provides advanced strategies for creating college success including self-awareness, understanding motivation, employing interdependence, taking personal responsibility, learning style, goal setting, life-long learning, emotional intelligence, critical thinking, time management, effective study habits/planning, and the use of on and off campus resources.

**HD-130 Community College Peer Leadership**

2 credits, Spring

Designed for Clackamas Community College peer mentors and peer assistants. Covers a variety of elements that lead to effective leadership in community colleges, including exposure to history of community colleges, FERPA regulations training, communication styles, adult developmental theories, student resource training, and on-site contacts for each of CCC's service areas.

**HD-140 Career Exploration**

1-3 credits, Fall/Winter/Spring

Students use information about themselves (values, interests, personality and skills) and information about the world of work (careers and industries) to explore and make long term career decisions.



**HD-144 Assertive Communication**

1 credit, Fall/Winter/Spring

Provides basic communication skills that students can use to state or declare their rights in a positive fashion to obtain desired results in career, social, and personal relations.

**HD-145 Stress Management**

1 credit, Fall/Winter/Spring

Identifies specific personal stressors and focuses on developing skills that enable students to deal more effectively with stress.

**HD-146 Values Clarification - The Talk You Walk**

1 credit, Not Offered Every Term

Helps students examine beliefs, attitudes, and values behind decisions and actions. The students will examine whether behavior matches their stated beliefs, evaluate the consequences of choices, and focus on clarifying a personal value system.

**HD-147 Decision Making**

1 credit, Fall/Winter/Spring

Develop and improve your process for making satisfying choices. The basics of decision making and processes for making personal, social, and work choices are included. Use this class for your current decision needs.

**HD-153 Managing Conflict in Your Life**

1 credit, Fall/Winter/Spring

Introduction to managing conflict in a positive way. Students will examine personal beliefs about conflict and become familiar with techniques for effective problem solving.

**HD-154 Building Self-Confidence**

1 credit, Fall/Winter/Spring

This course is designed to address the elements forming and impacting self-confidence, disarming your inner critic, including dealing with fear, self-esteem, personal power, and establishing your center.

**HD-156 Creative Goal Setting**

1 credit, Not Offered Every Term

Using a variety of art media, learn how to use the creative process to define, plan, and achieve personal or professional goals.

**HD-157 Procrastination & Time Management**

1 credit, Fall/Winter/Spring

Provides students the opportunity to study their procrastination habits and time management patterns. Course focuses on components of time organization, choices regarding procrastination, and methods to improve overall use of time.

**HD-158 Managing Change**

1 credit, Fall/Winter/Spring

Course is designed to enhance each student's knowledge and understanding about transition and change in their own life and others around them.

**HD-161 Multicultural Awareness**

3 credits, Fall/Winter/Spring

Introduction to the skills and personal attributes college graduates need to live and work in a diverse world, and how these characteristics influence interpersonal relationships in everyday life. This course focuses on the identification and application of strategies to improve personal multicultural awareness. This class is offered for variable credit, ranging from 1 credit up to 6 credits maximum.

**HD-180 Career Development Internship**

1-6 credits, Fall/Winter/Spring/Summer

Develop skills in a specific occupation and practice the career management skills necessary to obtain, sustain, and advance employment. A Training and Evaluation Plan is developed and managed in consultation with the student, internship supervisor, and faculty. This class is offered for variable, ranging from 1 credit up to 6 credits maximum.

**HD-180A Career Development Internship Seminar**

0 credits, Fall/Winter/Spring/Summer

Develop career management skills necessary to obtain, sustain, and advance employment in a specific occupation. Students will conduct occupational research and learn about expected work place behaviors. The seminar is a prerequisite and/or co-requisite to HD-180B, Career Development Internship, which provides students an opportunity to perform work-based learning in a specific occupation.

**HD-180B Career Development Internship**

0 credits, Fall/Winter/Spring/Summer

Develop skills in a specific occupation and practice the career management skills necessary to obtain, sustain, and advance employment. A Training and Evaluation Plan is developed and managed in consultation with the student, internship supervisor, and faculty. This class is offered for variable credit, ranging from 1 credit up to 6 credits maximum. Prerequisite or corequisite: HS-180A.

**HD-185 Prior Learning Portfolio Development I**

1 credit, Winter

Students are guided through the required steps of building a portfolio with the goal of requesting college credit for learning acquired through work experience, volunteer work, industry training, etc. Details of the content of the portfolio are explained and alternative options for obtaining college credit through non-traditional learning experiences are reviewed.

**HD-186 A Digital You - Building an e-Portfolio**

3 credits, Winter

This course offers techniques of developing course and assessment portfolios for application with current CCC course demands, career opportunities and educational pathway planning. The course also serves students seeking assessment for Credit for Prior Learning after learning the mechanics of Credit for Prior Learning (CPL) portfolio development in HD-185. CPL students will develop a detailed portfolio correlating non-traditional learning experiences with related courses at Clackamas Community College, for submission, consideration and evaluation to identified department and instructor at CCC.

**HD-202 Life Transitions**

3 credits, Fall/Winter/Spring

Examines process and stages of life transitions. Helps re-entry adults identify personal strengths and barriers related to success in education and employment. Offers opportunities to practice interpersonal skills. Provides information about CCC campus and community resources which can assist students in reaching their goals. Required: Student must complete LCOP application. Applications are available in the Counseling Office. Corequisite: HD-208

**HD-208 Career & Life Planning**

1-3 credits, Fall/Winter/Spring

Helps re-entry adults identify interests, abilities, values, and transferable skills and apply this information to goal setting and career decisions. Students identify and explore options for training, education, and employment. Covers job search skills such as interviewing, resume writing, and developing a career portfolio. Each student develops an action plan identifying goals and next steps. Required: Student must complete LCOP application. Applications are available in the Counseling Office. Instructor consent. Corequisite: HD-202

**HD-209 Job Search Skills**

1-3 credits, Not Offered Every Term

Use a job search plan to conduct labor market research, develop job search networking relationships, and to prepare and present applications, cover letters, resumés, interviews, and thank you notes.

**HD-220 Leadership: Theory Into Practice**

2 credits, Fall

Introduces leadership skills and theories. Includes translating theory into practice through ASG-sponsored programming. Strategies for planning, executing and evaluating events and functions are emphasized. Required: Must be a member of CCC's Associated Student Government

**HD-221 Leadership: Group Dynamics**

2 credits, Fall/Winter/Spring

Develops leadership skills with an emphasis on group dynamics. Addresses building common vision and goals, managing conflict, negotiation, and collaboration. Includes the role of follower and avoiding ineffective group dynamics. Can be repeated for up to 4 credits. Required: Must be a member of CCC's Associated Student Government

**HD-222 Leadership: Building Community**

2 credits, Fall/Winter/Spring

Strengthens leadership skills with an emphasis on building community. Addresses diversity issues, deliberation, building consensus, ethical leadership and followership, and influence. Includes the role of leaders in the planning, implementation and assessment cycle. Can be repeated for up to 4 credits. Required: Must be a member of CCC's Associated Student Government

**HD-280 Human Development/CWE**

2-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with career related experience on-the-job at a local organization. Corequisite: CWE-281

**HDF**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Human Development/  
Family Services****HDF-133 Diversity in Family Development**

1 credit, Not Offered Every Term

Focuses on exploring how culture, including diversity and oppression, is defined in the field of family development and realizing why cultural competence is an important skill in this field. Other topics include barriers related to cultural competence and their impact, appreciating aspects of your own cultural identity and increasing one's sensitivity to other cultures.

**HDF-134 Strength-Based Assessment in Family Development**

1 credit, Not Offered Every Term

Focuses on assisting family development workers help families identify and build on their strengths to achieve healthy self-reliance. Emphasis is on how workers communicate with families to help them recognize these strengths and the resources available to them.

**HDF-135 Setting & Achieving Goals in Family Development**

1 credit, Not Offered Every Term

Designed to provide family development workers with the skills needed to help families identify and set achievable goals, based on their own strengths. The importance of developing positive, mutually respectful relationships with families is emphasized - while techniques are offered to avoid families becoming dependent on the case worker.

**HDF-136 Community Resources in Family Development**

1 credit, Not Offered Every Term

Focuses on providing family development professionals with the information needed to assist families with identified special needs to access community resources. Emphasis includes special learning needs, family literacy issues, developmental delays, common mental help problems, issues related to domestic violence, alcohol and drug dependency, etc.

**HDF-137 Home Visiting in Family Development**

1 credit, Not Offered Every Term

Designed to provide family development workers with the skills necessary to conduct respectful home visits. Class discussions will include the role of the home visitor and the establishment of rapport with the families. Also covered are concerns for personal safety and other issues related to home visiting.

**HDF-138 Facilitation Skills in Family Development**

1 credit, Not Offered Every Term

Focuses on the facilitation skills family development professionals need to conduct successful family meetings, support groups and community meetings. Emphasis includes the role of the family worker in helping families identify their informal support networks and the benefits to be gained from participating in support and advocacy groups.

**HDF-140 Contemporary American Families**

3 credits, Spring

Focuses on the diversity of the American family today, and a historical overview of changes in the family environment and structure. Become familiar with internal/external factors that influence families such as parenting, violence, gender, divorce, remarriage, economics, and culture.

**HDF-142 Parent-Child Relations: Practical Parenting**

4 credits, Not Offered Every Term

This course is designed to assist students in the study of parent-child relations. This program is especially helpful for those who are in the child welfare or criminal justice system focusing on areas such as normative child development and parent/partner relationships. The participants will become familiar with the systemic family development model, which explains family functioning at different stages of child rearing as well as knowledge of brain development, raising an emotionally intelligent child, and temperament traits.

**HDF-225 Prenatal, Infant & Toddler Development**

3 credits, Fall

Explores the principles of child development, prenatal through three years of age. Emphasis will be placed on the physical, cognitive, and social-emotional development of young children.

**HDF-247 Preschool Child Development**

3 credits, Winter

This course focuses on principles of development in children three to six years, including physical, cognitive, social and emotional growth, observation and assessment. Explores major historical theories of child development and current research and practices. Prerequisite: HDF-225

**HDF-260 Understanding Child Abuse and Neglect**

3 credits, Fall/Winter/Spring/Summer

Provides an overview of child abuse and neglect. Students will examine the types and causes of abuse, abused children, abusive parents, treatment, education and prevention, and resources available to assist children and families. An emphasis is placed upon intervention and mandatory reporting, as well as investigation and legal issues.

**HE/HPE****Health****HE-101 NCSF Certified Personal Trainer Exam**

0 credits, Not Offered Every Term

Students will take the National Council on Strength and Fitness (NCSF) exam at Clackamas Community College to become certified as a Certified Personal Trainer. Students with a test score of 70% or better will receive their certification from the NCSF. Instructor consent is required to sign up for the exam.

**HE-103 NCSF Certified Sports Nutrition Exam**

0 credits, Not Offered Every Term

Students will take the National Council on Strength and Fitness (NCSF) exam at Clackamas Community College to become certified as a Certified Sports Nutritionist. Students with a test score of 70% or better will receive their certification from the NCSF. Instructor consent is required to sign up for the exam.

**HE-163 Body & Drugs I: Introduction to Abuse & Addiction**

3 credits, Fall/Winter/Spring/Summer

The first of a four-course sequence, this course examines the history of the use of addictive drugs; the definition of addiction; psychosocial and neurobiological causes of drug and behavioral addiction; addictive drug classifications; and the history of/introduction to addiction treatment.

**HE-164 Body & Drugs II: Alcohol**

3 credits, Not Offered Every Term

The second of a four-course offering. Covers beverage alcohol as a drug; the history of alcohol use/abuse; physiological and psychological effects of alcohol use on the user; and the impact of that use on those around the user and on society at large. Prerequisites: Pass HE-163.

**HE-201 Personal Training**

3 credits, Not Offered Every Term

Students will follow the curriculum for the National Council on Strength and Fitness (NCSF) Certified Personal Trainer certification. The course will guide students through the expectations, requirements, processes and knowledge to prepare to become a certified Personal Trainer through the NCSF. Through videos, lecture and self-study, students will be prepared to take the NCSF Certified Personal Training exam, which is offered through the NCSF and is not included in the course.

**HE-202 Introduction to Fitness Technology Careers**

1 credit, Not Offered Every Term

This course will explore the various careers in the Fitness Industry, through lecture and guest speakers currently in the professional field. Students will gain insight to the requirements, expectations, salary range, education requirements and any additional information related to specific careers.

**HE-204 Nutrition & Weight Control**

3 credits, Fall/Winter/Spring

Methods of maintaining or improving nutrition by considering diets and dieting, obesity, types of exercise, physical testing, cardio-vascular fitness and nutritional concepts.

**HE-205 Youth Addictions**

3 credits, Fall

This course surveys the nature and extent of youth addictions. Students will explore causes and consequences of youth addiction, as well as interventions for youth and their families.

**HE-207 Introduction to Plant Based Living**

3 credits, Not Offered Every Term

The course is designed to give students a basic understanding of a plant based diet/lifestyle and the benefits of this type of lifestyle. Students will learn about the physical benefits of a plant based diet, GMO's, organic foods, current environmental impacts, impacts of the big agricultural companies as well as the research that has been documented to support the information. Recommended: WRD-090 or higher

**HE-223 Sports Nutrition**

3 credits, Fall

Examination of nutrition as it relates to the demands of exercise and competitive sport. Emphasis on the relationship of diet and exercise to optimal health and performance. This course can lead to a certification as a sports nutritionist through the NCSF.

**HE-249 Mental Health**

3 credits, Fall/Winter/Spring

Designed for each student to understand and improve their personal mental health. Teaches theories of mental health as well as practical strategies for improving one's level of mental health. Analyzes factors that may impede optimal mental health, again with practical solutions for minimizing/avoiding such factors.

**HE-250 Personal Health**

3 credits, Fall/Winter/Spring

Explores the interaction and the quality of life. Includes emotional behavior, drugs, disease, nutrition, human sexuality, cardiovascular functioning, and medical care.

**HE-252 First Aid/CPR/AED**

3 credits, Fall/Winter/Spring

Immediate and temporary care for injuries and sudden illness. Covers basic first aid for adult, child and infant, including: control of bleeding, proper methods of transportation, splinting, bandaging, CPR and AED. Successful completion (A or B grade) of course leads to a Red Cross Responding to Emergencies, First Aid/CPR/AED Certification.

**HE-263 Body & Drugs III: Marijuana**

3 credits, Not Offered Every Term

The third of a four-course sequence. This course will examine marijuana in all of its forms as a drug and a medicine, as well as its non-drug uses. Explores current research about marijuana's physiological and psychological effects on the user, as well as its addictiveness. Reviews historical and current medical uses of marijuana and cannabinoids, including an overview of Oregon's Medical Marijuana Program. Reviews Oregon's new "recreational" use legislation. Prerequisites: Pass HE-163.

**HE-264 Body & Drugs IV: Other Drugs, Other Addictions**

3 credits, Not Offered Every Term

The fourth of a four-course offering, this course examines other drugs/addictive behaviors beyond alcohol and marijuana. The class will select the drugs/addictive behaviors (one from each of the following categories: stimulants, depressants, hallucinogens, other drugs/addictions) that they wish to discuss. Students will learn the history and the physiological and psychological impact of the selected drugs. Gambling addiction is a mandatory topic, which is required for the CADC I State certification. Prerequisites: Pass HE-163.

**HE-277 The Health Coach**

3 credits, Not Offered Every Year

A focus on the psychological aspects of weight management, as well as more in-depth coverage of the physiology of obesity and the techniques of lifestyle coaching. Students will be prepared to take the ACE certified Health Coach exam with successful completion of the course.

**HE-280 Health/CWE**

2-6 credits, Fall/Winter/Spring

Cooperative work experience. This course is intended to provide the student with learning experience related to his/her career goal(s) in the health-related career fields. Supervision and evaluation of the student's job performance will be provided by a qualified staff member at Clackamas and the supervisor of the employing institution. Students are required to take an online CWE seminar at the beginning of the term. Corequisite: CWE-281

**HPE-295 Health & Fitness for Life**

3 credits, Fall/Winter/Spring

This course explores interaction of physical fitness and health. Meets three hours a week for personal fitness assessment and three hours of classroom sessions. Related topics include: nutrition, stress reduction, relaxation techniques, goal setting, and weight control. Recommended: A completed physical by a doctor.

**HOR**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Horticulture/  
Arboriculture/  
Landscape/Organic  
Farming**

Many horticulture classes will transfer as Lower Division Collegiate (LDC) credits to Oregon State University.

For additional information contact April Chastain, Horticulture Department Advisor, 503-594-3055

**HOR-111 Horticulture Practicum/Fall**

2 credits, Fall

Practical experience with seasonal horticulture activities in the areas of container and field nurseries, greenhouses, landscape management and organic food production. Class includes a lab component.

**HOR-112 Horticulture Career Exploration**

2 credits, Spring

This course is a survey of the various career options available to students in the horticulture industry, with emphasis on nursery and greenhouse production, retail nursery, organic fruit and vegetable production, and landscape maintenance/installation. Includes field trips to local businesses. Oregon State University transfer course.

**HOR-113 Organic Farming Practicum/Fall**

3 credits, Fall

Essential organic farming practices, including seasonal activities such as crop rotation, cover cropping, four-season production strategies, edible crop planting, pest management, and tool and equipment operations. Field trips to area farms included. Class lecture, field trips, and lab are essential components of this course. This format has been selected to create a hands-on experience for each student in seasonal crop production. Class includes a lab component.

**HOR-114 Garden Design**

1 credit, Not Offered Every Year

Introductory course for students to gain understanding and skills in the area of planning landscape garden areas, including drawing skills to express ornamental garden schemes.

**HOR-115 Horticulture Safety**

1 credit, Fall

Overview of safe practices in the horticulture workplace which will reduce the chance for accidents and injuries.

**HOR-120 Pesticide Laws & Safety**

1 credit, Spring

Plant protection methods for weed, insect or disease control. Laws and regulations related to safety, handling and storage of pesticides. Techniques for product selection, including chemical and non-chemical options, applicator safety and environmental protection included. Prepare and test for the Oregon Pesticide Laws & Safety exam.

**HOR-122 Greenhouse Crops-Potted Plants**

3 credits, Fall

Environmental influences on plant growth, crop scheduling, greenhouse structures and equipment. Emphasis on foliage and flowering potted plant production. Class includes a lab component.

**HOR-123 Landscape Maintenance**

3 credits, Fall

Principles and practices of sustainable landscape maintenance, plant growth and development, soil-water-fertilizer management, pruning, turf, pest control, diagnosis of problems in trees and shrubs, and maintenance scheduling. Class includes a lab component.

**HOR-124 Food Harvest**

3 credits, Fall

This course provides a basic knowledge of aspects of harvesting, handling, storing and marketing of produce from small-scale, organic operations. Topics include food safety laws and practices, harvest and storage requirements for a variety of crops, factors that impact quality and storage ability, and post-harvest biology. Class includes a lab component.

**HOR-125 Food Production in the Willamette Valley**

3 credits, Fall

Exploration of historical, ethical, practical and scientific aspects of food production systems with a focus on the economic, social and environmental impacts of food and farming. Strengths and weakness of the agricultural system over time will be examined.

**HOR-126 Landscape Water Features**

1 credit, Spring

Methods used in building water features with emphasis placed on design, material selection, construction and maintenance considerations. Class includes a lab component.

**HOR-127 Landscape Lighting**

1 credit, Spring

Methods used with lighting in the residential landscape, with emphasis placed on design, material selection, installation and maintenance considerations. Class includes a lab component.

**HOR-128 Landscape Stones & Pavers**

1 credit, Spring

Methods used in building walls, patios and walkways out of stones and pavers, with an emphasis placed on design, material selection, construction and maintenance considerations. Class includes a lab component.

**HOR-129 Landscape Decks & Fences**

1 credit, Spring

Methods used in building wood fences and decking with emphasis placed on design, material selection, construction and maintenance considerations. Class includes a lab component.

**HOR-130 Plant Propagation Theory**

3 credits, Winter

Covers plant anatomy and reproduction techniques of plants from seed, cuttings, grafting, division, and micro-propagation. Offers an in-depth overview of propagation systems that may be selected.

**HOR-131 Tree & Shrub Pruning**

3 credits, Winter

Emphasis on dormant pruning of fruiting and ornamental plants. Pruning and training techniques for grapes, fruit trees, and both evergreen and deciduous ornamental trees and shrubs. Basic woody plant anatomy, growth, and development. Class includes a lab component.

**HOR-133 Horticulture Practicum/Winter**

2 credits, Winter

Practical experience with seasonal horticultural activities in the areas of container and field nurseries, greenhouses, and landscape management. Class includes a lab component.

**HOR-134 Herb Growing & Gardening**

1 credit, Winter

Study of herb plant propagation and garden use. Garden culture, planning, site requirements and care of plants are covered.

**HOR-135 Propagation of Edible Plants**

3 credits, Winter

Reproduce food plants using a variety of methods, including seed, cutting and grafting techniques. Instruction will focus on methods suitable for sustainable farm operations. Class includes a lab component.

**HOR-136 Organic Farming Practicum/Winter**

3 credits, Winter

Essential organic farming practices, including seasonal activities such as ground preparation, planning for crop production, and irrigation system design and management. Also covers farm business structures, financial management, recordkeeping, and marketing techniques. Field trips to area farms included. Class lecture, field trips, and lab are essential components of this course. This format has been selected to create a hands-on experience for each student in seasonal crop production. Class includes a lab component.

**HOR-140 Soils**

3 credits, Spring

Soil characteristics and management, including nutritional elements and the relationship between the soil and plant growth.

**HOR-141 Organic Farming Practicum/Spring**  
4 credits, Spring

Essential organic farming practices, including seasonal activities such as production of transplants, direct seeding, weed control strategies, building raised beds in the field, equipment operations, and soil, water and fertilizer management. Also covers preparation of the finished crop for market, transportation, display and marketing. Field trips to area farms included. Class lecture, field trips, and lab are essential components of this course. This format has been selected to create a hands-on experience for each student in seasonal crop production. Class includes a lab component

**HOR-142 Greenhouse Crops/Bedding Plants**  
3 credits, Spring

Detailed study of environmental influences on individual crops, their requirements, scheduling, including annual, biennial, and perennial plant production. Class includes a lab component.

**HOR-143 Horticulture Practicum/Spring**  
2 credits, Spring

Practical experience with seasonal horticultural activities in the areas of container and field nurseries, greenhouses and landscape management. Class includes a lab component.

**HOR-145 Turf Installation & Maintenance**  
2 credits, Spring

Installation and maintenance practices for turf grasses commonly used in landscapes. Emphasizes sustainable maintenance practices, installation, irrigation, pest identification and pest control. Class includes a lab component.

**HOR-146 Fruit & Berry Growing**  
3 credits, Summer

Regionally appropriate fruit and berry production practices that are suitable for urban areas and small farms. Class will utilize the Home Orchard Society's demonstration orchard located on campus. Class includes a lab component.

**HOR-148 Farm Equipment**  
3 credits, Spring

Identification and utilization of small-farm food crop production tools. Emphasis is on tools and techniques which result in high quality crops, efficient use of labor and capital resources, and protection of the natural environment. Class includes a lab component.

**HOR-149 Aquaponics**

1 credit, Not Offered Every Year

Aquaponics is a food production system that combines aquaculture with hydroponics. A variety of systems will be evaluated, so students can decide which is most appropriate for their scale, interests, and intentions. Topics include greenhouse environment, system components, fish species selection and health, water quality management, vegetable crops selection, and how to meet the nutritional needs of plants with fish waste. This class includes a lab component.

**HOR-180 Career Development Internship**  
1-12 credits, Not Offered Every Year

The internship is an opportunity to develop entry-level skills in a specific occupational area and to practice the basic career management skills necessary to obtain, sustain, and advance employment. A Training and Evaluation plan is developed and managed in consultation with the student, internship supervisor, and faculty. This course is not applicable towards Horticulture AAS degree.

**HOR-211 Native Plant Identification**

1 credit, Summer

Identification and use of plants native to the Pacific Northwest and the use of plant keys.

**HOR-212 Flower Arranger's Garden/Fall**  
2 credits, Fall

Learn to identify and use organic methods to grow fall season plants which are suitable for use as cut flowers and foliage. Includes basic floral design and visits to local cutting gardens. Ideal for garden designers, home gardeners, and growers of commercial cutting gardens. Class includes a lab component.

**HOR-213 Computer-Aided Landscape Design**  
3 credits, Fall

Develop skills with Computer-Aided Design (CAD) software for creating landscape designs. Practice techniques utilized in common CAD programs used in the landscape industry. Class includes a lab component. Prerequisites: CS-091 or placement in CS-120, and HOR-229

**HOR-215 Herbaceous Perennials**

3 credits, Spring

The identification, propagation, selection and garden culture as well as individual attributes of herbaceous perennial plants, including the evolution of perennial garden design and current gardening styles. Class includes a lab component. Oregon State University transfer course.

**HOR-216 Integrated Pest Management**  
3 credits, Winter

Learn the components of, and develop an Integrated Pest Management (IPM) plan for landscape, nursery, greenhouse or agricultural industries. The plan will incorporate pest detection, control practices and an evaluation of effectiveness.

**HOR-220 Plant Propagation/Fall**  
3 credits, Fall

Proper techniques for reproducing plants from seeds, cuttings, and grafting. Emphasis on seasonal plant production. Class includes a lab component.

**HOR-222 Horticultural Computer Applications**

2 credits, Winter

Utilizes database, spreadsheet, word processing, PowerPoint, social media and other computer programs for record keeping and management and marketing for horticulture businesses. Prerequisites: CS-091 or placement in CS-120

**HOR-223 Applied Plant Science**  
4 credits, Fall

An overview of the practical aspects of plant growth and development, classification systems, plant breeding and environmental factors that impact plant growth.

**HOR-224 Landscape Installation**  
3 credits, Fall

Materials and practices in landscape installation, including plan reading, materials take-off, estimating, bidding, scheduling, grading, construction materials, and plant installation. Class includes a lab component.

**HOR-225 Arboriculture I**

3 credits, Winter

Management of trees in residential, commercial, and urban landscapes. Follows course materials prepared by the International Society of Arboriculture (ISA). Topics covered include tree anatomy, selection, installation, response to damage, soil characteristics, pruning techniques and diagnosis of pest problems. Prepares student for Arboriculture II.

**HOR-226 Plant Identification/Fall**

4 credits, Fall

Identification of deciduous trees, shrubs, and groundcovers, including their cultural requirements in the landscape, for fall plants. Oregon State University transfer course.

**HOR-227 Plant Identification/Winter**

4 credits, Winter

Identification of conifers and broadleaved evergreens, shrubs, and groundcovers, including their cultural requirements in the landscape, for winter plants. Oregon State University transfer course.

**HOR-228 Plant Identification/Spring**

4 credits, Spring

Identification of flowering trees, shrubs, and groundcovers, including their cultural requirements in the landscape, for spring plants. Oregon State University transfer course.

**HOR-229 Introduction to Landscape Design**

3 credits, Winter

Introduction to landscape planning, including basic drafting skills, grading, drainage, and site planning. Class includes a lab component.

**HOR-230 Equipment Operation & Maintenance**

2 credits, Winter

Selection, operation, and maintenance of power driven machines, such as mowers, rototillers, chain saws, edgers, sprayers, tractors, and related equipment for nursery and landscape applications. Class includes a lab component.

**HOR-231 Irrigation & Drainage Design**

3 credits, Winter

Principles of irrigation and drainage system design for various situations, including underground and above-ground, residential and commercial systems. Class includes a lab component.

**HOR-232 Commercial Floral Design**

3 credits, Not Offered Every Year

Present design techniques, used by florists today, to create naturalistic centerpieces, corsages, and gift arrangements using fresh flowers. Cut flower conditioning and handling, wedding and sympathy design, and sales strategies will also be covered.

**HOR-234 Intermediate Landscape Design**

3 credits, Not Offered Every Year

Further skill development in drawing, site analysis, and design, including two, three, and four dimensional design concepts. Graphic exercises and model making skills will be included as well as the study of creative and practical solutions for various site and program requirements of commercial and residential landscape sites. Class includes a lab component.

**HOR-235 Weed Identification**

2 credits, Fall

Identification and life cycles of weeds commonly found in landscapes and nurseries.

**HOR-236 Insect Identification**

2 credits, Fall

Develop skills to identify common insects which are important in greenhouse/nursery production, landscapes and food production.

**HOR-237 Disease Identification**

2 credits, Winter

Identification of ornamental plant diseases which occur in greenhouses, landscapes, nurseries and farms.

**HOR-239 Tree Climber Training**

1 credit, Winter

The safe use of rope and saddle tree climbing procedures will be covered through lecture, discussion, and field practice. For beginner to moderately experienced climbers. Class includes a lab component.

**HOR-240 Irrigation and Drainage Practices**

3 credits, Spring

Materials, equipment, and methods used to install irrigation and drainage systems in landscape areas. Emphasis on home lawns, gardens, and larger areas. Class includes a lab component.

**HOR-241 Nursery Management**

3 credits, Fall

Essentials of nursery practices, including containers and field growing practices, crop scheduling, management, and marketing.

**HOR-242 Plant Propagation/Spring**

2 credits, Not Offered Every Year

Proper techniques for reproducing plants from cuttings, division, micropropagation and budding. Emphasis on seasonal plant production. Class includes a lab component.

**HOR-244 Environmental Landscape Design**

3 credits, Winter

Overview of landscape design features that will benefit the natural environment, provide habitat for wildlife and require minimal inputs of energy, water and other materials. Includes basic design concepts, terminology and techniques, as well as ideas for marketing of sustainable designs. Class includes a lab component.

**HOR-246 Organic Farming and Gardening**

2 credits, Spring

Overview of the fundamental principles and practices of organic fruit and vegetable production in the Pacific Northwest. Class includes a lab component. Oregon State University Transfer course.

**HOR-248 Flower Arranger's Garden/Spring**

2 credits, Not Offered Every Year

Learn to identify and use organic methods to grow spring season plants which are suitable for use as cut flowers and foliage. Includes basic floral design and visits to local cutting gardens. Ideal for garden designers, home gardeners, and florists. Class includes a lab component.

**HOR-250 Western Herbs**

2 credits, Fall

This course introduces students to herbs, some of which may be grown locally. Instruction will focus on the components of herbs and uses of each specific herb.

**HOR-251 Herbal Products**

1 credit, Winter

Instruction in making herbal teas, skin lotion, tincture, infused oil, vinegar, spritzers and herbal mixes. Further instruction in what specific ingredients to use, how to use them properly, and why each is important. This class includes a lab component.

**HOR-252 Kitchen Herbs**

1 credit, Spring

Instruction will focus on how to properly prepare and use common herbs and spices in a variety of edible forms. Class includes a lab component.

**HOR-260 Arboriculture II**

3 credits, Fall

Evaluation, assessment and management of trees in the urban environment. Covers monetary and ecosystem values for trees, property development considerations, tree appraisals, tree inventories, risk assessments, and crew management. Together with Arboriculture I, this class will prepare students for passing the ISA Certified Arborist exam. Prerequisite: HOR-225

**HOR-261 Tree Diagnostics**

2 credits, Spring

Theory and practice in diagnosing specific biotic and abiotic causes of poor tree health. Includes identification of symptoms, use of monitoring tools and effective customer communications. Prepare and test for the Oregon Department of Agriculture Ornamental and Turf Insecticide/Fungicide exam. Class includes a lab component. Prerequisite: HOR-216, HOR-225, HOR-236, and HOR-237. Corequisite: HOR-120

**HOR-262 Aerial Treework Practicum I**

2 credits, Fall

Experience with the implementation of basic requirements, equipment and techniques employed by arborists who work aloft. Covers personal protective equipment, safe operation, and common cutting techniques in accordance with current industry standards. Students operate chainsaws in a variety of field exercises, and will gain exposure to other pieces of industry equipment, such as chipper, truck and trailer, and aerial lift. Students will participate as members of a crew, gaining introductory experience in tree pruning, rigging, hardware installation, electrical hazard awareness, aerial rescue, ground work, and work site management. Class is a lab. Prerequisites: HOR-115, HOR-131, and HOR-239

**HOR-263 Plant Health Care Practicum**

2 credits, Spring

Experience with the implementation of basic requirements and techniques employed by Plant Health Care Technicians who work on tree crews. Covers personal protective equipment, safe operation, routine maintenance and common techniques in accordance with current industry standards. Students will perform ground related activities, gaining experience in spray techniques, chipper operation, driving truck with chipper, interpretation of water audits, hazard tree identification, evaluation of key plants in the landscape, fertilization, customer education/communication and work site management. Class is a lab. Prerequisite: HOR-115, HOR-131, HOR-216, HOR-236, and HOR-237. Corequisites: HOR-120

**HOR-264 Aerial Treework Practicum II**

2 credits, Winter

Experience with the implementation of intermediate requirements, using equipment and techniques employed by arborists who work aloft. Reinforces personal protective equipment, safe operation, and common cutting techniques in accordance with current industry standards. Students operate chainsaws in a variety of field exercises, and will gain exposure to other pieces of industry equipment, such as chipper, truck and trailer, and aerial lift. Students will participate as members of a crew, gaining additional experience in tree pruning, rigging, hardware installation, electrical hazard awareness, aerial rescue, ground work, and work site management. Class is a lab. Prerequisite: HOR-262

**HOR-280 Horticulture/CWE**

3 credits, Fall/Winter/Spring/Summer

On-the-job experience in the various segments of horticulture. Students are allowed to enroll in CWE after completing nine credits of horticulture courses. May be repeated for up to 6 credits. Required: Students are expected to work a minimum of 108 job site hours. Corequisite: CWE-281

**HOR-281 Horticulture/CWE**

6 credits, Fall/Winter/Spring/Summer

On-the-job experience in the student's major course of study. Students are allowed to enroll after completing nine credits of horticulture courses. Required: Students are expected to work a minimum of 216 job site hours. Corequisite: CWE-281

**HOR-282 Horticulture/CWE**

3 credits, Fall/Winter/Spring/Summer

On-the-job experience in the student's major course of study. Students are allowed to enroll after completing nine credits of horticulture courses. May be repeated for up to 6 credits. Required: Students are expected to work a minimum of 108 job site hours. Corequisite: CWE-281

**HOR-284 Organic Farming - Campus Farm/ CWE**

3 credits, Summer

Experiential learning of organic farming techniques, while working on the Campus Farm. Students learn ecological and sustainable practices, principles and management strategies, and will participate in marketing the produce. Students may enroll in course after completing nine credits of Organic Farming courses. Class includes a lab component. Required: Students are expected to work a minimum of 108 job site hours. Corequisite: CWE-281

**HOR-285 Organic Farming/CWE**

3 credits, Fall/Winter/Spring/Summer

On-the-job experience working with an agricultural business/farm. Students are allowed to enroll in CWE after completing nine credits of Organic Farming courses. Required: Students are expected to work a minimum of 108 job site hours. Corequisite: CWE-281



**HPD**

Courses with this prefix do not transfer to a four-year institution. Courses are intended to maintain or upgrade current certification/licensure or to acquire, or renew professional certifications.

## Healthcare Professional Development

### HPD-101 Phlebotomy for Healthcare Professionals

1 credit, Not Offered Every Term  
Course is designed to instill a basic understanding of blood collection and specimen handling techniques used in ambulatory and medical center laboratories. Patient and personal safety techniques using Universal and Standard precautions will be observed and required for success in the course. Emphasis will also be placed on professionalism in the workplace. The students will collect blood samples on their lab partners through-out the term.

**HPE**

## Health/Physical Education

### HPE-295 Health & Fitness for Life

3 credits, Fall/Winter/Spring  
This course explores interaction of physical fitness and health. Meets three hours a week for personal fitness assessment and three hours of classroom sessions. Related topics include: nutrition, stress reduction, relaxation techniques, goal setting, and weight control. Recommended: A completed physical by a doctor

**HS**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

## Human Services

### HS-100 Introduction to Human Services

3 credits, Fall  
This course will focus on the interpersonal skills, personal values, attitudes and knowledge necessary to become an effective human services worker. Also covers the history of human service work in the US, and the current status of social service provision.

### HS-103 Ethics for Human Service Workers

2 credits, Winter  
Explores the professional issues students will face when in a helping relationship. Introduces the professional code of ethics associated with the helping professions. Addresses solving ethical dilemmas using professional guidelines. Topics include client rights, confidentiality, professional boundaries, legal issues in helping, competence, and cultural diversity.

### HS-104 Using Diagnostic Criteria in Addiction Treatment

1 credit, Not Offered Every Term  
This course will present an overview of The ASAM (American Society of Addiction Medicine) Criteria and the DSM (Diagnostic and Statistical Manual) criteria related to addiction and substance abuse. Students will gain familiarity with the use of the ASAM Criteria to enhance the use of multidimensional assessments to develop patient-centered service plans. Students will also gain knowledge about the use of the DSM Manual to guide diagnosis and treatment of addiction.

### HS-130 Introduction to Hospice Care

3 credits, Not Offered Every Term  
For individuals, families, and professionals interested in learning about hospice care for the terminally ill. Issues include death, dying, and bereavement, with attention to psycho-social need, pain and symptom control, delivery of medical care, family dynamics, and philosophical and ethical questions. Required: Must be at least 18 years of age to attend. . Recommended: Course is recommended for gerontology students or allied health students.

### HS-154 Community Resources

3 credits, Winter  
Explores local community social service resources. Identifies services, eligibility criteria, mission, policies, politics of agencies, identification of client needs, various referral processes, and historical, political and social trends.

### HS-156 Conducting Human Services Interviews

3 credits, Winter/Spring  
Provides the specific techniques required for entry-level interviewing in human service settings. Addresses issues raised in working with clients from diverse backgrounds.

### HS-170 Preparation for Field Experience in Human Services

3 credits, Spring  
Exploration of Human Services in the workplace and organizations, including work stress, supervision, ethics, cultural diversity, and social responsibility. Prerequisites: HS-100 or HS-154 and Instructor Consent

### HS-211 HIV, TB, & Infectious Diseases

1 credit, Winter  
This course will explore the relationship between substance abuse and infectious diseases, and discuss methods for reducing transmission of these diseases. Topics will include HIV/AIDS, tuberculosis, hepatitis, and sexually transmitted infections. Course will provide students with techniques for assisting clients with assessing risk, practicing harm reduction, and evaluating treatment options.

**HS-216 Group Counseling Skills**

3 credits, Spring

This course provides students with strategies and skills for group work with a variety of clients. Explores leadership styles and skills, group formation and stages, and the ethics of working with groups. Will address knowledge needed to develop, run, and evaluate groups for a variety of human service topics, including substance abuse. Theories of therapeutic group work will also be discussed.

**HS-256 Advanced Interviewing Skills With Theory**

3 credits, Fall

This course is designed to help human service students further develop and deepen their skills and understanding of interviewing in the human service field. Course will build on skills learned in HS-156, incorporating the use of behavior change theories to guide the helping process. Prerequisite: Completion of HS-156 with a C or better.

**HS-260 Victim Advocacy & Assistance**

4 credits, Fall/Spring

Provides basic skills for working with a diverse group of crime victims, including, but not limited to, victims of homicide, sexual assault, child abuse and domestic violence. Topics covered include: theories of victimology, victim's rights evolution, crisis intervention, stress reactions and post-traumatic stress syndrome.

**HS-280 Human Services Generalist I: CWE/ Practicum**

2-6 credits, Fall/Winter/Spring/ Summer

Cooperative Work Experience. Supervised experience in human services including but not limited to: social service; early childhood care; criminal/juvenile justice; gerontology; and other occupations. Prerequisite: HS-170. Corequisite: CWE-281

**HS-281 Human Services Generalist II: CWE/ Practicum**

2-6 credits, Winter

Cooperative Work Experience level II. Supervised experience in human services including but not limited to: social service; early childhood care; criminal/juvenile justice; gerontology; and other related occupations. Prerequisites: HS-170. Corequisites: CWE-281

**HS-282 Human Services Generalist III: CWE/ Practicum**

2-6 credits, Spring

Cooperative Work Experience level III. Supervised experience in human services including but not limited to: social service; early childhood care; criminal/juvenile justice; gerontology, and other related occupations. Prerequisites: HS-170. Corequisites: CWE-281

**HST****History****HST-101 History of Western Civilization**

4 credits, Fall/Winter

Origins and development of Western Civilization with a primary focus on Europe from ancient times to ca. 1300. Recommended: WRD-090 or placement in RD-115

**HST-102 History of Western Civilization**

4 credits, Winter/Spring

Origins and development of western civilization with an emphasis on Europe from ca. 1300 to 1800. Recommended: WRD-090 or placement in RD-115

**HST-103 History of Western Civilization**

4 credits, Fall/Spring

Development of western civilization with an emphasis on Europe from the 19th century to the present. Recommended: WRD-090 or placement in RD-115

**HST-130 Oddballs and Outcasts in Western Civilization**

4 credits, Fall

Explores the topic of how oddballs and outcasts from ancient Greece to the present shaped western civilization and places them in the political, social, economic, intellectual and cultural frameworks of their time. Recommended: WRD-090 or placement in RD-115

**HST-131 History of Crime & Punishment in Western Civilization**

4 credits, Winter

Explores the topics of crime and punishment in western civilization from ancient Greece to the present and relates them to the political, social, economic, intellectual and cultural trends of each time period. Recommended: WRD-090 or placement in RD-115

**HST-132 History of Language and the Written Word in Western Civilization**

4 credits, Spring

Explores the topics of language and the written word in western civilization from ancient Greece to the present and relates them to the political, social, economic, intellectual, and cultural trends of each time period. Recommended: WRD-090 or placement in RD-115

**HST-136 History of Popular Culture, Entertainment & Sports in Western Civilization**

4 credits, Not Offered Every Year

Explores the topics of popular culture, entertainment and sports in western civilization from ancient Greece to the present and relates them to the political, social, economic, intellectual and cultural trends of each time period. Recommended: WRD-090 or placement in RD-115

**HST-137 History of Science, Medicine & Technology in Western Civilization**

4 credits, Not Offered Every Year

Traces the major developments in western civilization in the fields of science, medicine and technology from ancient Greece to the present. Includes an examination of the biographies of prominent scientists, doctors and engineers. Recommended: WRD-090 or placement in RD-115

**HST-138 History of Love, Marriage and the Family In Western Civilization**

4 credits, Not Offered Every Year

Examines the concept of love and the institutions of marriage and the family in western civilization from ancient Greece to the present. Includes a consideration of the ideas of prominent thinkers, artists and political leaders. Recommended: WRD-090 or placement in RD-115

**HST-201 History of the United States**

4 credits, Fall

Covers the period in American history from first European contact to the Age of Jackson. Prerequisite or Corequisite: WRD-098 or placement in RD-115. Recommended: Sequence of HST-201, HST-202, and HST-203 is taken in order

**HST-202 History of the United States**

4 credits, Winter

Covers the period of United States history from the Age of Jackson to World War I. Prerequisite or Corequisite: WRD-098 or placement in RD-115. Recommended: Sequence of HST-201, HST-202, and HST-203 is taken in order

**HST-203 History of the United States**

4 credits, Spring

Covers the period of United States history since World War I. Prerequisite or Corequisite: WRD-098 or placement in RD-115. Recommended: Sequence of HST-201, HST-202 and HST-203 is taken in order

**HST-210 The Great Depression & the New Deal in America**

4 credits, Not Offered Every Year

Explores the contours of the Great Depression and New Deal in American history. Course includes an examination of economic, political, social, and cultural factors and forces at play in America during the Depression era (1929-1941) with an emphasis on the New Deal and its successes, failures, and legacy.

**HST-220 Introduction to Oral History**

4 credits, Not Offered Every Year

Course covers the origins and development of oral history as an academic discipline, with explorations of key oral history documents and projects over the last century. Also covers methods, techniques, ethics, and best practices in the production of an oral history project. Each class completes oral history interviews with local residents in regards to a specific time period in the 20th century American history. Prerequisite or Corequisite: WRD-098 or placement in RD-115

**HST-280 History/CWE**

2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of history. Corequisites: CWE-281

**HUM****Humanities****HUM-160 Faith & Reason**

5 credits, Fall/Winter/Spring

Introduction to classical philosophy, sacred texts, modern fiction, poetry, theology, evolutionary biology, and cosmology. Consideration of how personal concepts of faith and reason and institutions of science and religion, shape personal intellectual landscapes. Recommended: WRD-090 or placement in RD-115

**HUM-231 Engendered Identities**

4 credits, Not Offered Every Term

Examines the various perspectives on the development of gender identities and looks specifically at the ways in which concepts of femininity and masculinity have shaped cultural images, identities and experiences cross-culturally, globally and historically. Recommended: WRD-098 or placement in WR-121

**HUM-233 Electronic Culture**

4 credits, Spring

An introduction to the interdisciplinary field of electronic culture, focusing on the use of electronic computer technology by individuals and groups. Examines transformation of self, identity, communication, and development of electronic communities and subcultures. Recommended: WRD-098 or placement in WR-121

**HUM-235 Perspectives on Terrorism**

4 credits, Not Offered Every Term

Explores the ways in which different academic disciplines in the social sciences and humanities construct historical, psychological, cultural, theological, sociological, and philosophical arguments and themes around the topic of terrorism and terrorist-related issues. Identifies underlying assumptions upon which these arguments and themes are based and considers the cultural expressions they both engender and reflect.

**HUM-240 American Military Conflict: Wars of National Identity**

4 credits, Fall

Examines America's wars of national identity, principally the American Revolution and the Civil War. Explores characteristics of such wars, variations over time and space, and shaping influences and impacts on American society and culture, both military and civilian. Recommended: WRD-098 or placement in WR-121

**HUM-241 American Military Conflict: Global War**

4 credits, Winter

Examines America as a global power in 20th Century conflicts--World Wars I and II, the Cold War and possible future global conflicts. Explores characteristics of global war, variations over time and space, and shaping influences and impacts on American society and culture, both military and civilian. Recommended: WRD-098 or placement in WR-121

**HUM-242 American Military Conflict: Asymmetric Warfare**

4 credits, Spring

Examines America's military experience in asymmetric conflicts from colonial times to the present. Explores characteristics of asymmetric war, variations over time and space, and impacts on American society and culture, both military and civilian. Recommended: WRD-098 or placement in WR-121

**IMT****Industrial Maintenance Tech****IMT-104 Reading Schematics and Symbols**

2 credits, Not Offered Every Term

A basic course of study that will develop the student's understanding of reading schematics and symbols through lectures and hands-on examples.

**IMT-108 Rigging and Lifting**

2 credits, Fall

This course will introduce students to installation procedures for large plant equipment. Students will learn about techniques and safeguards in the use of rope, chain, hoists, and scaffolding when moving heavy plant equipment and maintaining plant utilities. Prerequisite: MTH-050

**IMT-110 Preventative Maintenance**

2 credits, Spring

This Course will introduce students to the basics of preventative maintenance programs in an industrial environment. Students will learn about how maintenance departments are organized, how projects and tasks are defined and delegated. Topics will include Maintenance organization, work order systems, maintenance planning, Scheduling, Quality control, Controlling parts and materials costs. Prerequisite: MTH-050

**IMT-120 Industrial Machinery I**

3 credits, Winter

This course will introduce students to industrial machinery and power equipment with respect to industrial maintenance. Students will learn the fundamentals of electro-mechanical machinery repair, assembly and disassembly and how to work safely around mechanical equipment and power tools. Topics discussed will include hand and power tools, preventative maintenance, power transmission systems, fasteners and torque. Prerequisite: MTH-050

**IMT-139 Principles of Troubleshooting I**

2 credits, Winter

Emphasizes theories and practices useful in troubleshooting failures in electrical applications. Focuses on the overall philosophy and strategy of troubleshooting, drawing applications from residential and varied industrial situations. Includes laboratory projects. Recommendation: EET-112 or EET-137 or MFG-130

**IMT-215 Electromechanical Systems I**

2 credits, Fall

This course emphasizes applied electromechanical principles. The theory and application of force, work, torque, energy power and force transformers are explored. Covers motion control systems, basic relay circuits and sensors, stepper and servo motors and power transmission systems. Introductory mechanics areas also covered, including simple machines and an introduction to static and dynamic forces. Prerequisite: EET-137 or MFG-130

**IMT-220 Industrial Machinery II**

3 credits, Fall

This second course in industrial machinery will focus on advanced concepts in machinery trouble shooting, repair and maintenance. Students will learn about the integration of mechanical, fluid power and electrical systems, their characteristics and repair. Additionally, mechanical concepts of laser shaft alignment, vibration analysis and thermal diagnosis will be covered. Other topics will include electromechanical systems, lock-out tag-out, advanced mechanical diagnosis, motors and motor controls. Prerequisite: IMT-120 and MFG-130

**IMT-223 Instrumentation & Controls**

3 credits, Winter

This course is intended to provide the industrial maintenance technician with knowledge and skills in the areas of process measurement, control and data acquisition. Students will become familiar with common sensors and actuators and their applications. Recommended: MFG-130 or EET-137.

**IMT-225 Electromechanical Systems II**

2 credits, Spring

This course in renewable systems will provide in-depth understanding of the technology, economics and policies relevant to each type of energy source. Analysis techniques to evaluate renewable energy applications from a systems design and selection perspective will be presented. Topics include physical operating principles, theoretical vs. actual system output, energy storage, efficiency and cost analysis. Includes hands-on lab exercises. Prerequisite: IMT-215

**IMT-233 Programmable Logic Controllers I**

3 credits, Spring

Study of basic skills necessary to program, install and maintain industrial control systems utilizing programmable logic controllers. Course content lays a foundation of hardwired relay control systems and components, and then builds on this for an understanding of programmable logic controller (PLC) systems. Recommendation: MFG-130

**IMT-234 Programmable Logic Controllers II**

3 credits, Fall

An advanced course of study that will develop the student's understanding of Programmable Logic Controllers (PLC) in more detailed Industrial applications through lectures, labs and hands-on examples. This course will emphasize advanced PLC functions and data sets, networking schemes and human machine interfaces. Prerequisite: IMT-233

**IMT-239 Principles of Troubleshooting II**

2 credits, Fall

Covers advanced applications of diagnosis, maintenance and repair of systems. Also includes preventative maintenance, applied statistical process control and RF power generation. Recommendation: EET-139

**J****Journalism****J-134 Photojournalism**

4 credits, Spring

Introduces the student to photojournalism, emphasizing composition, lighting and creative ways to illustrate a news story through weekly shooting assignments. Recommended: Basic photography skills

**J-211 Mass Media & Society**

4 credits, Fall/Winter/Spring

This course takes students through a critical study of the production and consumption of mass media, including television, radio, books, film, newspapers, advertising and the Internet. Students also examine the economic and social organization of mass media, the growth of new media technologies, and the relationship between media and the public. Recommended: WRD-098 or placement in WR-121

**J-215 College Newspaper: Writing & Photography**

3 credits, Fall/Winter/Spring

Students work as writers, photographers and editors on The Clackamas Print, the college's student-run newspaper and its website. Students study and produce news stories and news photos. In doing so, they learn different writing styles, photography rules, ethical standards of news gathering and the rights of a free press in a democracy. May be repeated up to six credits. Recommended: Placement in WR-121

**J-216 Writing for Media**

4 credits, Winter

Introduces students to the fundamentals of writing for various media including journalism, public relations and other communications-related fields. Topics include news gathering, interviewing and media law, with an emphasis on writing for print, broadcast, the web and social media. Recommended: WRD-098 or placement in WR-121

**J-220 Introduction to Broadcast Journalism**

4 credits, Fall

Offers students interested in Broadcast Journalism the basic skills of writing, reporting, and camera operation for broadcast. Lab component included. Recommended: WRD-098 or placement in WR-121

**J-221 Broadcast Journalism**

4 credits, Fall

Offers students interested in Broadcast Journalism intermediate skills of broadcast reporting, videography, editing, compression, and uploading for broadcast. Lab component included. Prerequisites: J-220 with a C or better. Recommended: WRD-098 or placement in WR-121

**J-222 Advanced Broadcast Journalism**

4 credits, Fall

Offers students interested in Broadcast Journalism advanced skills of managing reporters, videographers, and a web presence in a broadcast newsroom. Lab component included. Prerequisites: J-221 with a C or better. Recommended: WRD-098 or placement in WR-121

**J-225 Intermediate College Newspaper: Writing & Photography**

4 credits, Fall/Winter/Spring

Intermediate news writing and photo-journalism for publication in the student-run Clackamas Print and its online media. Generate original story ideas, publish photo essays and complete more complicated interviews on multiple projects in news, arts, sports and opinion writing. Apply media ethics to social, online and print media. Course may be repeated for up to 6 credits. Prerequisites: J-215 Recommended: Placement in WR-121

**J-226 Introduction to College Newspaper: Design & Production**

4 credits, Fall/Winter/Spring

Offers students interested in newspaper design and production basic skills in writing headlines, designing pages and using Adobe InDesign software to produce the weekly student newspaper, The Clackamas Print. May be repeated for up to 8 credits. Recommended: Placement in WR-121

**J-227 Intermediate College Newspaper: Design & Production**

4 credits, Fall/Winter/Spring

Offers students interested in newspaper and web design intermediate skills in writing, lay out, photo editing and Adobe InDesign to produce and publish the weekly student newspaper, The Clackamas Print and its website. May be repeated for up to 8 credits. Prerequisites: J-226. Recommended: Placement in WR-121

**J-228 Advanced College Newspaper: Design & Production**

4 credits, Fall/Winter/Spring

Offers students interested in newspaper design and production advanced skills in news content design, alternative story formats, content flow and management for print and online. Students will produce and publish the weekly student newspaper, The Clackamas Print, and its website. May be repeated for up to 8 credits. Prerequisites: J-227. Recommended: Placement in WR-121

**J-235 Advanced College Newspaper: Writing & Photography**

4 credits, Fall/Winter/Spring

Advanced news writing and photography for publication online, in social media and in the student-run newspaper, The Clackamas Print. Students apply Associated Press style, use journalism ethics and cover a variety of topics and events in words and photos to build their journalism portfolios. Course may be repeated for up to 6 credits. Prerequisites: J-225 Recommended: Placement in WR-121

**J-280 Journalism/CWE**

2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides the student with on-the-job experience and training related to journalism. Corequisites: CWE-281

**J-280A Public Relations/CWE**

2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides the student with on-the-job experience and training related to public relations. Corequisites: CWE-281

**LIB****Library****LIB-101 Introduction to Library Research**

1 credit, Fall/Winter/Spring

Trains students in the use of a variety of print and electronic information resources, search tools, and source citation. Excellent preparation for term papers and other research assignments. Recommended: CS-090 or equivalent experience

**MA**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Medical Assistant****MA-110 Medical Terminology**

3 credits, Fall/Winter/Spring/Summer

This course provides the foundational principles required for understanding medical terms used to communicate effectively within the healthcare field. This includes word meaning and discerning the difference between look-alike and sound-alike words through correct spelling and pronunciation. This course also includes the reading and comprehending of content of medical records and reports. Students will develop the ability to read and comprehend the content of medical records and reports. Through the review of body systems this course includes introductions to disease processes, basic anatomy and physiology and associated terminology. This course is required prerequisite for Medical Assistant and Clinical Laboratory Assistant students.

**MA-112 Medical Office Practices**

4 credits, Fall

This course focuses on administrative skills performed by the Medical Assistant in the ambulatory care setting. This course will provide a background in medical law and ethics. Students will learn concepts of professionalism, patient confidentiality, telephone etiquette, effective communication, care navigation, medical records maintenance and medical legal requirements pertaining to medical office procedures. Students will become familiar with the legal relationship between healthcare providers and patients. Students will create a professional healthcare resume. Prerequisites: MA-110 and WR-121. Corequisites: BI-120 and MA-145

**MA-115 Phlebotomy for Medical Assistants**

1 credit, Spring

The focus of this course is to understand appropriate blood specimen procurement techniques using vacutainer, syringe, 'winged infusion' / butterfly with syringe and capillary puncture methods and associated safety techniques. Other specifics of the blood specimen testing requirements, such as collection into the correct evacuated tube (additive), specimen handling procedures, collections of newborn screen and collection documentation are also covered; while assuring a safe, confidential and professional environment for the patient, and as the phlebotomy technician. Required: Student must be enrolled in current Medical Assistant cohort. Instructor consent. Prerequisite: Pass MA-116, MA-117, MA-117L, MA-118, MA-118L, MTH-054.

**MA-115L Phlebotomy for Medical Assistants Lab**

1 credit, Spring

The focus of this course is to demonstrate appropriate blood specimen procurement techniques using vacutainer, syringe, 'winged infusion' / butterfly with syringe and capillary puncture methods and associated safety techniques. Other specifics of the blood specimen testing requirements, such as collection into the correct evacuated tube (additive), specimen handling procedures, collections of newborn screen and collection documentation are also covered; while assuring a safe, confidential and professional environment for the patient, and as the phlebotomy technician. Required: Student must be enrolled in current Medical Assistant cohort. Instructor consent. Prerequisite: MA-116, MA-118, MA-118L, MA-117, MA-117L, MTH-054. Corequisites: MA-115, MA-119, MA-121, MA-121L.

**MA-116 Introduction to Medications**

4 credits, Winter

Introduces the medical assistant student to the foundational concepts and principles of pharmacology; including the classifications of common medications including: indications for use, desired effect, side effect, adverse effects, and patient education. Nutrition, the function of dietary supplements and special dietary needs are also discussed. Required: Student must be admitted to current Medical Assistant cohort. Instructor consent required. Prerequisites: BI-120, MA-110, MA-112, and MA-145. Corequisites: MTH-054, MA-117, MA-117L, MA-118 and MA-118L

**MA-117 Clinical Laboratory Procedures I**

1 credit, Winter

This theory course is designed to instill a basic understanding of common laboratory terminology and procedures used in a general medical office laboratory to aid the physician in the diagnosis and treatment of disease. Laboratory safety, the prevention of blood borne disease transmission and scope of practice will be emphasized. First course in the Clinical Laboratory Procedures series. Required: Student must be enrolled in a current Medical Assistant cohort. Prerequisites: BI-120, MA-112, and MA-145. Corequisites: MA-116, MA-117L, MA-118, MA-118L, and MTH-054

**MA-117L Clinical Laboratory Procedure I Lab**

1 credit, Winter

This laboratory course is designed to instill a basic understanding of common laboratory terminology and procedures used in a general medical office laboratory to aid the physician in the diagnosis and treatment of disease. Laboratory safety, the prevention of blood borne disease transmission and scope of practice will be emphasized. This is the first course in the Clinical Lab Procedures series. Required: Student must be enrolled in a current Medical Assistant cohort. Prerequisite: TAKE BI-120, MA-112, MA-145. Corequisites: MA-117, MA-118, MA-118L, MA-116, and MTH-054

**MA-118 Examination Room Techniques**

3 credits, Winter

Fundamental theory focusing on the clinical competencies involved in ambulatory care, exam room procedures and related techniques. Special emphasis will be placed on essential principles of diagnostic testing, patient care, documentation and general (trans disciplinary) competencies including the rationale for the equipment used in medication administration and the techniques for oral and parenteral medication administration (excluding IV). Required: Instructor consent. Student must be enrolled in current Medical Assistant cohort. Prerequisites: BI-120, MA-112 and MA-145. Corequisites: MA-116, MA-117, MA-117L, MA-118L, and MTH-054

**MA-118L Examine Room Techniques Lab**

1 credit, Winter

This lab course is designed to instill a basic understanding of common laboratory terminology and procedures used in a general medical office laboratory to aid the physician in the diagnosis and treatment of disease. Laboratory safety, the prevention of blood borne disease transmission and scope of practice will be emphasized. Required: Student must be enrolled in current Medical Assistant cohort. Instructor consent. Prerequisites: BI-120, MA-112 and MA-145. Corequisites: MA-116, MA-117, MA-117L, MA-118, and MTH-054

**MA-119 Medical Assistant Practicum**

9 credits, Spring

Under supervision within the ambulatory care setting, the student will apply both administrative and clinical knowledge and practices as attained within the Medical Assisting course curriculum. Prerequisites: MA-116, MA-117, MA-117L, MA-118, and MA-118L. Corequisites: MA-115, MA-115L, MA-121, and MA-121L. Required: Instructor consent.

**MA-121 Clinical Lab Procedures II**

1 credit, Spring

Designed to instill a basic understanding of simple, common laboratory terminology and procedures used in a general medical office laboratory to aid the physician in the diagnosis and treatment of disease. Laboratory safety, the prevention of blood born disease transmission and scope of practice will be emphasized. Continuation of the Clinical Laboratory Procedures series. Required: Student must be enrolled in current Medical Assistant cohort. Instructor consent. Prerequisite: Pass MA-116, MA-117, MA-117L, MA-118, MA-118L, MTH-054.

**MA-121L Clinical Laboratory Procedures II Lab**

1 credit, Spring

This theory course is designed to instill a basic understanding of common laboratory terminology and procedures used in a general medical office laboratory to aid the physician in the diagnosis and treatment of disease. Laboratory safety, the prevention of blood born disease transmission and scope of practice will be emphasized. Continuation of the Clinical Laboratory Procedures series. Required: Student must be enrolled in current Medical Assistant cohort. Instructor consent. Prerequisite: Pass MA-116, MA-117, MA-117L, MA-118, MA-118L, MTH-054.

**MA-145 Insurance & Health Information Management**

4 credits, Fall

This course introduces medical assisting students to practical applications for billing medical insurance both manually and electronically. The course is designed to instruct the student in all phases of billing and insurance procedures and entry level Electronic Health Record software for the management of medical records. It also teaches Front Office finance skills including bookkeeping, banking and collections. The students are also introduced to basic ICD-10 Diagnosis and Procedural coding skills. This course is required for medical assistant students. This course does not meet the requirements for Insurance Coder certification. Required: Medical Assistant students only. Prerequisites: MA-110 and WR-121 or WR-121. Corequisites: MA-112 and BI-120

**MET**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business

**Manufacturing Engineering Technology**

For additional information contact the Manufacturing Department at 503-594-3318.

**MET-112 Introduction to Engineering and Technology Careers**

2 credits, Fall/Winter/Spring

This course is designed to provide an overview of five major engineering disciplines, their subsets and their respective career pathways. This course will also introduce students to the economic, environmental, social, political, ethical, as well as the health and safety realities of the engineering work environment. This course is intended to guide students in making appropriate career choices by exploring the following topics: engineering job demands, earning potential, marketability, licensure, and continuing education requirements.

**MET-150 Principles of Engineering - Project Lead the Way**

6 credits, Not Offered Every Term

Helps students understand the field of engineering/engineering technology. Explores various technology systems and manufacturing processes and how math, science and technology are used in the engineering problem solving process. Includes concerns about social and political consequences of technological change. This course is part of the national Project Lead the Way curriculum.

**MET-151 Introduction to Engineering Design Project Lead the Way**

6 credits, Not Offered Every Term

Emphasizes problem-solving skills by using a design development process. Models of product solutions are created, analyzed and communicated using solid modeling computer design software. This course is part of the national Project Lead the Way curriculum.

**MET-152 Digital Electronics - Project Lead the Way**

6 credits, Not Offered Every Term

Covers applied logic that encompasses the application of electronic circuits and devices, as well as AC and DC electrical fundamentals. Uses computer simulation software to design and test digital circuitry prior to the actual construction of circuits and devices. This course is part of the national Project Lead the Way curriculum.

**MET-153 Computer-Integrated Manufacturing - Project Lead the Way**

6 credits, Not Offered Every Term

Applies the principles of robotics and automation to engineering and manufacturing. Students use CNC equipment to produce actual models of their three-dimensional designs. This course is part of the national Project Lead the Way curriculum.

**MET-170 Introduction to Manufacturing Processes**

3 credits, Spring

This is a survey course to introduce students to the fundamental processes that are used to manufacture everyday products. Includes machining, casting, forming, welding, molding, composites and microelectronics fabrication.

**MET-211 Statics**

4 credits, Not Offered Every Term

Application of the fundamental principles of mechanics of rigid bodies to typical engineering problems involving force systems in static equilibrium: moments and couples, structures, vector algebra, distributed forces, friction, center of gravity, center of mass and area of moment inertia.

**MET-213 Strength of Materials**

4 credits, Not Offered Every Term

Introduces the mechanics of deformable bodies with an emphasis on principles of stress and strain, failure criteria and design concepts. Covers simple bending of beams and associated deflections; shear stresses in trusses, beams and frames; combined stresses due to bending, torsion, shear and axial loads. Additional topics include transformation of stress, principle stresses, Mohr's circle, stability and buckling.

**MFG**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Manufacturing**

The Manufacturing Department has a variety of programs and classes. For additional information contact the Manufacturing Department at 503-594-3318.

**MFG-103 Machining for the Fabrication & Maintenance Trades**

3 credits, Fall/Winter/Spring

This course is an introduction to metal working for welders, fabricators, maintenance personnel and others who need to understand simple machining principles. Students will be introduced to precision measurement with calipers and in preparation for machining. The elementary use of the drill press, band saw, milling machine and lathe, as well as measurement, tapping, chasing and repair. Recommended: MTH-050

**MFG-104 Print Reading**

2 credits, Fall/Winter/Spring/Summer

Introduction to basic print reading. Students will use the principles of orthographic projection and current ASME standards as they apply this knowledge to interpreting manufacturing prints.

**MFG-105 Dimensional Inspection**

2 credits, Summer/Winter

Covers precision measuring tools such as micrometers, dial indicators, gauge blocks, sine bars and other instruments used in quality control of manufactured products. Prerequisite: MFG-104

**MFG-106 Advanced Applied Geometric Dimensioning and Tolerancing for Manufacturing**

1-3 credits, Fall/Spring

Introduces participants to the application of gauging and inspection using Geometric Dimensioning and Tolerancing (GDT). Students will identify inspection equipment and inspect GDT characteristics while experiencing their manufacturing implications. Prerequisite: MFG-104

**MFG-107 Industrial Safety & First Aid**

3 credits, Fall/Winter/Spring/Summer

The Industrial Safety course is designed to provide the student with a basic understanding of safety hazards and first aid in the workplace. Includes eye safety, grinding wheel hazards, electrical/chemical hazards, slips, falls and back injuries. Instruction in Red Cross first aid, Automated External Defibrillator (AED) and CPR.

**MFG-109 Computer Literacy for Technicians**

4 credits, Fall/Winter/Spring/Summer

Presents the uses of computers in business and industry. Subjects covered include computer platforms, basic hardware, data communication, and operating systems. Reviews and uses word processing, spreadsheet, and database software for the PC.

**MFG-110 Manufacturing Special Projects**

1-9 credits, Fall/Winter/Spring/Summer

Allows students a great deal of latitude in project selection, design, and production utilizing manual machine tools, CNC machine tools, CAD/CAM and EDMs. A solid understanding of all basic machine tools is expected.

**MFG-111 Machine Tool Fundamentals I**

3-9 credits, Fall/Winter/Spring/Summer

This course is an introduction to machine tool operation, precision measurement and engineering drawings; covers machine tool operations including drill presses, lathes, and milling machines. Includes internal and external threading. May be repeated for up to 9 credit hours. Recommended: MFG-107. Corequisites: MTH-050 and MFG-104

**MFG-112 Machine Tool Fundamentals II**

3-9 credits, Fall/Winter/Spring/Summer

This course is a continuation of machine tool operations. Covers setup and operation of the vertical milling machine and boring techniques on the lathe. Includes surface grinding and selection of abrasive grinding wheels. May be repeated for up to 9 credit hours. Prerequisites: 6 credits of MFG-111. Recommended: Completion of MFG-111

**MFG-113 Machine Tool Fundamentals III**

3-9 credits, Fall/Winter/Spring/Summer

Topics include offset boring heads, rotary tables, indexing devices, and taper attachments. Also covers applied technical math, inspection techniques, optical comparators, coordinate measuring machines, and cylindrical grinding. May be repeated for up to 9 credit hours. Prerequisites: 6 credits of MFG-112. Recommended: Completion of MFG-111 and MFG-112

**MFG-123 Instrumentation & Controls**

3 credits, Winter

This course is intended to provide the industrial maintenance technician with knowledge and skills in the areas of process measurement, control and data acquisition. Students will become familiar with common sensors and actuator and their applications. Instruction will also be given on application development in NI LabView to create process control programs. Recommended: MFG-130 or EET-137

**MFG-130 Basic Electricity I**

3 credits, Fall

Explores fundamentals of AC and DC electricity. Includes: atomic structure, direct current, alternating current, Ohm's law, series, parallel, and combination circuits, DC circuit theorems, production of DC voltages, magnetic principles, transformers, motors and generators.



**MFG-131 Basic Electricity II**

3 credits, Winter

Covers application of several theories learned in previous term. Additional topics will include: motors, controls, alignment, pulleys and gears, troubleshooting theory, power distribution and lighting, electrical wiring and schematics. Recommended: MFG-130 or MTH-050

**MFG-132 Basic Electricity III**

3 credits, Spring

This course offers continued study in the control of industrial electric motors. Concepts in the application of relays, motor starters, switches and overload protection are explored from both a practical and theoretical viewpoint. Wiring techniques and electrical devices for residential, commercial and industrial facilities are presented along with hands-on activities. Additional topics include: electrical conductors, installation materials, and the scope of work performed by licensed electricians. Recommended: MFG-130 and MFG-131

**MFG-133 Programmable Logic Controllers**

3 credits, Spring

Study of basic skills necessary to program, install, and maintain industrial control systems utilizing programmable logic controllers. Course content lays a foundation of hardwired relay control systems and components, and then build on this for an understanding of programmable logic controllers (PLC) systems. Recommended: MFG-130

**MFG-140 Principles of Fluid Power**

3 credits, Winter

Course provides student with instruction in the use of hydraulics and pneumatics in industry covering the fundamentals of hydraulics, basic components (valves, cylinders, pumps, motors, piping, fluid, fluid conditions, and accessories). Recommended: MTH-050

**MFG-200 Introduction to CNC**

1 credit, Not Offered Every Term

Short course to prepare students to be entry-level CNC machine operators. Covers fundamentals of operation, setup principles and G & M code programming. Students will use hands-on activities on industrial milling and turning centers.

**MFG-201 CNC I: Set-Up and Operation**

4 credits, Fall/Spring

A hands-on class that will teach students how to set-up and operate CNC milling centers. Includes an introduction to basic G&M-code programming. Designed for persons with little or no previous experience. Prerequisites: 3 credits of MFG-112. Prerequisites: MTH-080 and MFG-109. Recommended: Completion of MFG-109, MFG-112 and MTH-050

**MFG-202 CNC II: Programming & Operation**

4 credits, Summer/Winter

Places a heavy emphasis on writing G&M-code. Students will be taught more advanced programming and operation of CNC milling centers and basic programming, set-up and operation of CNC turning centers. Prerequisite: MFG-201

**MFG-203 CNC III: Applied Programming & Operation**

3 credits, Fall/Spring

Students work individually or in small groups to design, program, manufacture and test advanced projects using: CNC mills, CNC lathes, Electrical Discharge Machines and various software applications. Introduction to principles and operation of EDM included. Prerequisite: MFG-202. Recommended: MFG-201 or MFG-204

**MFG-204 Computer-Aided Manufacturing I**

4 credits, Fall/Spring

This course is an introduction to computer-aided part programming. Students will use CAD/CAM software to generate NC code to produce machined products. Model creation, process verification, code generation, and CAD/CAM integration will be covered. Prerequisites: 3 credits of MFG-112. Prerequisites: MTH-080 and MFG-109. Prerequisite or Corequisite: MFG-201

**MFG-205 Computer Aided Manufacturing II**

4 credits, Summer/Winter

This course is the second in the series of three CAD/CAM courses: MFG-204, MFG-205, and MFG-206. The focus is hands-on CNC and manufacturing activities, including Mastercam solids, lathe, and multi-axis. Additional topics will include reverse engineering and post-processing. Class time will be devoted to demonstrations, and in-class projects. Prerequisite: MFG-204

**MFG-206 Computer-Aided Manufacturing III**

3 credits, Fall/Spring

This course exposes students to advanced cad/cam processes, including mill/turn, four and five axis machining, tombstone and work holding concepts. Prerequisites: MFG-205

**MFG-209 Programming and Automation for Manufacturing**

3 credits, Winter

A high-level computer literacy course for technologists. The focus of this course is on structured computer programming in the Visual Basic language and the application of programming industrial automation. Basic knowledge of the PC required. Recommended: MFG-109

**MFG-210 CAM Special Projects**

1-4 credits, Not Offered Every Term

Allows students to integrate and improve CNC and CAD/CAM manufacturing skills. Students are assigned a variety of hands-on projects based on their skill level and interest. Recommended: MFG-201 and MFG-204. (May be taken concurrently with MFG-204)

**MFG-211 Machine Tool Fundamentals IV**

3-6 credits, Fall/Winter/Spring/Summer

Concentrates on CNC setup and operation and on surface grinding. Students will develop and apply their machining skills while creating products in a team environment. Additional topics may include fixture design and cutting mechanics. Prerequisites: 3 credits of MFG-113. Recommended: MFG-104, MFG-105 and MFG-113

**MFG-219 Robotics**

3 credits, Spring

An introduction to robotics and industrial motion control. Students will be exposed to the operation, programming and applications of a typical FANUC, six-axis industrial robot. Hands-on activities will include manual tech programming, testing with simulation software and programming of advanced movements. Recommended: MTH-050 and MFG-209

**MFG-221 Materials Science**

3 credits, Fall/Winter/Spring

Introduces metallurgy and materials science. Extractive and physical metallurgy will be covered. Specific topics include heat treatment, materials analysis, the iron carbon phase diagram, composites, ceramics and industrial plastics. Recommended: MTH-050

**MFG-271 Mastercam Mill I**

4 credits, Fall

Covers the creation and manipulation of two and three dimensional wire frame models as well as the creating, editing, and verification of 2-1/2 axis toolpaths. A fundamental understanding of the CAD/CAM process will be gained.

**MFG-272 Mastercam Mill II**

4 credits, Winter

Students construct three-dimensional geometric models using solids and surface modeling techniques. Students program models using advanced multi-axis programming techniques utilizing all aspects of roughing and finishing. Projects verified with solids toolpath verification. Recommended: MFG-271 or prior experience

**MFG-273 Mastercam, Lathe, Mill, Multi-Axis**

4 credits, Spring

The fundamentals of Mastercam Lathe and mill/turn toolpaths and provides demonstrations and exercises on new and current programming techniques for advanced mill/turn machining centers. Additionally, the strategic use of multi-axis documentation and set-up sheets will be provided. Some student projects will be machined on state-of-the-art equipment in the advanced manufacturing lab. Recommended: MFG-272

**MFG-275 Mastercam I: Streamingteacher™**

3 credits, Not Offered Every Term

This course covers computer-aided parts creation and programming with the current version of Mastercam CAD/CAM software. Topics covered will include the creation and modification of two and three-dimensional wire frame models as well as the creation, verification, and editing of 2-1/2 axis toolpaths and an introduction to solid modeling.

**MFG-280 Manufacturing Technology/CWE**

1-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. Practical experience in the manufacturing trades. Coordination of instruction will occur with industry and the manufacturing and cooperative work departments. May be repeated for up to 6 credits. Corequisites: CWE-281

**MTH****Mathematics****MTH-010 Fundamentals of Arithmetic I**

4 credits, Fall/Winter/Spring/Summer

Reviews operations on whole numbers, elementary fraction concepts, operations on decimals, and measurement.

**MTH-010B Fractions: Addition & Subtraction**

1 credit, Fall/Winter/Spring/Summer

Reviews fractions concepts. Introduces and practices the algorithms needed to add and subtract fractions and mixed numbers, and solve applications. Prerequisite: Placement in MTH-010 and RD-080.

**MTH-020 Fundamentals of Arithmetic II**

4 credits, Fall/Winter/Spring/Summer

Topics include factors and multiples, operations on fractions, percents, ratios and proportions, powers and square roots, introduction to graphs, signed numbers, and effective study skills. Prerequisites: MTH-010 with a C or better or placement in MTH-020

**MTH-050 Technical Mathematics I**

3 credits, Fall/Winter/Spring/Summer

Designed for career-technical students. The topics focus on critical thinking, problem solving and mathematical communication using applications in applied arithmetic, measurement, geometry, and statistics and probability. Prerequisites: MTH-020 with a C or better, or placement in MTH-050 or MTH-060

**MTH-052 Medication Calculations for Nurses**

4 credits, Not Offered Every Year

Topics include problem solving, ratios and proportions, percents, accuracy and precision of metric, apothecary and household systems of measurement, and calculating oral and parenteral medication doses as well as intravenous and critical care calculations. Prerequisite: Pass MTH-020 with a C or better, or placement in MTH-060.

**MTH-054 Medication Calculations for Medical Assistants**

4 credits, Winter

Topics include problem solving, ratios and proportions, percents, accuracy and precision of metric, apothecary and household systems of measurement and calculating medication doses. Prerequisite: MTH-020 with a C or better, or placement in MTH-060

**MTH-060 Algebra I**

4 credits, Fall/Winter/Spring/Summer

Designed for review or for the beginner, this course is an introduction to topics in Algebra. Expressions, equations, inequalities and linear graphing are explored numerically, symbolically, graphically, and verbally. Prerequisites: MTH-020 with a C or better, or placement in MTH-060

**MTH-065 Algebra II**

4 credits, Fall/Winter/Spring/Summer

A second term of topics in Algebra. This course continues the exploration of expressions, equations, and inequalities numerically, symbolically, graphically, and verbally. Prerequisites: MTH-060 with a C or better, or placement in MTH-065

**MTH-080 Technical Mathematics II**

3 credits, Fall/Winter/Spring

Second in a sequence designed for career-technical students. The topics focus on critical thinking, problem solving, and mathematical communication using applications in arithmetic, algebra, geometry, and trigonometry. Prerequisites: MTH-050 with a C or better

**MTH-082A Wastewater Math I**

1 credit, Fall

Quantitative component to understanding wastewater operations. Simple unit conversions, fraction to decimal conversions and more complicated problem solving as applied to wastewater preliminary and primary treatment. Prerequisite: MTH-065 or placement in MTH-080 or MTH-095. Corequisite: WET-110

**MTH-082B Waterworks Math I**

1 credit, Fall

Problem solving for waterworks applications. Introduction to basic algebra and mathematical concepts, conversions and calculations encountered in the waterworks industry. Prerequisite: MTH-065 or placement in MTH-080 or MTH-095. Corequisite: WET-111

**MTH-082C Wastewater Math II**

1 credit, Winter

Quantitative component to understanding analysis and operations of secondary wastewater systems. Flow rate, chemical dosage, treatment plant loading, treatment process efficiency, unit conversion and process control. Prerequisites: MTH-082A and MTH-082B. Corequisites: WET-120

**MTH-082D Waterworks Math II**

1 credit, Winter

Problem solving for waterworks applications. Introduction to contact-time (CT) calculations, how to determine chemical concentrations, the pounds formula, and basic hydraulics. Prerequisite: MTH-082A and MTH-082B. Corequisite: WET-121

**MTH-082E Math for High Purity Water**

1 credit, Not Offered Every Year

Basic math for high purity water concepts. Measurements accuracy, rounding rules and errors, significant figures, scientific notation, metric prefixes, simple statistics, average and standard deviation of a population. Prerequisite: Pass MTH-065 with a C or better or placement in MTH-080 or MTH-095; or instructor consent.

**MTH-095 Algebra III**

4 credits, Fall/Winter/Spring/Summer

The third term of topics in algebra using the rule-of-four approach is designed to prepare students for transfer-level math courses. This course emphasizes problem-solving and graphical techniques with the use of a graphing utility. Prerequisites: MTH-065 with a C or better or placement in MTH-095

**MTH-098 College Math Foundations**

5 credits, Fall/Winter/Spring/Summer

Students in this course will solve realistic problems in order to improve their critical-thinking abilities, number sense, and estimation skills. The course covers such topics as proportional reasoning, creating and analyzing visual representations in mathematics and statistics, problem-solving strategies, properties of numerical operations, linear functions, and calculator computations. Emphasis will be placed on relevance, context, and technical communication, including written descriptions of concepts and procedures. Prerequisites: MTH-020 with a C or better or placement in MTH-050, MTH-060, or MTH-098

**MTH-105 Introduction to Contemporary Mathematics**

4 credits, Fall/Winter/Spring/Summer

A transfer-level mathematics course for non-science majors. The topics covered in this course focus students on critical thinking, problem solving, and mathematical communication. Prerequisites: MTH-095 or MTH-098 with a C or better or placement in MTH-105 or MTH-111. Recommended: WRD-098 or placement in WR-121

**MTH-111 College Algebra**

5 credits, Fall/Winter/Spring/Summer

A transfer course designed for students preparing for trigonometry, statistics, or calculus. The focus is on the analysis of piecewise, polynomial, rational, exponential, logarithmic, power functions and their properties. These functions will be explored symbolically, numerically and graphically in real life applications and mathematical results will be analyzed and interpreted in the given context. The course will also include transformations, symmetry, composition, inverse functions, regression, the binomial theorem and an introduction to sequences and series. Prerequisites: MTH-095 with a C or better or placement in MTH-111. Recommended: WRD-098 or placement in WR-121

**MTH-112 Trigonometry and Pre-Calculus**

5 credits, Fall/Winter/Spring/Summer

A transfer course designed to prepare students for calculus. AMATYC standards-based approach utilizing the rule of four to analyze elementary functions and applications is used for this course. The rule of four requires that each topic should be presented symbolically, graphically, numerically, and verbally. Topics include trigonometric functions, trigonometry developed from the unit circle, right triangle trigonometry, inverse trigonometric functions, the laws of sines and cosines, trigonometric identities, and conic sections. Students will also learn to use vectors, polar equations, and parametric equations. Particular attention will be paid to modeling applications and solving mathematical problems. Prerequisites: MTH-111 with a C or better or placement in MTH-112. Recommended: WRD-098 or placement in WR-121

**MTH-205 A Bridge to University Mathematics**

3 credits, Winter

MTH-205 is a “bridge course” designed to help students transition from computation-based mathematics to the more proof-based curriculum typical of junior-senior collegiate mathematics-level courses. Topics include: group theory, elementary set theory, proof, and argumentation. Prerequisites: MTH-112 or MTH-251 with a C or better or placement into MTH-251

**MTH-211 Fundamentals of Elementary Math I**

4 credits, Fall

This course is the first in a sequence of three courses designed to teach students to understand the basic concepts of mathematics and provide ideas for teaching these concepts to elementary school children. Prerequisites: MTH-095 with a C or better or placement in MTH-111. Recommended: WRD-098 or placement in WR-121

**MTH-212 Fundamentals of Elementary Math II**

4 credits, Winter

This course is the second in a sequence of three courses designed to teach students to understand the basic concepts of mathematics and provide ideas for teaching these concepts to elementary school children. Prerequisites: MTH-211 with a C or better. Recommended: WRD-098 or placement in WR-121

**MTH-213 Fundamentals of Elementary Math III**

4 credits, Spring

This course is the third in a sequence of three courses designed to teach students to understand the basic concepts of mathematics and provide ideas for teaching these concepts to elementary school children. Prerequisites: MTH-212 with a C or better. Recommended: WRD-098 or placement in WR-121

**MTH-243 Statistics I**

4 credits, Fall/Winter/Spring/Summer

This course introduces students to descriptive statistics, observational studies, experiments, elementary probability, random variables, and sampling distributions. Prerequisites: MTH-105, MTH-111, MTH-112, or MTH-251 with a C or better or placement in MTH-112 or MTH-251. Recommended: WRD-098 or placement in WR-121

**MTH-244 Statistics II**

4 credits, Fall/Winter/Spring

The tools learned in Statistics II are used for hypothesis tests and confidence intervals for one and two populations, linear regression, inference about regression, and chi-square tests. Prerequisites: MTH-243 with a C or better. Recommended: WRD-098 or placement in WR-121

**MTH-251 Calculus I**

5 credits, Fall/Winter/Spring/Summer

Topics and applications of differentiation. This course is the first in a four-term sequence designed for students in science, engineering, or mathematics. It will focus on differential calculus. Prerequisites: MTH-112 with a C or better or placement in MTH-251. Recommended: WRD-098 or placement in WR-121

**MTH-252 Calculus II**

5 credits, Fall/Winter/Spring/Summer

This course is the second in a four-term Calculus sequence designed for students in science, engineering, or mathematics. It will focus on integral calculus. Prerequisites: MTH-251 with a C or better. Recommended: WRD-098 or placement in WR-121

**MTH-253 Calculus III**

5 credits, Winter/Spring

Additional topics in calculus including sequences and series. Prerequisites: MTH-252 with a C or better. Recommended: WRD-098 or placement in WR-121

**MTH-254 Vector Calculus**

5 credits, Fall/Spring

An introduction to the study of curves and surfaces in space, partial derivatives, curve and surface integrals, and applications of these topics. Prerequisite: MTH-252 with a C or better

**MTH-256 Differential Equations**

4 credits, Summer/Winter

This course is an introduction to the study of first-order differential equations, first-order systems of differential equations, linear systems of differential equations, and applications of these topics. Prerequisite: MTH-252 with a C or better

**MTH-261 Linear Algebra**

4 credits, Spring/Summer

An introduction to linear equations in n-space: systems of linear equations, vectors, matrices, matrix operations, linear transformations, linear independence, span, bases, subspaces of n-space, determinants, eigenvalues, eigenvectors, inner products, diagonalization, and applications of these topics. Prerequisites: MTH-252 with a C or better. Recommended: WRD-098 or placement in WR-121

**MTH-280 Mathematics/CWE**

1-6 credits, Not Offered Every Year

Cooperative work experience. Practical experience in teaching, tutoring or applying mathematics while supervised by a teacher or mathematician. May be repeated for up to 12 credits. May be repeated for up to 12 credits. Corequisites: CWE-281

**MUP****Music Performance****MUP-100 Individual Lessons: Non-Music Majors**

1 credit, Fall/Winter/Spring/Summer

Private lessons for beginners, non-music majors, and students who receive a low rating in MUP 171-191 auditions. Brass, woodwind, percussion, string and keyboard instruments, and voice. May be repeated for up to 6 credits.

**MUP-102 Wind Ensemble**

2 credits, Fall/Winter/Spring

For non-majors and music majors. Introduction and study of traditional and contemporary band literature. This is the first year of a two-year course of study that includes performance, study of common styles and practices of historically and culturally significant composers/arrangers, and study of historical issues related to the development and performance of band literature. Provides a thorough groundwork in the fundamental ideas, techniques, and practices of band music and ensemble performance. Required: Completion of high school or high school performance level. No audition required. Ability to read music and play a band instrument.

**MUP-104 Pep Band/Combo-Improv**

1 credit, Fall/Winter/Spring

Instrumental performing group concentrating on rock, pop, and contemporary styles in the small to medium-sized group setting. No audition required. May be repeated for up to 8 credits.

**MUP-105 Jazz Ensemble**

2 credits, Fall/Winter/Spring

For non-majors and music majors. Introduction and study of common "big-band" and small-group jazz styles. This is the first year of a two-year course of study that includes performance, improvisation, musical arranging and writing, study of common styles and practices of historically and culturally significant jazz artists, and study of historical issues related to the development and performance of jazz music.

**MUP-121 Choral Ensemble: the Roots Project**

1 credit, Not Offered Every Term

The Roots Project, formerly known as The Clackamas Chorale, will explore the roots of American music through the rehearsal and performance of spirituals, gospel, work songs, field hollers, Caribbean songs, slave songs and traditional European choral music.

**MUP-122 Chamber Choir**

2 credits, Fall/Winter/Spring

Select vocal ensemble which rehearses and performs choral music from the Renaissance to the 21st century. Provides preparation for entering professional fields of music and performance. Emphasis on a cappella singing applied to appropriate chamber music. May be repeated for up to 6 credits. Required: Enrollment by audition. Students wishing to register for chamber choir should have experience reading music OR have prior experience singing in choir. If not, the student will agree to take either MUS-117, Sightreading, MUS-101, 102 or 103, Music Fundamentals or MUS-127, 128 or 129 Keyboard Skills I while registering for Chamber choir. Recommended: A desire to sing in a large and fun ensemble. An interest in exploring the roots of American music.

**MUP-125 Vocal Jazz Ensemble: Mainstream**

2 credits, Fall/Winter/Spring  
Performing ensemble that cultivates musical, professional, and personal growth through rehearsal and performance with rhythm section of jazz, rock, pop, funk, and fusion. Includes study of jazz as it applies to vocal ensemble combined with rhythm section. Emphasis on style, improvisation, and techniques. Enrollment by audition. May be repeated for up to 6 credits. Required: Students wishing to register for Mainstream should have experience reading music OR have prior experience singing in choir. If not, the student will agree to take concurrently either MUS-117, Sight-reading, MUS-101, 102 or 103, Music Fundamentals or MUS-127, 128 or 129 Keyboard Skills I.

**MUP-141 College Orchestra**

2 credits, Fall/Winter/Spring  
Performance and study of orchestral literature. College students may earn credit for playing in one of several approved orchestral groups. Minimum of one performance per term. May be repeated for up to 8 credits.

**MUP-150 Contemporary Music Ensemble**

1 credit, Fall/Winter/Spring  
Studies the development and performance of original compositions through intensive musical collaboration and creation. Required: Must pass proficiency audition.

**MUP-158 Chamber Ensemble**

1 credit, Fall/Winter/Spring  
Rehearsal and performance of traditional vocal and instrumental chamber music (one musician per part). Includes concerts and coaching by area professionals. Highly recommended for music majors. May be repeated for up to 8 credits.

**MUP-171 Individual Lessons: Piano**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-171J Individual Lessons: Jazz Piano**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability.

**MUP-171R Individual Lessons: Rock, Blues, Pop Piano**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability.

**MUP-174 Individual Lessons: Voice**

2 credits, Fall/Winter/Spring/Summer  
College-level required private lessons for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-174J Individual Lessons: Jazz Voice**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability.

**MUP-175 Individual Lessons: Violin**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-176 Individual Lessons: Viola**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-177 Individual Lessons: Cello**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-178 Individual Lessons: Bass**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-178J Individual Lessons: Jazz Bass**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability.

**MUP-179 Individual Lessons: Harp**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Corequisite: MUS-189. Required: College-level performance ability. Corequisites: MUS-189

**MUP-180 Individual Lessons: Guitar**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-180J Individual Lessons: Jazz Guitar**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability.

**MUP-180R Individual Lessons: Rock, Blues, Pop Guitar**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits.

**MUP-181 Individual Lessons: Flute**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-181J Individual Lessons: Jazz Flute**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability.

**MUP-182 Individual Lessons: Oboe**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-183 Individual Lessons: Clarinet**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-183J Individual Lessons: Jazz Clarinet**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability.

**MUP-184 Individual Lessons: Saxophone**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-184J Individual Lessons: Jazz Saxophone**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability.

**MUP-185 Individual Lessons: Bassoon**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-186 Individual Lessons: Trumpet**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-186J Individual Lessons: Jazz Trumpet**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability.

**MUP-187 Individual Lessons: French Horn**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: Pass MUP-187 (6 credits) Sophomore-level performance ability. Corequisites: MUS-189

**MUP-188 Individual Lessons: Trombone**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-188J Individual Lessons: Jazz Trombone**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability.

**MUP-189 Individual Lessons: Baritone**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-190 Individual Lessons: Tuba**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-191 Individual Lessons: Percussion**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability. Corequisites: MUS-189

**MUP-191J Individual Lessons: Jazz Percussion**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: College-level performance ability.

**MUP-202 Wind Ensemble**

2 credits, Fall/Winter/Spring

For non-majors and music majors. Introduction and study of traditional and contemporary band literature. This is the second year of a two-year course of study that includes performance, study of common styles and practices of historically and culturally significant composers/arrangers, and study of historical issues related to the development and performance of band literature. Provides a thorough groundwork in the fundamental ideas, techniques, and practices of band music and ensemble performance. No audition required. Required: Completion of high school or high school performance level. Ability to read music and play a band instrument. No audition required.

**MUP-204 Pep Band/Combo-Improv**

1 credit, Fall/Winter/Spring

Instrumental performing group concentrating on rock, pop, and contemporary styles in the small to medium-sized group setting. No audition required. May be repeated for up to 8 credits.

**MUP-205 Jazz Ensemble**

2 credits, Fall/Winter/Spring

For non-majors and music majors. Introduction and study of common “big-band” and small-group jazz styles. This is the second year of a two-year course of study that includes performance, improvisation, musical arranging and writing, study of common styles and practices of historically and culturally significant jazz artists, and study of historical issues related to the development and performance of jazz music. Recommended: MUP-202 and MUP-104.

**MUP-222 Chamber Choir**

2 credits, Fall/Winter/Spring

Advanced vocal ensemble which rehearses and performs choral music from the Renaissance to the 21st century. Provides preparation for entering professional fields of music and performance. Emphasis on a cappella singing applied to appropriate chamber music. Enrollment by audition. May be repeated for up to 6 credits. Required: For vocal music majors. Recommended: Enrollment by audition. Students wishing to register for chamber choir should have experience reading music OR have prior experience singing in choir. If not, the student will agree to take either MUS-117 sight reading, MUS-101, 102 or 103 Music Fundamentals or MUS-127, 128, or 129 Keyboard Skills I.

**MUP-225 Vocal Jazz Ensemble: Mainstream**

2 credits, Fall/Winter/Spring

Advanced performing ensemble that cultivates musical, professional, and personal growth through rehearsal and performance with rhythm section of jazz, rock, pop, funk, and fusion. Includes study of jazz as it applies to vocal ensemble combined with rhythm section. Emphasis on style, improvisation, and techniques. Enrollment by audition. May be repeated for up to 6 credits. Required: Students wishing to register for Mainstream should have experience reading music OR have prior experience singing in choir. If not, the student will agree to concurrently take either MUS-117, Sight-reading, MUS-101, 102 or 103, Music Fundamentals or MUS-127, 128 or 129 Keyboard Skills I.

**MUP-241 College Orchestra**

1-2 credits, Fall/Winter/Spring

Performance and study of orchestral literature. College students may earn credit for playing in one of several approved orchestral groups. Minimum of one performance per term. May be repeated for up to 8 credits.

**MUP-258 Chamber Ensemble**

1 credit, Fall/Winter/Spring

Rehearsal and performance of traditional vocal and instrumental chamber music (one musician per part). Includes concerts and coaching by area professionals. Highly recommended for music majors. May be repeated for up to 8 credits.

**MUP-271 Individual Lessons: Piano**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass MUP-171 (6 credits). Corequisite: MUS-189

**MUP-271J Individual Lessons: Jazz Piano**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: College-level performance ability. Prerequisite: Pass: MUP-171 (6 credits).

**MUP-271R Individual Lessons: Rock, Blues, Pop Piano**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Prerequisite: Pass MUP-171R (6 credits). Sophomore-level performance ability.

**MUP-274 Individual Lessons: Voice**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-174 (6 credits). Corequisite: MUS-189

**MUP-274J Individual Lessons: Jazz Voice**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-174J (6 credits).

**MUP-275 Individual Lessons: Violin**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-175 (6 credits).

**MUP-276 Individual Lessons: Viola**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-176 (6 credits). Corequisite: MUS-189

**MUP-277 Individual Lessons: Cello**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-177 (6 credits). Corequisite: MUS-189

**MUP-278 Individual Lessons: Bass**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-178 (6 credits). Corequisite: MUS-189

**MUP-278J Individual Lessons: Jazz Bass**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-178J (6 credits). Corequisite: MUS-189

**MUP-279 Individual Lessons: Harp**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Prerequisite: Pass MUP-179 (6 credits) Sophomore-level performance ability. Corequisites: MUS-189

**MUP-280 Individual Lessons: Guitar**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-180 (6 credits). Corequisite: MUS-189

**MUP-280J Individual Lessons: Jazz Guitar**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-180J (6 credits).

**MUP-280R Individual Lessons: Rock, Blues, Pop Guitar**

2 credits, Fall/Winter/Spring/Summer  
College-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits.

**MUP-281 Individual Lessons: Flute**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-181 (6 credits). Corequisite: MUS-189

**MUP-281J Individual Lessons: Jazz Flute**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-181J (6 credits).

**MUP-282 Individual Lessons: Oboe**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-182 (6 credits). Corequisite: MUS-189

**MUP-283 Individual Lessons: Clarinet**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-183 (6 credits). Corequisite: MUS-189

**MUP-283J Individual Lessons: Jazz Clarinet**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Required: Pass MUP-183J (6 credits) Sophomore-level performance ability. Recommended: Take MUP-104 or 204.

**MUP-284 Individual Lessons: Saxophone**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-184 (6 credits). Corequisite: MUS-189

**MUP-284J Individual Lessons: Jazz Saxophone**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-184J (6 credits).



**MUP-285 Individual Lessons: Bassoon**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-185 (6 credits). Corequisite: MUS-189

**MUP-286 Individual Lessons: Trumpet**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-186 (6 credits). Corequisite: MUS-189

**MUP-286J Individual Lessons: Jazz Trumpet**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-186J (6 credits).

**MUP-287 Individual Lessons: French Horn**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-187 (6 credits). Corequisite: MUS-189

**MUP-288 Individual Lessons: Trombone**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-188 (6 credits). Corequisite: MUS-189

**MUP-288J Individual Lessons: Jazz Trombone**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-188J (6 credits).

**MUP-289 Individual Lessons: Baritone**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-189 (6 credits). Corequisite: MUS-189

**MUP-290 Individual Lessons: Tuba**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-190 (6 credits). Corequisite: MUS-189

**MUP-291 Individual Lessons: Percussion**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-191 (6 credits). Corequisite: MUS-189

**MUP-291J Individual Lessons: Jazz Percussion**

2 credits, Fall/Winter/Spring/Summer  
Sophomore-level private lessons required for music majors and available to qualified non-majors. End-of-term juried performance mandatory. May be repeated for up to 10 credits. Requirement: Sophomore-level performance ability. Prerequisite: Pass: MUP-191J.

**MUS****Music****MUS-090 Preparation for Music Theory**

2 credits, Summer  
This course familiarizes students with terminology and building blocks used in Music Theory. Students who have played in ensembles or sung in choirs, but have not had a formal music theory program before, will find that this course prepares them to succeed in the Music Theory sequence (MUS-111-113).

**MUS-101 Music Fundamentals**

3 credits, Fall/Winter/Spring  
Introduction to fundamentals of reading and writing music. Designed for non-majors or majors needing substantial preparation for Music Theory I.

**MUS-102 Music Fundamentals**

3 credits, Winter/Spring  
Continues an introduction to fundamentals of reading and writing music. Designed for non-majors or majors needing substantial preparation for Music Theory I. Prerequisite: MUS-101

**MUS-103 Music Fundamentals**

3 credits, Spring  
Continuance of an introduction to fundamentals of reading and writing music. Designed for non-majors or majors needing substantial preparation for Music Theory I. Prerequisite: MUS-102

**MUS-105 Music Appreciation**

3 credits, Fall/Winter/Spring  
For non-majors and music majors. Emphasis on engaging in the study of instrumental and vocal musical genres from the ancient period through the contemporary music of our time. Includes critical analysis, study of elements, forms, styles, composers, performers, cultural, and historical issues and events. Recommended: WRD-098 or placement in WR-121

**MUS-106 Audio Recording At Home**

1 credit, Fall/Winter/Spring  
An overview of the basic tools and techniques used in audio recording at home. Depending on participant needs, topics may include signal path, microphone applications, software, hardware, outboard gear, soldering techniques, tracking, mixing, and editing.

**MUS-107 Introduction to Audio Recording I**

3 credits, Fall/Winter/Spring/Summer

Introduction to the basic techniques and tools used in audio recording. Areas of study include signal path, microphone applications, software, hardware, outboard gear, tracking, mixing, and editing.

**MUS-108 Introduction to Audio Recording II**

3 credits, Fall/Winter/Spring

Exploration of techniques and tools used in audio recording. Analog, digital, and hard drive recording will be explored. Areas of study include multi-tracking, signal path, microphone applications, software, hardware, outboard gear, soldering techniques, tracking, mixing, and editing. Software/hardware includes ProTools, ADAT, Mackie, etc. Prerequisite: MUS-107

**MUS-109 Introduction to Audio Recording III**

3 credits, Fall/Winter/Spring

Exploration of digital recording/editing software and production of CD project. Advanced exploration of techniques and tools used in audio recording. Areas of study include signal path, microphone applications, software, hardware, outboard gear, tracking, mixing, and editing. Analog, digital, and hard drive recording will be explored. Software/hardware includes ProTools, ADAT, Mackie, etc. Prerequisite: MUS-108

**MUS-111 Music Theory I**

3 credits, Fall

For non-majors and music majors. Presents the diatonic material and structure of tonal music in theory and practice through written exercises, compositions, listening, and analysis. This is the first term of a three-term sequence that includes concepts of pitch and rhythm, intervals, two voice composition, triads, notation, scoring, and Renaissance practices. Provides a thorough groundwork in the melodic, harmonic, and rhythmic elements of music. Includes study of the practices and styles of Bach, Haydn, Mozart, Beethoven, and other 17th and 18th century composers. Required: First year music majors must take MUS-111 concurrently with MUS-111L, MUS-114, and MUS-127. This requirement does not affect non-music majors. Recommended: MTH-095 or placement in MTH-111; WRD-098 or placement in WR-121

**MUS-111L Music Notation Software I**

1 credit, Fall

Introduces students to Finale (music notation software) on Macintosh computers. Corequisites: MUS-111

**MUS-112 Music Theory I**

3 credits, Winter

For non-majors and music majors. Presents the diatonic material and structure of tonal music in theory and practice through written exercises, compositions, listening, and analysis. This is the second term of a three-term sequence that includes tonic/dominant voice leading phrase models, embellishing tones, chorale harmonization, figured bass and Renaissance and Baroque Practices. Provides a thorough groundwork in the melodic, harmonic, and rhythmic elements of music. Includes study of the practices and styles of Bach, Haydn, Mozart, Beethoven, and other 17th and 18th century composers. Required: First year music majors must take MUS-112 concurrently with MUS-112L, MUS-115, and MUS-128. This requirement does not affect non-music majors

**MUS-112L Music Notation Software I**

1 credit, Winter

Continues an introduction to Finale (music notation software) on Macintosh computers. Corequisites: MUS-112

**MUS-113 Music Theory I**

3 credits, Spring

For non-majors and music majors. Presents the diatonic material and structure of tonal music in theory and practice through written exercises, compositions, listening, and analysis. This is the third term of a three-term sequence that includes leading tone and six-four chords, interaction of melody and harmony, diatonic sequences, secondary dominants and leading tone chords, phrase rhythm and motivic analysis, and Renaissance and Baroque Practices. Provides a thorough groundwork in the melodic, harmonic, and rhythmic elements of music. Includes study of the practices and styles of Bach, Haydn, Mozart, Beethoven, and other 17th and 18th century composers. Required: First year music majors must take MUS-113 concurrently with MUS-113L, MUS-116, and MUS-129. This requirement does not affect non-music majors. Prerequisites: MUS-112

**MUS-113L Music Notation Software I**

1 credit, Spring

Continues an introduction to Finale (music notation software) on Macintosh computers. Corequisites: MUS-113

**MUS-114 Aural Skills I**

2 credits, Fall

Diatonic sight singing in major keys using sol feg syllables and moveable 'do.' Melodic dictation and aural recognition of intervals and triads. Corequisite: MUS-111

**MUS-115 Aural Skills I**

2 credits, Winter

Second of three courses in a year-long sequence. Diatonic sight singing in major keys using sol feg syllables and moveable "do." Melodic dictation and aural recognition of intervals, triads, and 7th chords. Prerequisite: MUS-114. Corequisite: MUS-112

**MUS-116 Aural Skills I**

2 credits, Spring

Third of three courses in a year-long sequence. Diatonic sight singing in major keys using sol feg syllables and moveable "do." Melodic dictation and aural recognition of intervals, triads, and 7th chords. Prerequisite: MUS-115. Corequisite: MUS-113

**MUS-117 Sightreading**

1 credit, Fall/Winter/Spring

Learning to read and sing music by sight. Students will spend time practicing sightsinging, starting with easy exercises and moving to more difficult exercises as the term progresses.

**MUS-127 Keyboard Skills I**

2 credits, Fall

Develops basic keyboard skills. Studies keyboard applications of the materials of tonal music. Corequisite: MUS-111

**MUS-128 Keyboard Skills I**

2 credits, Winter

Develops basic keyboard skills. Studies keyboard applications of the materials of tonal music. Prerequisite: MUS-127. Corequisite: MUS-112

**MUS-129 Keyboard Skills I**

2 credits, Spring

Develops basic keyboard skills. Studies keyboard applications of the materials of tonal music. Prerequisite: MUS-128. Corequisite: MUS-113

**MUS-130 Music and Media: Sex, Drugs, Rock & Roll**

1 credit, Not Offered Every Term  
Explores the relationship of music to economic, political, cultural and artistic subjects. Examines how music serves and is served by pop culture and media, and how media impacts attitudes and behaviors.

**MUS-131 Group Piano: Piano for Pleasure**

1 credit, Fall  
Beginning classroom piano instruction for non-music majors. Includes reading, theory, technique, exercises, and the opportunity to share your music with others. All levels welcome, beginners through advanced.

**MUS-132 Group Piano: Piano for Pleasure**

1 credit, Winter  
Second of three courses in a year-long sequence. Beginning classroom piano instruction for non-music majors. Includes reading, theory, technique, exercises, and the opportunity to share your music with others. All levels welcome, beginners through advanced.

**MUS-133 Group Piano: Piano for Pleasure**

1 credit, Spring  
Beginning classroom piano instruction for non-music majors. Includes reading, theory, technique, exercises, and the opportunity to share your music with others. All levels welcome, beginners through advanced.

**MUS-134 Group Voice: Anyone Can Sing**

1 credit, Fall  
Basic vocal techniques for the solo and ensemble singer. For music and non-music majors, voice and music education majors, and/or students who received low rating on MUP-174 audition.

**MUS-135 Group Voice: Anyone Can Sing**

1 credit, Winter  
Vocal techniques for the solo and ensemble singer. For music and non-music majors, voice and music education majors, and/or students who received a low rating on MUP-174 audition.

**MUS-136 Group Voice: Anyone Can Sing**

1 credit, Spring  
Vocal techniques for the solo and ensemble singer. For music and non-music majors, voice and music education majors, and/or students who received a low rating on MUP-174 audition.

**MUS-137 Group Guitar I: Guitar for Dummies**

1 credit, Fall/Winter/Spring  
For beginning to intermediate players. Covers finger picking, lead guitar, rock and popular styles, music reading, and music theory. Students provide own instrument.

**MUS-138 Group Guitar II**

1 credit, Winter/Spring  
For intermediate to advanced players. Covers finger picking, lead guitar, rock and popular styles, music reading, and music theory. Students provide their own instrument. Prerequisite: MUS-137

**MUS-140 Careers in Music**

3 credits, Winter  
An overview of the music industry career opportunities. Studies include recording studio management/engineering, music merchandising, promotion, music contracting, agent/personal manager, live performing, teaching, technical support, record business, video and film production/editing, retailing, and instrument repair.

**MUS-141 Introduction to the Music Business**

3 credits, Fall  
Explores business basics, songwriting, demos, agents, managers, copyrights, gig and concert promotion, publishing, licensing, and music business structures.

**MUS-142 Introduction to Electronic Music I: MIDI**

3 credits, Fall/Winter/Spring  
Introduction to synthesis, MIDI sequencing, basic musical elements, and the basics of production. Learn how to make beats, songs, etc. Uses common production software/hardware.

**MUS-143 Introduction to Electronic Music II: Sequencing, Audio Looping, Sound EFX**

3 credits, Fall/Winter/Spring  
An introduction to digital audio in the MIDI environment. This course continues MIDI sequencing, and integrates audio into the MIDI environment with audio looping, and spotting sound effects. Uses common production software/hardware. Prerequisite: MUS-142

**MUS-144 Introduction to Electronic Music III: Digital Audio**

3 credits, Fall/Winter/Spring  
Exploration of digital music recording and editing, synthesis, sampling, and sequencing. Presents CD/audio file production techniques integrating digital audio with the MIDI sequence. Uses Pro Tools, and other common production software/hardware. Prerequisite: MUS-143

**MUS-145 Introduction to Digital Sound, Video & Animation**

1-3 credits, Winter/Spring  
An introduction to new media. Includes sound, video, animation, mp3, DVD, and compression technology.

**MUS-147 Music, Sound & Moviemaking**

1 credit, Fall/Winter/Spring  
Presents the basic components of designing, shooting, recording audio, and post production of movies as well as the history and theory that has led to contemporary film production.

**MUS-148 Live Sound Engineering**

3 credits, Fall/Spring  
Introduction to the basic techniques and tools used in live sound engineering and mixing. Areas of study include set up, signal path, microphone applications, hardware, and outboard gear.

**MUS-149 Advanced Pro Tools Editing Techniques**

1 credit, Not Offered Every Term  
Additional advanced training in Pro Tools audio software techniques. The student will learn techniques in audio editing using warp audio, Beat Detective, and other plug-ins not covered in the MUS-107 through MUS-109 series. Prerequisite: MUS-107 or MUS-143 or equivalent

**MUS-160 Songwriting I**

2 credits, Winter/Spring  
Studies the techniques of a working songwriter, including use of form, lyrics, harmonic progressions and symbolism in the creative aspect of songwriting. Solo writing as well as the concept of collaboration are introduced. Participants will work individually and in small groups.

**MUS-161 Songwriting II**

2 credits, Spring

Songwriting II is a continuation of MUS-160, Songwriting I. Further explores the elements of songwriting, focuses on creating a digital composition portfolio and public performance.

**MUS-170 Introduction to Scoring Music for Media**

2 credits, Spring

Introduction to the analysis and writing of basic film/video/game music score and spotting music cues. Prerequisites: MUS-102 or MUS-129. Recommended: Some music theory or keyboard background.

**MUS-171 Sound Design**

2 credits, Winter

This course introduces students to the fundamentals of sound design through a series of practical, hands-on activities. Students will gain an understanding of the skills, tools, and concepts used in the creation and synchronization of sound effects in modern visual media. Through a thorough introduction to sound recording, editing and mixing, audio manipulation, and electronic synthesis, this course will provide students with the knowledge and skills to create unique sound effects using industry standard software like Pro Tools, Propellerhead's Reason, Ableton Live, Native Instrument's Reaktor, and other sound design-specific software. Prerequisite: MUS-142

**MUS-189 Performance & Repertoire**

1 credit, Fall/Winter/Spring

A performance forum required for all students studying privately non-jazz sections at the MUP 171-191 and MUP 271-291 levels. Each student must perform as a soloist on his/her major instrument at least once a term and must be present for performances of classmates. Performers will be critiqued by the instructor. Students will be required to attend approved concerts. Can be repeated for up to 6 credits.

**MUS-201 Music Fundamentals II**

2 credits, Fall

The first in a three course sequence for students who wants to learn functional, contemporary theory from the keyboard. Course includes progression study, transcribing songs, writing charts and keyboard study. Prerequisites: MUS-103 and MUS-113L.

**MUS-202 Music Fundamentals II**

2 credits, Winter

The second in a three course sequence for students who wants to learn functional, contemporary theory from the keyboard. Course includes progression study, transcribing songs, writing charts and keyboard study. Prerequisites: MUS-201. Recommended: must be reasonably competent at the keyboard.

**MUS-203 Music Fundamentals II**

2 credits, Spring

The third course in a three course sequence for students who wants to learn functional, contemporary theory from the keyboard. Course includes progression study, transcribing songs, writing charts and keyboard study. Prerequisites: MUS-202. Recommended: must be reasonably competent at the keyboard.

**MUS-205 Music Literature: History of Jazz**

4 credits, Not Offered Every Term

For non-majors and music majors. Emphasis on engaging in the study of Jazz music and surrounding cultural/historical issues. Includes critical analysis, study of elements, forms, styles, composers, performers, cultural, and historical issues and events. Recommended: WRD-098 or placement in WR-121

**MUS-206 Music Literature: History of Rock**

4 credits, Fall/Winter/Spring

For non-majors and music majors. Emphasis on engaging in the study of Rock music and surrounding cultural/historical issues. Includes critical analysis, study of elements, forms, styles, composers, performers, cultural, and historical issues and events. An examination of Rock music as a contemporary social medium. Recommended: WRD-098 or placement in WR-121

**MUS-211 Music Theory II**

3 credits, Fall

For non-majors and music majors. Continuation of the study of harmony and of the material and structure of tonal music in theory and practice through written exercises, compositions, listening, and analysis. This is the first term of a three-term sequence that includes study of species counterpoint, melodic and rhythmic embellishment, notation and scoring, phrase model review, chord voicing in multiple parts, embellishing tones, and chorale harmonization. Also includes study of harmonic counterpoint and composition in small forms in various 18th, 19th, and 20th century idioms. This course is required for music majors. Prerequisites: MUS-113. Corequisites: MUS-211L, MUS-214, and MUS-224

**MUS-211L Music Notation Software II**

1 credit, Fall

Advanced use of Finale (music notation software). Prerequisite: MUS-113L. Corequisite: MUS-211

**MUS-212 Music Theory II**

3 credits, Winter

For non-majors and music majors. Continuation of the study of harmony and of the material and structure of tonal music in theory and practice through written exercises, compositions, listening, and analysis. This is the second term of a three-term sequence that includes the study of cadences, diatonic sequence, secondary dominants, tonicizing, modulation, and binary and ternary forms. Also includes study of harmonic counterpoint and composition in small forms in various 18th, 19th, and 20th century idioms. Prerequisites: MUS-211. Corequisites: MUS-212L, MUS-215, and MUS-225

**MUS-212L Music Notation Software II**

1 credit, Winter

Advanced use of Finale (music notation software). Prerequisite: MUS-211L. Corequisite: MUS-212

**MUS-213 Music Theory II**

3 credits, Spring

For non-majors and music majors. Continuation of the study of harmony and of the material and structure of tonal music in theory and practice through written exercises, compositions, listening, and analysis. This is the third term of a three-term sequence that includes study of modal mixture-color and drama in composition, neapolitan and augmented sixths, popular song and art song, rondo and variation, sonata form and chromaticism. Also includes study of harmonic counterpoint and composition in small forms in various 18th, 19th, and 20th century idioms. Prerequisites: MUS-212. Corequisites: MUS-213L, MUS-216, and MUS-226

**MUS-213L Music Notation Software II**

1 credit, Spring

Advanced use of Finale (music notation software) and basic use of InDesign (desktop publishing software) on Macintosh computers. Prerequisite: MUS-212L. Corequisite: MUS-213

**MUS-214 Keyboard Skills II**

2 credits, Fall

Advanced keyboard applications of the materials of diatonic and chromatic music. Prerequisite: MUS-129. Corequisite: MUS-211

**MUS-215 Keyboard Skills II**

2 credits, Winter

Second course in the sequential second year of advanced keyboard applications covering the materials of diatonic and chromatic music. Prerequisite: MUS-214. Corequisite: MUS-212

**MUS-216 Keyboard Skills II**

2 credits, Spring

Advanced keyboard applications of the materials of diatonic and chromatic music. Prerequisite: MUS-215. Corequisite: MUS-213

**MUS-224 Aural Skills II**

2 credits, Fall

Diatonic and chromatic sight singing with sol feg syllables and moveable 'do.' Four-part dictation including all chromatic devices studied in Theory II. Prerequisite: MUS-116. Corequisite: MUS-211

**MUS-225 Aural Skills II**

2 credits, Winter

Second of three courses in a year-long sequence. Diatonic and chromatic sight singing with sol feg syllables and moveable "do." Four-part dictation including all chromatic devices studied in Theory II. Prerequisite: MUS-224. Corequisite: MUS-212

**MUS-226 Aural Skills II**

2 credits, Spring

Third of three courses in a year-long sequence. Diatonic and chromatic sight singing with sol feg syllables and moveable "do." Four-part dictation including all chromatic devices studied in Theory II. Prerequisite: MUS-225. Corequisite: MUS-213

**MUS-230 Music and Media: Sex, Drugs, Rock & Roll**

4 credits, Not Offered Every Term

Explores history and development of the pop music, pop culture and media industries in America.

**MUS-247 Sound for Media**

3 credits, Fall

Introduction to sound as related to film making, animation, and video games. Students will have the opportunity to create and assemble sound for media into a finished product. Explores the basic components of commercial film/video production as they relate to sound.

**MUS-280 Music/CWE**

2-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with on-the-job work experience in the field of music. Prerequisites: MUS-107, MUS-140, and MUS-142. Corequisites: CWE-281

**NRS****Nursing****NRS-110 Foundations of Nursing-Health Promotion**

5 credits, Fall

This course introduces the learner to the framework of the Oregon Consortium of Nursing Education (OCNE) curriculum. The emphasis is on health promotion across the life span including learning about self-health and client health practices. To support self and client health practices, students learn to access research evidence about health lifestyle patterns and risk factors for disease/illness, apply growth and development theory, interview clients in a culturally sensitive manner, work as members of a multidisciplinary team giving and receiving feedback about performance, and use reflective thinking about their practice as nursing students. Populations studied in the course include children, adults, older adults and the family experiencing a normal pregnancy. Includes classroom and clinical learning experiences. Required: Admission into the CCC Nursing Program. Corequisite: NRS-110C

**NRS-110C Foundations of Nursing - Health Promotion Clinic**

4 credits, Fall

This course introduces the learner to the framework of the OCNE curriculum. The emphasis on health promotion across the life span includes learning about self-health as well as client health practices. To support self and client health practices, students learn to access research evidence about healthy lifestyle patterns and risk factors for disease/illness, apply growth and development theory, interview clients in a culturally sensitive manner, work as members of a multidisciplinary team giving and receiving feedback about performance, and use reflective thinking about their practice as nursing students. Populations studied in the course include children, adults, older adults and the family experiencing a normal pregnancy. Include classroom and clinical learning experiences. Corequisite: NRS-110

**NRS-111 Foundations of Nursing-Chronic Illness I**

3 credits, Winter

This course introduces assessment and common interventions (including technical procedures) for clients with chronic illnesses common across the life span in major ethnic groups within Oregon. The client's and family's "lived experience" of the condition is explored. Clinical practice guidelines and research evidence are used to guide clinical judgments in care of individuals with chronic conditions. Multidisciplinary team roles and responsibilities are considered in the context of delivering safe, high quality health care to individuals with chronic conditions (includes practical and legal aspects of delegation). Cultural, ethical, legal and health care delivery issues are explored through case scenarios and clinical practice. Case exemplars include children with asthma, adolescents with a mood disorder, adults with type 2 diabetes, and older adults with dementia. The course includes classroom and clinical learning experiences. Prerequisite: NRS-110. Corequisite: NRS-230, NRS-232, and NRS-111C

**NRS-111C Foundations of Nursing in Chronic Illness I Clinical**

3 credits, Winter

This course introduces assessment and common interventions (including technical procedures) for clients with chronic illnesses common across the life span in major ethnic groups within Oregon. The client's and family's "lived experience" of the condition is explored. Clinical practice guidelines and research evidence are used to guide clinical judgments in care of individuals with chronic conditions. Multidisciplinary team roles and responsibilities are considered in the context of delivering safe, high quality health care to individuals with chronic conditions (includes practical and legal aspects of delegation). Cultural, ethical, legal and health care delivery issues are explored through case scenarios and clinical practice. Case exemplars include children with asthma, adolescents with a mood disorder, adults with type 2 diabetes, and older adults with dementia. The course includes classroom and clinical learning experiences with simulation experience as part of total clinical hours. Prerequisite: NRS-110. Corequisite: NRS-230, NRS-232, and NRS-111

**NRS-112 Foundations of Nursing in Acute Care I**

2 credits, Spring

This course introduces the learner to assessment and common interventions (including relevant technical procedures) for care of patients across the lifespan that requires acute care, including natural childbirth. Disease/illness trajectories and their translation into clinical practice guidelines and/or standard procedures are considered in relation to their impact on providing culturally sensitive, client-centered care. Includes classroom and clinical learning experiences. Prerequisites: NRS-111 and NRS-111C. Corequisites: NRS-112C, NRS-231, and NRS-233

**NRS-112C Foundations of Nursing in Acute Care I Clinical**

4 credits, Spring

This course introduces the learner to assessment and common interventions (including relevant technical procedures) for care of patients across the lifespan who require acute care, including natural childbirth. Disease/illness trajectories and their translation into clinical practice guidelines and/or standard procedures are considered in relation to their impact on providing culturally sensitive, client-centered care. Includes classroom and clinical learning experiences. Required: Admitted CCC Nursing students only. Prerequisites: NRS-111 and NRS-111C. Corequisites: NRS-112, NRS-231, and NRS-233

**NRS-221 Chronic Illness II and End of Life**

3 credits, Winter

This course builds on NRS-111 and expands the student's knowledge related to family care giving, symptom management and end-of-life concepts. These concepts are a major focus and basis for nursing interventions with patients and families. Ethical issues related to advocacy, self-determination, and autonomy are explored. Complex skills associated with the assessment and management of concurrent illnesses and conditions are developed within the context of client and family preferences and needs. Skills related to enhancing communication and collaboration as a member of an interdisciplinary team are further explored. Exemplars include patients with chronic mental illness and addictions as well as other chronic conditions and disabilities affecting functional status and family relationships. The course includes classroom and clinical learning experiences. Prerequisites: NRS-222, NRS-222C, NRS-232, and NRS-233. Corequisites: NRS-221C

**NRS-221C Chronic Illness II and End of Life Clinical**

6 credits, Winter

This course builds on NRS-111 and expands the student's knowledge related to family care giving, symptom management and end of life concepts. These concepts are a major focus and basis for nursing interventions with patients and families. Ethical issues related to advocacy, self-determination, and autonomy are explored. Complex skills associated with the assessment and management of concurrent illnesses and conditions are developed within the context of patient and family preferences and needs. Skills related to enhancing communication and collaboration as a member of an interdisciplinary team are further explored. Exemplars include patients with chronic mental illness and addictions as well as other chronic conditions and disabilities affecting functional status and family relationships. The course includes classroom and clinical learning experiences. Prerequisites: NRS-222, NRS-231, NRS-233. Corequisite: NRS-221

**NRS-222 Nursing in Acute Care II & End of Life**

3 credits, Fall

This course builds on NRS-112 and focuses on more complex and /or unstable patient care conditions, some of which may result in death. These patient care conditions require strong noticing and rapid decision-making skills. Evidence-based practice is used to support appropriate focused assessments, and effective, efficient nursing interventions. Life span and developmental factors, cultural variables, and legal aspects of care frame the ethical decision-making employed in patient choices for treatment or palliative care within the acute care setting. Case scenarios incorporate prioritizing care needs, delegation and supervision, and family and patient teaching for either discharge planning or end-of-life care. Exemplars include acute conditions affecting multiple body systems. Includes classroom and clinical learning experiences. Prerequisites: NRS-112, NRS-231, and NRS-233. Corequisites: NRS-222C

**NRS-222C Nursing in Acute Care II and End of Life Clinical**

6 credits, Fall

This course builds on NRS-112, and focuses on more complex and/or unstable patient care conditions, some of which may result in death. These patient care conditions require strong noticing and rapid decision making skills. Evidence-based practice is used to support appropriate focused assessments, and effective, efficient nursing interventions. Life span and developmental factors, cultural variable, and legal aspects of care frame the ethical decision-making employed in patient choices for treatment or palliative care within the acute care setting. Case scenarios incorporate prioritizing care needs, delegation and supervision, and family and patient teaching for either discharge planning or end-of-life care. Exemplars include acute conditions affecting multiple body systems. Includes classroom and clinical learning experiences. Prerequisites: NRS-112, NRS-231, and NRS-233. Corequisites: NRS-222

**NRS-224 Integrative Practicum**

2 credits, Spring

This course is designed to formalize the clinical judgments, knowledge and skills necessary in safe, registered nurse practice. Faculty/Clinical Teaching Associate/Student Triad Model provides a context that allows the student to experience the nursing work world in a selected setting, balancing demands of the job and lifelong learner. Analysis and reflection throughout the clinical experience provide the student with evaluative criteria against which they can judge their own performance and develop a practice framework. Includes seminar, self-directed study and clinical experience. Prerequisite: NRS-221. Corequisite: NRS-224C

**NRS-224C Integrative Practicum Clinical**

7 credits, Spring

This course is designed to formalize the clinical judgments, knowledge and skills necessary in safe, registered nurse practice. Faculty/Clinical Teaching Associate/Student Triad Model provides a context that allows the student to experience the nursing work world in a selected setting, balancing demands of job and lifelong learner. Analysis and reflection throughout the clinical experience provide the student with evaluative criteria against which they can judge their own performance and develop a practice framework. Includes seminar, self-directed study and clinical experience. Prerequisite: NRS-221. Corequisite: NRS-224

**NRS-230 Clinical Pharmacology I**

3 credits, Winter

This course introduces the theoretical background that enables students to provide safe and effective care related to drugs and natural products to persons throughout the lifespan. It includes the foundational concepts of principles of pharmacology, nonopioid analgesics, and antibiotics, as well as additional classes of drugs. Students will learn to make selected clinical decisions in the context of nursing regarding using current, reliable sources of information, understanding of pharmacokinetics and pharmacodynamics, developmental physiologic considerations, monitoring and evaluating the effectiveness of drug therapy, teaching persons from diverse populations regarding safe and effective use of drugs and natural products, intervening to increase therapeutic benefits and reduce potential negative side effects, and communicating appropriately with other health professionals regarding drug therapy. Drugs are studied by therapeutic or pharmacological class using an organized framework. Prerequisites: BI-231, BI-232, BI-233, BI-234, NRS-110, and NRS-110C. Corequisites: NRS-111, NRS-111C, and NRS-232

**NRS-231 Clinical Pharmacology II**

3 credits, Spring

This sequel to NRS-230, Clinical Pharmacology I, continues to provide the theoretical background that enables students to provide safe and effective care related to drugs and natural products to persons throughout the lifespan. Students will learn to make selected clinical decisions in the context of nursing regarding using current, reliable sources of information, monitoring and evaluating the effectiveness of drug therapy, teaching persons from diverse populations regarding safe and effective use of drug and natural products, intervening to increase therapeutic benefits and reduce potential negative effects, and communicating appropriately with other health professionals regarding drug therapy. The course addresses additional classes of drugs and related natural products not contained NRS-230, Clinical Pharmacology I. Prerequisites: NRS-111, NRS-111C, NRS-230, BI-231, BI-232, BI-233, and BI-234. Corequisites: NRS-112, NRS-112C, and NRS-232

**NRS-232 Pathophysiological Processes I**

3 credits, Winter

This course introduces pathophysiological processes that contribute to many different disease states across the lifespan and human responses to those processes. It includes the foundational concepts of cellular adaptation, injury, and death; inflammation and tissue healing; fluid and electrolyte imbalances; and physiologic response to stressors, as well as additional pathophysiological processes. Students will learn to make selective clinical decisions in the context of nursing regarding using current, reliable sources of pathophysiology information, selecting and interpreting focused nursing assessments based on knowledge of pathophysiological processes, teaching persons from diverse populations regarding pathophysiological processes, and communicating with other health professionals regarding pathophysiological processes. Prerequisites: NRS-110, NRS-110C, BI-231, BI-232, BI-233, and BI-234. Corequisites: NRS-111 and NRS-111C

**NRS-233 Pathophysiological Processes II**

3 credits, Spring

This sequel to NRS-232, Pathophysiological Processes I, continues to explore additional pathophysiological processes that contribute to disease states across the lifespan and human responses to those processes. Students will learn to make selected clinical decisions in the context of nursing regarding using current, reliable sources of pathophysiological information, selecting and interpreting focused nursing assessments based on knowledge of pathophysiological processes, teaching persons from diverse populations regarding pathophysiological processes, and communicating with other health professionals regarding pathophysiological processes. This course addresses additional pathophysiological processes not contained in NRS-232, Pathophysiological Processes I. Prerequisite: NRS-232. Corequisite: NRS-112, NRS-112C, and NRS-231

**NUR**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Nursing****NUR-100 Nursing Assistant I**

7 credits, Fall/Winter/Spring/Summer

Prepares the student to perform routine nursing assistant tasks to clients in sub-acute care settings as well as in the community. Includes 80 hours of didactic and skills lab instruction. May not be challenged. Corequisite: NUR-100C

**NUR-100C Nursing Assistant I Clinical**

0 credits, Fall/Winter/Spring/Summer Prepares the student to perform routine nursing assistant tasks to clients in hospitals, long-term and skilled care facilities, as well as the community. Includes 75 hours of clinical practicum. May not be challenged. Corequisite: NUR-100

**NUR-101 Certified Nursing Assistant 2****Acute Care**

3 credits, Not Offered Every Year

This course prepares the student to perform routine nursing assistant tasks that are needed in acute care setting. The Oregon State Board of Nursing requires a minimum of 42 hours of classroom and lab. This course will consist of 21 hours of lecture and 21 hours of lab. May not be challenged. Co-requisite: NUR-101C. Corequisite: NUR-101C

**NUR-101C Certified Nursing Assistant 2****Acute Care Clinical**

0 credits, Fall/Winter/Spring/Summer

This course prepares the student to perform routine nursing assistant tasks to clients in the acute care setting. Includes 30 hours of clinical practicum. May not be challenged. Corequisite: NUR-101

**NUR-160 Fluid and Electrolytes**

2 credits, Winter

Focus of this course is to assist students in the understanding of fluid, electrolytes, acid-base balances and the interpretation of various diagnostic tests related to the client's clinical condition. Limited to healthcare professionals/healthcare students. Prerequisites: BI-233

**NUR-217 Basic EKG Interpretation I**

1 credit, Spring

Presents the student with an introductory overview related to the anatomy and physiology of the heart. It also explores normal electrical conduction as well as common variations as evidenced by changes in the waveform on the cardiac monitoring device. The course will also focus on the student's ability to perform cardiac monitoring via 3, 5 and 12 lead monitoring devices.

**NUR-218 Basic EKG Interpretation II**

1 credit, Spring

This course builds upon the knowledge gained in NUR-217. The course will focus on the student's ability to understand and recognize variations in the electrical conduction of the heart as evidenced by changes on the 12-lead EKG. The course will encompass the recognition and treatment modalities of sinus, atrial, junctional and ventricular rhythms as well as heart block. Recognition and treatment of electrical conduction problems related to ischemia, injury and drug/electrolyte imbalances will also be discussed.

**OST**

Courses with this prefix may not transfer to a four-year institution.

**Occupational Skills Training****OST-180 Occupational Skills Training/CWE**

1-12 credits, Fall/Winter/Spring/Summer

Provides students hands-on training in a specific occupational area. The class and program are designed for students who need work-based training and classroom instruction to be competitively employable.



**PE****Physical Education****PE-185 Physical Education**

1 credit, Fall/Winter/Spring/Summer

Various activity classes which may include aikido, aerobic dance, ballet, basketball, conditioning, cross training, golf, karate, racquetball, rock climbing, self-defense, soccer, softball, swimming, swing dance, tai chi, tennis, volleyball, weight training, yoga, and Zumba. Current physical examination before enrolling in a physical education course is recommended

**PE-240 Strength & Conditioning Theory & Techniques**

3 credits, Spring

Designed to provide students the knowledge to design and implement physical training programs and exercises for participants. The curriculum will also help students pass various personal training certification tests. Introductory exercise physiology, biomechanics, program design, and exercise techniques are covered.

**PE-260 Care and Prevention of Athletic Injuries**

2 credits, Winter/Spring

This course introduces the concepts of sports medicine. The course will benefit those students interested in improving their own knowledge as a recreational athlete, or in career areas such as physical and health education, coaching, sports medicine, nursing, physical and occupational therapy. Taping techniques and rehabilitation methods of injury will be discussed and practiced.

**PE-270 Sport and Exercise Psychology**

3 credits, Not Offered Every Term

The course is designed to provide students the basic understanding and knowledge of psychological skills used to improve physical performance in themselves and/or their peers/teammates. The course would be well suited for athletes, coaches or exercise leaders.

**PE-280 Physical Education/CWE**

2-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with on-the-job experience and training related to the Physical Education field. Covers job problems and procedures, evaluation of students' job performance by qualified college staff and site supervision. Corequisite: CWE-281

**PE-294A Philosophy of Coaching**

2 credits, Fall/Winter/Spring

This course is designed to enhance the leadership, teaching and management skills of coaches as they relate to interacting with athletes at all levels. Group discussions and seminar sessions relating to coaching philosophies, ethics, practice planning, motivation, and dealing with parents, peers and assistants.

**PH****Physics****PH-121 General Astronomy**

4 credits, Fall/Winter/Spring

A lab course including the history of astronomy, the Earth and moon, all planets in our solar system, along with asteroids, meteors and comets. Recommended: WRD-090 or placement in RD-115 or WR-121; MTH-095 with a C or better or placement in MTH-105 or MTH-111

**PH-122 General Astronomy**

4 credits, Winter/Spring

A lab course including the properties of our sun, other stars and stellar evolution. Prerequisites: PH-121 or GS-107

**PH-123 General Astronomy**

4 credits, Spring

A lab course including star clusters, the properties of our own galaxy, the other galaxies and cosmology. Prerequisites: PH-122

**PH-201 General Physics**

5 credits, Fall

A lab course covering vectors, motion, kinematics, forces and Newton's laws, gravity, the conservation laws for momentum and energy, rotational motion, and oscillations. Prerequisites: MTH-112 with a C or better or placement in MTH-251; WRD-090 with a C or better or placement in RD-115 or WR-121

**PH-202 General Physics**

5 credits, Winter

A lab course covering electricity, magnetism, DC and AC circuits, and electromagnetic radiation. Prerequisites: PH-201

**PH-203 General Physics**

5 credits, Spring

A lab course covering thermodynamics, fluids, waves, geometrical optics, wave optics, and modern physics. Prerequisites: PH-202

**PH-211 General Physics With Calculus**

5 credits, Fall

A lab course covering vectors, motion, kinematics, forces and Newton's laws, gravity, the conservation laws for momentum and energy, rotational motion, and oscillations. Prerequisite: MTH-251 with a C or better or placement in MTH-252, and WRD-090 with a C or better or placement in WR-121. Recommended: MTH-254

**PH-212 General Physics With Calculus**

5 credits, Winter

A lab course covering electricity, magnetism, DC and AC circuits, and electromagnetic radiation. Prerequisites: PH-211 and MTH-252. Recommended: MTH-254

**PH-213 General Physics With Calculus**

5 credits, Spring

A lab course covering thermodynamics, fluids, waves, geometrical optics, wave optics, and modern physics. Prerequisites: PH-212

**PHL****Philosophy****PHL-101 Philosophical Problems**

4 credits, Fall/Winter/Spring/Summer

Presents a variety of topics that may include: the nature of reality, knowledge and doubt; the human condition; truth; and the search for meaning. Recommended: WRD-090 or placement in RD-115

**PHL-102 Ethics**

4 credits, Fall/Winter/Spring

Introduces the study of morality: e.g., right and wrong, free will and determinism, morals and society. Recommended: WRD-090 or placement in RD-115

**PHL-103 Critical Reasoning**

4 credits, Fall/Winter/Spring

Focuses on improving reasoning and critical assessment ability. Emphasizes practical methods, involves study of editorials, essays, propaganda and advertisements. Recommended: WRD-090 or placement in RD-115

**PHL-205 Moral Issues**

4 credits, Not Offered Every Term

Philosophical examination of selected moral issues such as the environment, biomedical ethics, human experimentation, professional ethics, privacy and war. Recommended: WRD-090 or placement in RD-115

**PHL-210 Philosophy of Religion**

4 credits, Not Offered Every Term

Introduces philosophic basis of religious thought in world culture. Explores different points of view. Recommended: WRD-090 or placement in RD-115

**PHL-215 History of Western Philosophy**

4 credits, Not Offered Every Term

Overview course examines the roots and development of Western thought including ancient, medieval, modern and contemporary philosophy. Covers concepts of existence, knowledge, truth and morality. Recommended: WRD-090 or placement in RD-115

**PIE**

Courses with this prefix will not transfer to a four-year institution. Courses are intended for PIE students.

**Program for Intensive English****PIE-010 Beginning Grammar**

0 credits, Fall/Winter/Spring/Summer English language learners study and practice the simple present tense of the verb "to be," nouns, descriptive and possessive adjectives, prepositions of place and time, and simple sentence structures in written and spoken English.

**PIE-012 Beginning ESL**

0 credits, Not Offered Every Term

English language learners speak and listen to simple words, phrases, questions, statements and commands using common English vocabulary in simple, highly-structured tasks.

**PIE-014 Beginning Reading & Writing**

0 credits, Not Offered Every Term

English language learners read and write the alphabet, sight words, and simple sentences.

**PIE-016 Integrated Beginning ESL**

0 credits, Fall/Winter/Spring/Summer

English language learners are introduced to the basic language necessary to function in day-to-day American society; language functions are taught in the contexts of work, family and community.

**PIE-020 Upper Beginning Grammar**

0 credits, Fall/Winter/Spring/Summer

English language learners study and practice basic verb forms (simple present, and present progressive) and adverbs of frequency in written and spoken English.

**PIE-024 Upper Beginning Reading & Writing**

0 credits, Fall/Winter/Spring/Summer

English language learners read short texts to improve reading skills, write simple, compound, and complex sentences, and write related sentences in paragraph form for the contexts of school, work, family and community.

**PIE-030 Intermediate Grammar A**

0 credits, Fall/Spring

One of a two-part series. English language learners extend their understanding of basic verb forms (simple present, simple past, and present progressive), study and practice past progressive, used to, future time formations, and wh-questions in written and spoken English.

**PIE-031 Intermediate Grammar B**

0 credits, Summer/Winter

One of a two-part series. English language learners study and practice present perfect verb forms with time expressions and adverbs of frequency, modals of ability, permission, and advice, and comparative and superlative adjectives in written and spoken English.

**PIE-032 Intermediate Conversation**

0 credits, Fall/Winter/Spring/Summer

English language learners study and practice speaking and listening skills and strategies in structured tasks to improve fluency in the contexts of school, work, family and community.

**PIE-034 Intermediate Reading & Writing**

0 credits, Fall/Winter/Spring/Summer

English language learners read a variety of texts to improve reading skills, and write paragraphs focused on a single topic developed with logically organized facts and details for the contexts of school, work, family and community.

**PIE-042 Upper Intermediate Conversation**

0 credits, Fall/Winter/Spring/Summer

English language learners study and practice speaking and listening skills and strategies for independent communication to improve fluency in the contexts of school, work, family and community.

**PIE-044 Upper Intermediate Reading & Writing**

0 credits, Fall/Winter/Spring/Summer

English language learners read a variety of texts to improve reading skills, and produce basic multi-paragraph texts for the contexts of school, work, family and community.

**PIE-046 Editing for Better Writing**

0 credits, Fall/Winter/Spring/Summer

English language learners improve their writing through editing. They will also engage in extended reading to provide a context for writing.

**PIE-050 Advanced Grammar A**

0 credits, Not Offered Every Term

One of a three-part series. English language learners study and practice modals, adverb clauses, and discourse connectors in written and spoken English.

**PIE-051 Advanced Grammar B**

0 credits, Not Offered Every Term

One of a three-part series. English language learners study and practice count/non-count nouns, definite/indefinite articles, and noun clauses in written and spoken English.

**PIE-052 Advanced Communication Skills 1**

0 credits, Fall/Spring

English language learners practice speaking and listening strategies for effective communication in discussions, presentations, lectures, note-taking, and group projects. The course builds vocabulary, critical thinking skills, and an awareness of non-verbal communication. The focus of this course is to prepare students for college success.

**PIE-053 Advanced Communication Skills 2**

0 credits, Summer/Winter

English language learners practice speaking and listening strategies for effective communication for discussions, interviews, presentations, and note-taking to improve fluency in speaking and listening. Students will study the important effect intonation and body language have on meaning, build vocabulary and critical thinking skills, and develop confidence in speaking with purpose. The focus of this course is to prepare students for success in the workplace and community.

**PIE-054 Advanced Reading & Writing**

0 credits, Fall/Winter/Spring/Summer

English language learners develop writing skills including summarizing, response writing, and paraphrasing, and improve writing fluency. Develop reading skills and fluency through reading a range of texts on a variety of topics.

**PIE-055 Advanced Grammar C**

0 credits, Not Offered Every Term

One of a three-part series. English language learners study and practice gerunds, infinitives, passive voice, and adjective clauses in written and spoken English.

**PIE-060 Vocabulary Building 1**

0 credits, Not Offered Every Term

One of a two-part series. English language learners develop their passive and active vocabularies through numerous exposures to selected words from the General Service List and the Academic Word List, and develop their vocabulary acquisition skills.

**PIE-061 Vocabulary Building 2**

0 credits, Not Offered Every Term

One of a two-part series. English language learners develop their passive and active vocabularies through numerous exposures to selected words from the General Service List and the Academic Word List, and develop their vocabulary acquisition skills.

**PIE-062 ESL Reading 1**

0 credits, Not Offered Every Term

English language learners at all levels improve their reading fluency and expand and solidify their English vocabulary as needed for more advanced ESL and everyday life.

**PIE-063 ESL Reading 2**

0 credits, Not Offered Every Term

English language learners at all levels improve their reading fluency and expand and solidify their English vocabulary as needed for more advanced ESL and everyday life. The course can be repeated, as learners read texts of progressively greater challenge, up to the college reading level. Students who have completed ESL Reading 1 develop their reading skills at a higher level in ESL Reading 2.

**PIE-065 Film, Internet, and Culture**

0 credits, Not Offered Every Term

English language learners develop their English speaking and listening skills in the context of contemporary media and U.S. culture. Students use speaking and listening skills to recognize and explain different cultural situations.

**PIE-066 Bridge to College and Career**

0 credits, Fall/Winter/Spring/Summer

English Language Learners apply their developing English language skills to read, write, speak and listen in real world contexts provided by college and career-related materials, intensifying their language acquisition process while preparing to move beyond the ESL program.

**PIE-067 Spelling**

0 credits, Not Offered Every Term

English language learners learn about and practice English spelling patterns and rules and will individualize instruction to address spelling challenges.

**PIE-068 Bridge to Computers**

0 credits, Not Offered Every Term

English language learners beyond the beginning level are introduced to computer technology. The course includes an overview of computer components and terminology and an introduction to applications such as word processing, internet, e-mail, presentation, and other software. English reading, writing, speaking, and listening skills are developed through a variety of computer projects and interactive classroom work.

**PIE-069 Pronunciation**

0 credits, Not Offered Every Term

English language learners develop pronunciation skills and knowledge to improve speech clarity, listening effectiveness, and pronunciation of written words.

**PIE-088 Beginning ESL Computer Skills Lab**

0 credits, Fall/Winter/Spring/Summer

English language learners acquire basic computer skills.

**PIE-090 International Student Success**

0 credits, Fall/Winter/Spring/Summer

International students entering Clackamas Community College for the first time learn about college policies and procedures, students' rights and responsibilities, matriculation procedures, linguistic and cultural adjustment, and laws affecting students.

**PIE-091A Program for Intensive English (PIE) Study Skills First-Year Fall**

0 credits, Fall

This first year course is designed to intensify Program for Intensive English students' learning at each level of their program. Fall term, students build on the reading, writing, listening and speaking skills acquired during the previous and current terms.

**PIE-091B Program for Intensive English (PIE) Study Skills First-Year Winter**

0 credits, Winter

This first year is intended to intensify Program for Intensive English students' learning at each level of their program. Winter term, students build on the reading, writing, listening and speaking skills acquired during the previous and current terms. Required: Instructor consent.

**PIE-091C Program for Intensive English (PIE) Study Skills First-Year Spring**

0 credits, Spring

This first year course is intended to intensify Program for Intensive English students' learning at each level of their program. Spring term, students build on the reading, writing, listening and speaking skills acquired during the previous and current terms.

**PIE-091D Program for Intensive English (PIE) Study Skills First-Year Summer**

0 credits, Summer

This first year course is intended to intensify Program for Intensive English students' learning at each level of their program. Summer term, students build on the reading, writing, listening and speaking skills acquired during the previous and current terms.

**PIE-091E Program for Intensive English (PIE) Study Skills Second-Year Fall**

0 credits, Fall

This second year course is intended to intensify Program for Intensive English students' learning at each level of their program. Fall term, students build on the reading, writing, listening and speaking skills acquired during the previous and current term.

**PIE-091F Program for Intensive English (PIE) Study Skills Second-Year Winter**

0 credits, Winter

This second year course is intended to intensify Program for Intensive English students' learning at each level of their program. Winter term, students build on the reading, writing, listening and speaking skills acquired during the previous and current term.

**PIE-091G Program for Intensive English (PIE) Study Skills Second-Year Spring**

0 credits, Spring

This second year course is intended to intensify Program for Intensive English students' learning at each level of their program. Spring term, students build on the reading, writing, listening and speaking skills acquired during the previous and current term.

**PIE-091H Program for Intensive (PIE) Study Skills Second-Year Summer**

0 credits, Summer

This second year course is intended to intensify Program for Intensive English students' learning at each level of their program. During the intense summer term, students build on the reading, writing, listening and speaking skills acquired during the previous and current term.

**PIE-092 International English Language Testing System (ielts) Preparation Reading & Speaking**

0 credits, Not Offered Every Year

This course prepares students for the International English Language Testing System (IELTS) by improving reading and speaking skills. It includes familiarization with the test components, test-taking techniques, and strategies.

**PIE-093 International English Language Testing System (IELTS) Preparation Listening & Writing**

0 credit, not offered every year

International students prepare for the International English Language Testing System (IELTS) by improving listening and writing skills. It includes familiarization with the test components, test-taking techniques, and strategies. Required: Instructor consent

**PIE-094 TOEFL/TOEIC Preparation**

0 credits, Fall/Winter/Spring/Summer

Prepares students for the Test of English as a Foreign Language (TOEFL) and the Test of English for International Communication (TOEIC) by improving listening, grammar, reading and writing skills. It includes familiarization with the test components, test-taking techniques, strategies and computer skills.

**PIE-095 PIE Tutoring**

0 credits, Fall/Winter/Spring/Summer

English language learners in the Program for Intensive English receive one-on-one instruction in conversation, pronunciation, reading, grammar, writing, or GED preparation. The student meets with a tutor or instructor and work on the above skill areas.

**PS****Political Science****PS-200 Introduction to Political Science**

4 credits, Fall/Winter/Spring

A general introduction to the field of political science. Introduces and expands on basic political concepts and themes, explores political theory and ideology, and considers the dynamics of political institutions and government and how both are integrated into political life. Recommended: WRD-098 or placement in WR-121

**PS-201 American Government and Politics**

4 credits, Not Offered Every Term

Examines the founding principles of the American government: the Constitution, the separation of powers, and the three branches of government. Explores political parties and elections, the growing power of the executive branch, the expansion and reach of the federal bureaucracy, governmental policies, the civil liberties and civil rights of American citizens, and the role of the media in American politics. Recommended: WRD-090 or placement in RD-115

**PS-203 US Government: State & Local Institutions**

4 credits, Not Offered Every Term

Introduces students to American state and local government, with an emphasis on Oregon politics at the state and local level. Recommended: WRD-090 or placement in RD-115

**PS-204 Introduction to Comparative Politics**

4 credits, Not Offered Every Term

Explores the various ideologies, institutions, and processes that constitute the nation-states that make up the world political system. Introduces students to the comparative method of political science. Introduces a wide-ranging assessment of the fundamental differences between presidential and parliamentary systems, and an exploration of various political systems and governments around the world within the context of current world politics. Recommended: WRD-090 or placement in RD-115

**PS-205 International Relations**

4 credits, Not Offered Every Term

Introduces the study of international relations by examining the institutions that constitute the international system. Special attention will be paid to the conflicts in the Iraq, Afghanistan, and other theatres of combat, as well as diplomacy and terrorism as instruments of foreign policy. Recommended: WRD-090 or placement in RD-115

**PS-206 Introduction to Political Theory**

4 credits, Not Offered Every Term

Introduces the fundamental political question: What is justice? Examines the writings of political philosophers such as Plato, Aristotle, Rousseau and Locke.

**PS-225 Introduction to Political Ideologies**

4 credits, Not Offered Every Term

Focuses primarily on the various political ideologies that make up the ideological universe and critically examines such distinct ideologies as liberalism, conservatism, socialism, libertarianism and fascism. Recommended: WRD-090 or placement in RD-115

**PS-280 Political Science/CWE**

2-6 credits, Not Offered Every Term

Cooperative work experience. Provides students with on-the-job work experience in the field of political science. Corequisite: CWE-281

**PS-297 Introduction to Environmental Politics**

4 credits, Not Offered Every Term

Explores the politics informing environmental policy; the tension between politics and scientific expertise; the role of the legislative, executive, and judicial branches of government in crafting and implementing environmental policy; and the critical impact non-governmental institutions and pressure groups have on environmental policy development and outcomes. Recommended: WRD-098 or placement in WR-121

**PSY****Psychology****PSY-101 Human Relations**

3 credits, Fall/Winter/Spring/Summer

Introduction to interpersonal relationships and human relations in a social context. Includes lecture and discussions/activities with an emphasis on student participation. Recommended: WRD-090 or placement in RD-115

**PSY-110 Psychology: An Overview**

4 credits, Fall/Winter/Spring

A general introduction to the field of psychology. Explores a wide variety of topics. Recommended: WRD-090 or placement in RD-115

**PSY-200 Psychology As A Natural Science**

4 credits, Fall/Winter/Spring/Summer

Introduction to physiological psychology, the study of how the nervous system produces behavior and cognition. Further topics will include consciousness, sleep, memory, and language. Prerequisite or Corequisite: WRD-098 or placement in RD-115. Recommended: WRD-090 or placement in RD-115

**PSY-205 Psychology As a Social Science**

4 credits, Fall/Winter/Spring/Summer

Principles of learning and social psychology, the study of how groups affect the individual. Further topics may include motivation, personality, human development, and stress. Prerequisite or Corequisite: WRD-098 or placement in RD-115. Recommended: WRD-090 or placement in RD-115

**PSY-214 Introduction to Personality**

4 credits, Not Offered Every Year

Explores the major theoretical approaches toward personality as conceptualized throughout time, from ancient Greece to contemporary research, with the greatest emphasis on theories originating in the 20th century. Prerequisite or Corequisite: WRD-098 or placement in RD-115. Recommended: WRD-090 or placement in RD-115

**PSY-215 Introduction to Developmental Psychology**

4 credits, Fall/Winter/Spring/Summer

Research and theories regarding the development of the individual from conception to death, including physical, social and cognitive changes. Prerequisite Or Corequisite: WRD-098 or placement into RD-115. Recommended: WRD-090 or placement in RD-115

**PSY-219 Introduction to Abnormal Psychology**

4 credits, Fall/Winter/Spring

Introduction to abnormal psychology including disorders and approaches to treatment. Prerequisite or Corequisite: WRD-098 or placement in RD-115. Recommended: WRD-090 or placement in RD-115

**PSY-221 Introduction to Counseling**

4 credits, Not Offered Every Term

Provides an overview of the theoretical background for different approaches to counseling. Practical skills development emphasized. Role playing, instructor demonstrations, and experiential exercises will be explored. Recommended: WRD-090 or placement in RD-115

**PSY-231 Introduction to Human Sexuality**

4 credits, Fall/Winter/Spring

Introduction to research and theories of human sexual behavior, including: sexual relationships, communication and intimacy, sex roles, the development of gender, social trends regarding sexuality, human sexual response, biology of sexuality, and conception. Prerequisite or Corequisite: WRD-098 or placement in RD-115

**PSY-240 Interpersonal Awareness & Growth**

4 credits, Fall/Winter/Spring

Examines the dynamics of personality and explores techniques for overcoming self-defeating behaviors. Develops methods for making personal changes. Recommended: WRD-090 or placement in RD-115

**PSY-280 Psychology/CWE**

2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of psychology. Corequisite: CWE-281

**QS****Quality Science****QS-122 LEAN Concepts and Tools**

3 credits, Not Offered Every Term

Provides an introduction to LEAN manufacturing and an overview of the LEAN manufacturing journey in the cultural transformation of an organization. It gives participants an overview of the Toyota Production System and the manufacturing conditions responsible for transferring the system worldwide. The course discusses the fundamental tools and methods of LEAN manufacturing, including Kaizen (continuous improvement culture), 5S System, Visual Management, Flow (Pull System versus Push), Standardized Work, Value Stream Mapping and Performance Measurements. Case examples and LEAN manufacturing simulations, as well as people issues are an intricate component of the course.

**QS-123 Six Sigma Concepts & Tools (yellow Belt)**

4 credits, Not Offered Every Term

Provides an introduction an overview of the Six-Sigma manufacturing journey in the cultural transformation of an organization. It provides participants an overview of the Six-Sigma process as used by Industry. The course discusses the fundamentals, concepts, and tools of Six-Sigma including: Process mapping, Pareto and scatter diagrams, root cause analysis, 5S, PDCA, COPQ, DPMO and SIPOC. Recommended: Take MTH-50 or higher

**R****Religion****R-101 Comparative Religions**

4 credits, Not Offered Every Term

The nature of myth and story, ancient religions, ideas of God, Judaism and introduction to religious topics. Recommended: WRD-090 or placement in RD-115

**R-102 Comparative Religions**

4 credits, Not Offered Every Term

Covers written and oral sources, Christianity, Islam, and includes the history and philosophy of other Western religious developments. Recommended: WRD-090 or placement in RD-115

**R-103 Comparative Religions**

4 credits, Not Offered Every Term

The history, ideas, and philosophy of the Eastern religions including Buddhism, Hinduism and Taoism. Recommended: WRD-090 or placement in RD-115

**R-204 History of Christianity**

4 credits, Not Offered Every Term

Covers early Christianity, the Apostles, and the development of the New Testament. Examines post-apostolic Christianity, developments through the Middle Ages, Renaissance, Reformation and the Modern Age. Contemporary topics include Christianity in conflict, ethical and social religious issues and the face of contemporary Christianity. Recommended: WRD-090 or placement in RD-115

**R-210 World Religions**

4 credits, Not Offered Every Term

An overview course that examines Eastern/Western religions and philosophies through film, text, and/or online presentations. Introduces Hinduism, Buddhism, Chinese religions, Christianity, Judaism and Islam. Recommended: WRD-090 or placement in RD-115

**R-211 History of the Old Testament**

4 credits, Not Offered Every Term

Covers early influences on the Hebrew community, Patriarchs, Abraham, Moses and Sinai. Examines monarchy, prophets, and wisdom literature. Examines modern theories of biblical exegesis. Recommended: WRD-090 or placement in RD-115

**R-212 History of the New Testament**

4 credits, Not Offered Every Term

Covers the first century influences on the New Testament texts, the life of Jesus, and the Pauline letters. Other early writings will be discussed. Recommended: WRD-090 or placement in RD-115

**R-214 The Historical Jesus**

4 credits, Spring

An examination of the "Quest for the Historical Jesus" beginning with Albert Schweitzer through contemporary scholarship.

**R-280 Religion/CWE**

2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of religion. Corequisite: CWE-281

**RD****Reading**

See also Study Skills (EL).

**RD-080 Fundamentals of College Reading**

3 credits, Fall/Winter/Spring

Focuses on fundamental reading skills with an emphasis on non-fiction passages, including identifying main ideas, supporting details and following the development of ideas. Vocabulary improvement emphasizes dictionary skills. Core reading comprehension strategies and inferences are introduced. Prerequisite: Prerequisite: Placement in RD-080.

**RD-090 Intermediate Reading Skills**

3 credits, Fall/Winter/Spring

Introduces and reinforces skills for success in entry-level college classes. Emphasizes vocabulary building, comprehension, reading strategies, critical thinking. Prerequisite: Prerequisite: Pass RD-080 or placement in RD-090.

**RD-115 College Reading**

3 credits, Fall/Winter/Spring

This transfer elective course presents reading strategies for success in college-level classes. It emphasizes comprehension, critical reading and thinking, and application of reading strategies appropriate to a variety of materials. Vocabulary development is also addressed. Prerequisite: WRD-090 or placement in RD-115

**RET**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Renewable Energy Technology**

For additional information contact the Manufacturing Department at 503-594-3318.

**RET-150 Home-Built Wind Turbine**

2 credits, Not Offered Every Term

This course covers construction of home-built wind power generators using welding and cutting processes, drill press, and wood cutting tools. Students will participate in the construction of windmill power generators. Instruction will include discussions of windmill types, efficiencies, adequate versus sophisticated designs, and directions for the lab projects. The course will use a process published in 'Homebrew Wind Power' by Dan Bartmann & Dan Fink (recommended reading.)

**RET-200 Renewable Energy Systems**

4 credits, Fall

This course provides a survey of various renewable energy systems. Participants will learn about the benefits and limitations of each type of energy source as well as their functional principles. Students will participate in several field learning exercises related to energy systems. The intended audiences are technical students wishing to explore the Renewable Energy field and students from the humanities and social sciences wanting a better understanding of this socially important technology.

**RET-209 Renewable Energy I: Energy Efficiency**

3 credits, Winter

This course concentrates on the conservation of scarce energy resources in residential, commercial and industrial applications. The course will examine the common sources of energy loss in building systems and homes, industrial processes and transportation. Students will be introduced to residential energy audits and mitigation. Topics will also include regenerative transportation systems, LEED certification, test instruments, insulation values, heat exchangers and financial payback period. Includes hands-on lab exercises. Recommended: RET-200

**RET-211 Renewable Energy II: System Fundamentals**

3 credits, Spring

This course in renewable systems will provide in-depth understanding of the technology, economics and policies relevant to each type of energy source. Analysis techniques to evaluate renewable energy applications from a systems design and selection perspective will be presented. Topics include physical operating principles, theoretical vs. actual system output, energy storage, efficiency and cost analysis. Includes hands-on lab exercises. Recommended: RET-209

**RET-213 Renewable Energy III: Installation and Maintenance**

3 credits, Fall

Third in a series of technical courses, Renewable Energy III: Installation and Maintenance will provide an introduction to installation and maintenance of renewable energy systems for commercial and residential installations. Students will apply their knowledge of electro-mechanical systems to the application of these systems. Topics will include site survey, site preparation, building codes, measurement tools, preventative maintenance and worksite safety. Includes hands-on lab exercises. Recommended: RET-211

**RET-215 Renewable Energy IV: Systems Design**

3 credits, Winter

This fourth course in the series will concentrate on systems design for renewable energy applications. Students will work together and apply concepts to evaluate, design and select one or more renewable energy systems for solar, wind or micro-hydro installations. Topics will include site surveys, structural elements, electrical generators, energy storage and electrical inversion. Recommended: RET-213

**RET-217 Renewable Energy Capstone Project**

3 credits, Spring

This final class in the Renewable Energy series will concentrate on a capstone project. Students will evaluate a proposal for an alternative energy solution and then design an installation to meet the needs of the proposal. Students will be expected to perform a site survey, quantify energy requirements, select appropriate technologies, calculate the payback period and finally fabricate an actual or conceptual energy solution where appropriate. Recommended: RET-215

**RET-240 Alternative Fuels**

4 credits, Fall

Offers students familiarity and entry levels to work with alternative fuel systems. Explores (technically, economically and ecologically) the following alternative fuels: bio-diesel, vegetable oils, electricity, ethanol, hydrogen, propane, methanol, natural gas, heat engines, fuel cell and hybrid vehicles.

**RET-280 Renewable Energy/CWE**

1-12 credits, Fall/Winter/Spring/Summer

Cooperative work experience. Major emphasis on work-based learning experience in the renewable energy field. Coordination of instruction and evaluation of student job performance will be provided by college faculty in conjunction with employer/supervisor. Corequisite: CWE-281

**SBM**

Courses with this prefix will not transfer to a four-year institution.

**Small Business Management**

For additional information contact the Small Business Development Center at 503-594-0738.

**SBM-010 Real Estate Broker License**

0 credits, Fall/Winter/Spring

Prepares students to qualify for the Oregon Real Estate Broker's License exam by studying statutes, rules and anti-discrimination laws pertaining to the licensing and professional real estate activity required by all licensees of the State of Oregon.

**SBM-011 Property Management Pre-License**

0 credits, Fall/Spring

Prepares students to qualify for the Oregon Real Estate Property Management License exam by studying laws and statutes pertaining to the licensing and professional property management activity required by all licensees of the State of Oregon.

**SBM-020 Small Business Greenhouse**

0 credits, Fall/Spring

This class supplies entrepreneurs with knowledge, tools, and resources to successfully start up and operate all types of new businesses. By learning the fundamentals of Leadership, Expertise, Marketing, Technology, and Finance, students will be better prepared to build a solid business foundation. This weekly, 16-session program includes lectures, guest speakers, discussion, peer networking, and individual business counseling.

**SBM-021 Small Business Management I**

0 credits, Fall/Winter/Spring

Part 1 of a multi-year program to help owners and managers of established businesses manage more effectively and achieve success. Course consists of class meetings, individual business counseling, peer networking, and work in/on the business. Class topics emphasize financial analysis, goals and communication.

**SBM-022 Small Business Management II**

0 credits, Fall/Winter/Spring

Part 2 of a multi-year program to help owners and managers of established businesses manage more effectively and achieve success. Course consists of class meetings, individual business counseling, peer networking, and work in/on the business. Class topics emphasize marketing concepts and strategy.

**SM**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Microelectronics Systems Technology**

Courses listed with the SM prefix and courses listed in the Electronics Systems Technology section with the EET prefix are the main core classes for the Microelectronics Systems Technology program. For additional information contact the Manufacturing Department at 503-594-3318.

**SM-136 Photolithography**

2 credits, Winter

Provides knowledge on the relationship between theoretical and practical aspects of current methods and equipment used in photolithography, as well as troubleshooting common process and equipment-related problems. Recommended: SM-150

**SM-150 Semiconductor Processing I**

2 credits, Fall

Provides general background knowledge on the processes required to manufacture integrated circuit devices, beginning with silicon material preparation and ending with testing of a completed device. Micro-contamination also covered.

**SM-160 Semiconductor Processing II**

2 credits, Winter

Provides an overview of basic processes involved in the fabrication of finished silicon wafers, oxidation and deposition processes. Troubleshooting of common equipment is emphasized. Recommended: SM-150

**SM-170 Semiconductor Processing III**

2 credits, Spring

Covers the essential process and equipment related to etching, diffusion and ion implantation. Troubleshooting of common equipment and process related problems are emphasized. Recommended: SM-150

**SM-229 Vacuum Technology**

2 credits, Spring

Focuses on elementary theory and practice of vacuum equipment for microelectronics processing. Students study vacuum fundamentals, pumps and equipment used in vacuum systems. Recommended: SM-150

**SM-280 Electronics & Microelectronics/CWE**

1-6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. Practical experience in the high-tech industry. Coordination of instruction will occur with industry and the manufacturing and cooperative work departments. Corequisite: CWE-281

**SOC****Sociology****SOC-204 Introduction to Sociology**

4 credits, Fall/Winter/Spring/Summer

Explores the social perspectives on the principles and processes of human social behavior. Examines concepts such as culture, socialization, social structure, roles, groups, organizations, and social stratification and introduces various sociological theories and research methodologies. Recommended: WRD-098 or placement in WR-121

**SOC-205 Social Stratification & Social Systems**

4 credits, Fall/Winter/Spring/Summer

Examines issues of social structure and social stratification. Explores the various social institutions (family, economy, education, health, religion and politics) and inequalities of race, class, gender, age, sexual orientation and disability, as well as various theoretical perspectives. Recommended: WRD-098 or placement in WR-121

**SOC-206 Institutions & Social Change**

4 credits, Fall/Winter/Spring/Summer

Explores various social institutions (family, economy, education, health, religion, and politics), stratification systems, social movements and other various elements of culture from a social change perspective. Various theories of social organization and sources social change will be examined. Recommended: WRD-098 or placement in WR-121

**SOC-210 Marriage, Family, & Intimate Relations**

4 credits, Fall/Winter/Spring

This course will introduce students to the study of marriage, intimate relations, and family systems from the sociological viewpoint. Students will examine the ways in which race, class, gender, sexuality, community, and society influence patterns of courtship, intimate relations, marriage, and family, and explore the various challenges facing families today. Recommended: WRD-098 or placement in WR-121

**SOC-225 Social Problems**

4 credits, Fall/Winter/Spring

Applies the sociological framework to the study of social problems, their identification, analysis of causes and possible solutions. Problems explored may include mental disorders, drug and alcohol addiction, crime and delinquency, group discrimination, inequality, poverty, alienation, domestic and international violence, environment, and energy. Recommended: WRD-098 or placement in WR-121

**SOC-280 Sociology/CWE**

2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of sociology. Corequisites: CWE-281



**SPN****Spanish****SPN-101 First-Year Spanish I**

4 credits, Fall/Winter/Spring/Summer  
First of a three-term foundational, multimedia course for beginners. Initial emphasis is on speaking and listening comprehension, with secondary emphasis on reading and writing. Various cultural themes are presented. SPN-101/102/103 must be taken in sequence. Recommended: WRD-098 or placement in WR-121

**SPN-102 First-Year Spanish II**

4 credits, Fall/Winter/Spring/Summer  
Second of a three-term foundational, multimedia course for beginners. Initial emphasis is on speaking and listening comprehension, with secondary emphasis on reading and writing. Various cultural themes are presented. SPN-101/102/103 must be taken in sequence. Prerequisites: SPN-101.

**SPN-103 First-Year Spanish III**

4 credits, Spring/Summer  
Third of a three-term foundational, multimedia course for beginners. Initial emphasis is on speaking and listening comprehension, with secondary emphasis on reading and writing. Various cultural themes are presented. SPN-101/102/103 must be taken in sequence. Prerequisites: SPN-102.

**SPN-201 Second-Year Spanish I**

4 credits, Fall  
First of a three-term intermediate, multimedia course. Focus is on speaking, listening comprehension, reading and writing. Explores cultural differences among Spanish-speaking countries and between the latter and European-American culture. Prerequisites: SPN-103

**SPN-202 Second-Year Spanish II**

4 credits, Winter  
Second of a three-term intermediate, multimedia course. Focus is on speaking, listening comprehension, reading and writing. Explores cultural differences among Spanish-speaking countries and between the latter and European-American culture. Prerequisites: SPN-201

**SPN-203 Second-Year Spanish III**

4 credits, Spring  
Third of a three-term intermediate, multimedia course. Focus is on speaking, listening comprehension, reading and writing. Explores cultural differences among Spanish-speaking countries and between the latter and European-American culture. Prerequisites: SPN-202

**SPN-211 Intermediate Spanish Conversation**

3 credits, Not Offered Every Year  
Promotes intermediate-level Spanish conversation among students through shared reading of and commentary on Spanish-language novels of equivalent difficulty. Situational role plays are used to practice conversational strategies for use in real-life situations similar to those in the novels. Emphasis in SPN-211 is on crime and fantasy novels. Prerequisites: SPN-203

**SPN-212 Intermediate Spanish Conversation**

3 credits, Not Offered Every Year  
Promotes intermediate-level Spanish conversation among students through shared reading of and commentary on Spanish-language novels of equivalent difficulty. Situational role plays are used to practice conversational strategies for use in real-life situations similar to those in the novels. Emphasis in SPN-212 is on mystery and romance novels.

**SPN-213 Intermediate Spanish Conversation**

3 credits, Not Offered Every Year  
Promotes intermediate-level Spanish conversation among students through shared reading of and commentary on Spanish-language novels of equivalent difficulty. Situational role plays are used to practice conversational strategies for use in real-life situations similar to those in the novels. Emphasis in SPN-213 is on historical and adventure novels. Prerequisites: SPN-203

**SSC****Social Science****SSC-160 Faith and Reason**

5 credits, Not Offered Every Term  
Introduction to classical philosophy, sacred texts, modern fiction, poetry, theology, evolutionary biology, and cosmology. Consideration of how personal concepts of faith and reason and institutions of science and religion, shape personal intellectual landscapes. Recommended: WRD-090 or placement in RD-115

**SSC-170 Metamorphoses**

5 credits, Not Offered Every Year  
Investigates the process of change within human cultures and individuals. By exploring myth, science, art, religion, and literature, we approach a better understanding of the ability of humans to change.

**SSC-171 Metamorphoses**

5 credits, Not Offered Every Year  
Investigates the process of change within human cultures and individuals. By exploring myth, science, art, religion, and literature, we approach a better understanding of the ability of humans to change.

**SSC-172 Metamorphoses**

5 credits, Not Offered Every Year  
Investigates the process of change within human cultures and individuals. By exploring myth, science, art, religion, and literature, we approach a better understanding of the ability of humans to change.

**SSC-180 Pathway to Sustainability**

5 credits, Fall  
Can we create a more sustainable and just world? We will question our assumptions regarding economic models, democracy, our relationships with the environment, as well as our social structures by examining the roots of the current ecological crisis. Recommended: WRD-090 or placement in RD-115

**SSC-181 Pathway to Sustainability**

5 credits, Winter

Can we create a more sustainable and just world? How do socially meaningful changes come about? What are the ecological and social repercussions of the choices we make? Are ecological and social justice concerns linked? This class will explore these questions and other pertaining to current issues in sustainability research and writing. Recommended: WRD-090 or placement in RD-115

**SSC-182 Pathway to Sustainability**

5 credits, Spring

Can we create a more sustainable and just world? What can our personal roles in change be? How can we stimulate local sustainable economies? What analysis is useful in assessing ecological impacts? This third class in the Pathways to Sustainability sequence will explore how personal choices affect larger global issues. Recommended: WRD-090 or placement in RD-115

**SSC-231 Engendered Identities**

4 credits, Spring

Examines the various perspectives on the development of gender identities and looks specifically at the ways in which concepts of femininity and masculinity have shaped cultural images, identities and experiences cross-culturally, globally and historically. Recommended: WRD-098 or placement in WR-121

**SSC-233 Electronic Culture**

4 credits, Not Offered Every Term

An introduction to the interdisciplinary field of electronic culture, focusing on the use of electronic computer technology by individuals and groups. Examines transformation of self, identity, communication, and development of electronic communities and subcultures. Recommended: WRD-098 or placement in WR-121

**SSC-235 Perspectives on Terrorism**

4 credits, Not Offered Every Term

Explores the ways in which different academic disciplines in the social sciences and humanities construct historical, psychological, cultural, theological, sociological, and philosophical arguments and themes around the topic of terrorism and terrorist-related issues. Identifies underlying assumptions upon which these arguments and themes are based and considers the cultural expressions they both engender and reflect.

**SSC-240 American Military Conflict: Wars of National Identity**

4 credits, Fall

Examines America's wars of national identity, principally the American Revolution and the Civil War. Explores characteristics of such wars, variations over time and space, and shaping influences and impacts on American society and culture, both military and civilian. Recommended: WRD-098 or placement in WR-121

**SSC-241 American Military Conflict: Global War**

4 credits, Winter

Examines America as a global power in 20th Century conflicts--World Wars I and II, the Cold War and possible future global conflicts. Explores characteristics of global war, variations over time and space, and shaping influences and impacts on American society and culture, both military and civilian. Recommended: WRD-098 or placement in WR-121

**SSC-242 American Military Conflict: Asymmetric Warfare**

4 credits, Spring

Examines America's military experience in asymmetric conflicts from colonial times to the present. Explores characteristics of asymmetric war, variations over time and space, and impacts on American society and culture, both military and civilian. Recommended: WRD-098 or placement in WR-121

**TA****Theatre Arts****TA-101 Appreciation of Theatre Arts**

4 credits, Not Offered Every Year

Students will be introduced to the many aspects of theatre arts by attending multiple area productions. Plays will be reviewed and evaluated through writing assignments and discussions. Recommended: WRD-098 or placement in WR-121

**TA-102 Appreciation of Theatre Arts**

4 credits, Not Offered Every Year

Students will be introduced to the many aspects of theatre arts at an intermediate level by attending multiple area productions. Plays will be reviewed and evaluated through writing assignments and discussions. Recommended: TA-101 and WRD-098 or placement in WR-121

**TA-103 Appreciation of Theatre Arts**

4 credits, Not Offered Every Year

Students will analyze the many aspects of theatre arts at an advanced level by attending multiple area productions. Plays will be reviewed and evaluated through writing assignments and discussions.

**TA-111 Fundamentals of Technical Theatre**

4 credits, Fall

Basic study and practice in techniques of mounting various types of productions for presentation. Includes basic principles and techniques in stage design, construction and lighting. Flexible laboratory sessions available.

**TA-112 Fundamentals of Technical Theatre**

4 credits, Winter

Intermediate study and practice in techniques of mounting various types of productions for presentation. Includes basic principles and techniques in stage design, construction, and lighting. Flexible laboratory sessions available. Students must attend a performance as well as participate in the focus and strike (10 total hours) of a production. Students are required to maintain an independent journal/study (12 total hours) of outside class activity and observations of Technical Theatre applications.

**TA-113 Fundamentals of Technical Theatre**

4 credits, Spring

Advanced study and practice in techniques of mounting various types of productions for presentation. Includes basic principles and techniques in stage design, construction, and lighting. Flexible laboratory sessions available. Students must attend a performance as well as participate in the focus and strike (10 total hours) of a production. Students are required to maintain a journal/study (12 total hours) of outside class activity and observations of Technical Theatre applications.

**TA-141 Acting I**

4 credits, Fall

Studies the methods, techniques and theories of acting as an art form. Performance of lab exercises and monologues/scenes from published dramatic literature with written assignments to include response and analysis papers. Introduction to vocal, physical, and script analysis. Recommended: WRD-098 or placement in WR-121

**TA-142 Acting II**

4 credits, Winter

Further studies the methods, techniques and theories of acting as an art form. Performance of lab exercises and monologues/scenes from published dramatic literature with written assignments to include response and analysis papers are the basic teaching approaches. Special focus on script analysis and language skills. Recommended: TA-141 and WRD-098 or placement in WR-121

**TA-143 Acting III**

4 credits, Spring

An in-depth study of the methods, techniques, and theories of acting as an art form. Performance of lab exercises and monologues/scenes from published dramatic literature with written assignments to include response and analysis papers are the basic teaching approaches. Focus on movement and character creation. Recommended: WRD-098 and TA-141 or TA-142

**TA-153 Theatre Rehearsal & Performance**

1-3 credits, Fall/Winter/Spring

Training in theatre production through intensive study and rehearsal of scenes and plays for public performance. Required: Successful audition

**TA-195 Student Performance Showcase**

1-3 credits, Fall/Winter/Spring

Training in special forms of theatrical presentation through in-class intensive preparation, study, and program development for public presentation including comedy improvisation stand-up comedy, and student directed one-act plays.

**TA-211 Technical Theatre Study**

4 credits, Fall

Comprehensive study and practice in presentational graphics, scene design, lighting design, and chromatics. The full creative process of staging a production will be explored through aesthetic research and design projects. Includes hands-on participation in CCC's main-stage production. Prerequisites: TA-111, TA-112, and TA-113. Recommended: WRD-098 or placement in WR-121

**TA-212 Technical Theatre Study**

4 credits, Winter

Comprehensive study and practice in presentational graphics, scene design, lighting design and chromatics. The full creative process of staging a production will be explored through aesthetic research and design projects. Includes hands-on participation in CCC's main stage productions. Prerequisites: TA-111, TA-112, and TA-113. Recommended: WRD-098 or placement in WR-121

**TA-213 Technical Theatre Study**

4 credits, Spring

Comprehensive study and practice in presentational graphics, scene design, with specific focus in lighting designs and chromatics. The full creative process of staging a production will be explored through aesthetic research and design projects. Includes hands-on participation in CCC's main stage productions. Prerequisites: TA-111, TA-112, and TA-113. Recommended: WRD-098 or placement in WR-121

**TA-253 Theatre Rehearsal & Performance**

1-3 credits, Fall/Winter/Spring

Intermediate training in theatre production through intensive study and rehearsal of scenes and plays for public performance. Required: Successful audition

**TA-280 Theatre/CWE**

2-6 credits, Fall/Winter/Spring

Provides students with a learning experience related to course of study and career goal. Major emphasis will be given to on-the-job experience and training. Corequisites: CWE-281

**TA-295 Student Performance Showcase**

1-3 credits, Fall/Winter/Spring

Training in special forms of theatrical presentation through in-class intensive preparation, study and program development for public presentation including comedy improvisation, stand-up comedy, and student directed one-act plays.

**TTL**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business

**Transportation & Logistics****TTL-101 Introduction to Professional Truck Driving & Logistics**

4 credits, Fall/Winter/Spring/Summer

Introduction to logistics and commercial vehicle operation, covering control systems, coupling procedures, cargo handling and pre-trip inspections. Covers regulations and requirements for CAL, speed management, road conditions, and accident scene management.

**TTL-121 Practical Applications in Professional Truck Driving & Logistics**

6 credits, Fall/Winter/Spring/Summer

Demonstration of skill development related to safe commercial vehicle operation. In-depth coverage of logistics, business processes and communication skills development. Covers delivery basics, including backing, visual search, shifting, turning, space and speed management.

**TTL-141 Transportation Customer Service Skills**

3 credits, Spring

Focuses on building necessary skills for outstanding customer service, including effective listening, conflict resolution, and communication. Identify internal and external customers, learn how to handle potentially unproductive interactions, and create positive experiences for all customers.

**TTL-180 Transportation & Logistics/CWE**

6 credits, Fall/Winter/Spring/Summer

Work-based learning experience in the Transportation & Logistics field. Supervision and evaluation of the student's job performance will be provided by qualified staff of the college and employer.

**WET**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

## Water & Environmental Technology

### WET-010 Wastewater Operations I

3 credits, Fall

For professional upgrade only. Does not meet the requirements for the certificate or degree. Introduction to the fundamentals of wastewater treatment plant operation. Includes collections systems, preliminary and primary treatment, waste characteristics including organic removals, and solids profiles.

### WET-011 Waterworks Operations I

3 credits, Fall

For professional upgrade only. Does not meet the requirements for the certificate or degree. Introduction to municipal drinking water treatment and distribution systems. Basic waterworks hydraulics, drinking water regulations, waterworks math, waterworks bacteriology, and introduction to water disinfection.

### WET-020 Wastewater Operations II

3 credits, Winter

For professional upgrade only. Does not meet the requirements for the certificate or degree. Secondary wastewater treatment alternatives with municipal application. Fixed and suspended film systems and clarification process. Includes biological sludge treatment.

### WET-021 Waterworks Operations II

3 credits, Winter

For professional upgrade only. Does not meet the requirements for the certificate or degree. Basic hydrology, ground water and surface water sources, well construction and operation, introduction to water chemistry, waterworks hydraulics, and fundamentals of pumps and pumping.

### WET-030 Wastewater Operations III

3 credits, Spring

For professional upgrade only. Does not meet the requirements for the certificate or degree. Design, operation, process control, and maintenance of treatment facilities. Current treatment processes discussed in detail with particular attention given to biological sludge handling process. No lab requirement for this course.

### WET-031 Water Treatment

3 credits, Spring

For professional upgrade only. Does not meet the requirements for the certificate or degree. Design, operation, and process control of water treatment plants. Includes water chemistry, related math, coagulation, sedimentation, filtration, and disinfection. Review for Oregon Operator certification exams. No lab requirement for this course.

### WET-108 Cross-Connection Control Program Specialist

3 credits, Fall/Winter/Spring/Summer

Specialized training for those who want to be involved in administering cross-connection control programs. Elements of a cross-connection control program, basic hydraulics, state specific regulations, identifying possible cross-connections and site surveys in order to determine proper type of backflow protection, if needed.

### WET-109 Backflow Assembly Operation and Testing

4 credits, Fall/Winter/Spring/Summer

Lecture course with lab component that focuses on backflow assembly hydraulics, operations, installation, and testing.

### WET-110 Wastewater Operations I

3 credits, Fall

Introduction to the fundamentals of wastewater operations. Includes collections systems, preliminary and primary treatment, waste characteristics including organic removals, and solids profiles. Corequisite: MTH-082A

### WET-111 Waterworks Operations I

3 credits, Fall

Provides an introduction to drinking water treatment and distribution systems. Students will obtain knowledge on basic waterworks hydraulics, drinking water regulations, waterworks microbiology, and introduction to how we can turn non-potable water into clean, safe potable water. Corequisite: MTH-082B

### WET-112 Computer Applications for Water and Wastewater Operations

4 credits, Fall

Focuses on direct application of Microsoft Word, Powerpoint, and Excel for producing compliance reports, professional presentations, and data analysis. Emphasis will be put on the use of Excel for statistical analysis of water and wastewater plant data for state and federal compliance. Supervisory control and Data Acquisition (SCADA) will also be covered. Wastewater simulators will be explored and used to design and manipulate unit processes. Corequisites: WET-110 and WET-111

### WET-120 Wastewater Operations II

3 credits, Winter

Secondary wastewater treatment alternatives with municipal application. Fixed and suspended film systems and clarification process. Prerequisite: WET-110. Corequisite: MTH-082C

### WET-121 Waterworks Operations II

3 credits, Winter

Basic hydrology, ground water and surface water sources, well construction, introduction to water chemistry, waterworks hydraulics, and fundamentals of pumps and pumping. Prerequisite: WET-111. Corequisite: MTH-082D

### WET-122 Water Distribution/Wastewater Collection

3 credits, Winter

Elementary engineering aspects of water distribution and wastewater collection systems. System components, construction materials, pump station design, and related topics. Prerequisite: WET-110. Corequisite: WET-120

### WET-123 Environmental Chemistry I

3 credits, Winter

Theory and applied laboratory techniques for testing water and wastewater. Students will test wastewater for NPDES required tests.

### WET-125 High Purity Water Production I

3 credits, Not Offered Every Year

Introduction to the production of high purity water for the semiconductor, pharmaceutical, and electric power generating industries. Fundamentals of high purity water chemistry, reverse osmosis treatment, ion exchange treatment, electro-deionization treatment, UV, ozonation, degasification, and microfiltration.

**WET-130 Wastewater Operations III**

4 credits, Spring

Design, operation, process control, and maintenance of treatment facilities. Current treatment processes discussed in detail with particular attention to biological sludge handling and processing. Lab includes field trips to local wastewater facilities. Prerequisite: WET-120. Corequisite: WET-130L

**WET-131 Water Treatment**

4 credits, Spring

Design, operation, and process control of water treatment plants. Includes water chemistry, related math, coagulation, sedimentation, filtration, and disinfection procedures. Review for Oregon Operator certification exams. No lab requirement for this course. Lab includes field trips to local water treatment facilities. Prerequisite: WET-121. Corequisite: WET-131L

**WET-132 Collection & Distribution Lab**

1 credit, Spring

Field exposure to water distribution systems and wastewater collection systems. Weekly field visits include inspection of cross-connection inspection, distribution valving, reservoirs, water metering/repair, pumping station operations, smoke testing, and CCTV.

**WET-134 Environmental Chemistry II**

3 credits, Spring

A lab course providing experience in test procedures required for wastewater treatment NPDES discharge permits and the drinking water industry. Prerequisites: WET-123

**WET-135 High Purity Water Production II**

4 credits, Winter

A lab course focusing on the operation of equipment and unit processes in the production of high purity water. Emphasis on process equipment sizing and design, process control and troubleshooting. Prerequisite: WET-125 and MTH-082E

**WET-180 Water & Environmental Projects I**

1-5 credits, Spring

Practical work experience in a municipal, industrial treatment, distribution, or collection system. Placement in consulting firms, federal and state regulatory agencies, BLM, BPA, and other regulated governmental organizations. Corequisite: CWE-281

**WET-241 Aquatic Microbiology**

4 credits, Fall

A lab course with topics in applied microbiology. Methods to detect coliform group in water and wastewater, identification of filamentous bacteria in activated sludge, and identification of indicator protozoa in activated sludge. A bacteriological stream survey project is included. Prerequisites: BI-204 or Instructor consent.

**WET-242 Hydraulics/Water & Wastewater**

3 credits, Fall

Introduction to closed conduit and open channel flow. Includes hydrostatics and dynamics, head-loss, pump characteristics, Bernoulli's and the energy equations, and basic characteristics of water. Prerequisites: WET-122

**WET-245 Instrumentation and Control**

4 credits, Fall

A lab course introducing methods used to monitor and control treatment processes in wastewater, water and high purity water facilities. Advanced water analysis to include typical monitoring of high purity water treatment. Fundamentals of control loops, control systems and data management.

**WET-280 Water & Environmental Projects II**

5 credits, Fall

Practical work experience in a municipal industrial treatment, distribution, or collection system. Placement in consulting firms, federal and state regulatory agencies, BLM, BPA, and other regulated governmental organizations. Practical experience in a municipal, public or private wastewater treatment facility of specific activated sludge design. Process loading criteria, data acquisition & trend charting, and relevant sanitary process strategies will be addressed. Corequisite: CWE-281

**WLD**

Courses with this prefix may not transfer to a four-year institution unless applied as part of the 12 allowable career technical credits for the AAOT or ASOT-Business.

**Welding Technology****WLD-100 Welder's Print Reading I**

3 credits, Fall/Winter/Spring

Provides instruction in reading and interpretation of prints and symbols common in the welding industry. Participants will learn the interpretation and application of basic lines, dimensions, structural shapes, and specifications. Welding symbols and their application to different types of joint configurations will be covered, as well as how to develop basic shop drawings and prints.

**WLD-102 Introduction to Welding**

2 credits, Fall/Winter/Spring

Designed for the beginner and experimental welder. Includes: oxy-acetylene, stick, wire feed and TIG welding, oxy-acetylene and plasma arc cutting.

**WLD-103 Blacksmithing & Traditional Iron Working**

2 credits, Fall/Winter/Spring

Introduces the student to basic blacksmithing techniques and processes, as well as terminology, steel types, heat treating and tool making. Multiple projects allow the student to practice the varied methods of manual metal forming. No welding experience required.

**WLD-104 Introduction to CNC Plasma Cutting**

2 credits, Not Offered Every Term

Introduces the student to the basics of CNC plasma cutting. Participants will learn operation and set-up procedures for CNC plasma as well as geometry creation and programming. This course is recommended for anyone interested in CNC plasma cutting for industry applications or artwork.

**WLD-110 Welder Certification**

4 credits, Fall/Winter/Spring

Provides theory and practical instruction to become a certified welder. Students will choose which process of welding (flux core arc welding, shielded metal arc welding, or gas tungsten arc welding) they want to become certified in. Material needed for practice welding will be provided. You will take a welding certification at the end of the class.

**WLD-111 Shielded Metal Arc Welding (Stick)**

2-8 credits, Fall/Spring

Provides students with the opportunity to acquire knowledge and skills to perform fillet and groove welds in all positions with the SMAW process. Oxy-fuel cutting, air carbon arc cutting and gouging also covered.

**WLD-111A Shielded Metal Arc Welding (Stick)**

4 credits, Fall/Spring

Part one of WLD-111 which provides opportunity to acquire knowledge and skills to perform fillet and groove welds in flat and horizontal positions with the SMAW process.

**WLD-111B Shielded Metal Arc Welding (Stick)**

4 credits, Fall/Spring

Part two of WLD-111 with additional opportunity to perform various welds in vertical and overhead positions with the SMAW process. Prerequisite: WLD-111A

**WLD-113 Gas Metal Arc Welding/Flux Core Arc Welding (Wirefeed)**

1-8 credits, Summer/Fall/Winter

Acquire knowledge and skills to perform fillet and groove welds in all positions with GMAW and FCAW. Oxy-fuel and plasma cutting also covered.

**WLD-113A Gas Metal Arc Welding/Flux-Cored Arc Welding (Wirefeed)**

4 credits, Summer/Fall/Winter

Part one of WLD-113 which provides the opportunity to acquire knowledge and skills to perform fillet and groove welds in flat and horizontal positions with GMAW and FCAW processes. Oxy-fuel and plasma cutting also covered.

**WLD-113B Gas Metal Arc Welding/Flux-Cored Arc Welding (Wirefeed)**

4 credits, Summer/Fall/Winter

Part two of WLD-113 which provides additional knowledge and skills to perform fillet and groove welds in vertical and overhead positions with the GMAW and FCAW processes. Prerequisite: WLD-113A

**WLD-115 Gas Tungsten Arc Welding (GTAW)**

1-8 credits, Winter/Spring

Acquire knowledge and skills to perform fillet and groove welds in various positions on steel, stainless steel and aluminum with the GTAW process. Plasma cutting also covered.

**WLD-115A Gas Tungsten Arc Welding (GTAW)**

4 credits, Winter/Spring

Part one of WLD-115 which provides opportunity to acquire knowledge and skills to perform fillet and groove welds in flat and horizontal positions on steel, stainless steel and aluminum with the GTAW process.

**WLD-115B Gas Tungsten Arc Welding (GTAW)**

4 credits, Winter/Spring

Part two of WLD-115 which provides additional opportunity to perform various welds in vertical and overhead positions on steel, stainless steel and aluminum with the GTAW process. Prerequisite: WLD-115A

**WLD-150 Welding Processes**

4 credits, Fall/Winter/Spring/Summer

Covers oxy-acetylene welding, brazing, cutting, stick welding, wire feed, oxy-fuel and plasma cutting. Includes: safety, electrical fundamentals, routine maintenance, minor repairs, and terms and definitions.

**WLD-200 Welders Print Reading II**

3 credits, Spring

Provides instruction in reading and interpretation of sketches and prints common in the welding industry. Interpretation of basic shop drawing views and projections. Includes basic layout and math review. ISO and AWS symbols and weld joints are covered. Prerequisite: WLD-100

**WLD-203 Blacksmithing & Traditional Iron Working II**

2 credits, Fall/Winter/Spring

Course builds on the WLD-103 course and expands on the process of forged metal work. Instruction includes power hammer use, tooling design, traditional joinery and intermediate projects. Welding experience helpful, but not required.

**WLD-210 Pipe Welding**

4 credits, Fall/Winter/Spring

Provides beginning theory and practical instruction in the Shielded Metal Arc Welding (SMAW) process on steel plate and pipe. The specific projects include: stringer beads, fillet and groove welds on plate with root and cover proficiency, pipe cutting using the oxy-fuel process, and groove welds on pipes in all positions. Prerequisites: WLD-111; or WLD-111A and WLD-111B. Prerequisites: WLD-150 or prior experience in SMAW

**WLD-211 Advanced Shielded Metal Arc Welding**

4 credits, Fall/Spring

Acquire knowledge and skills to perform groove welds in all positions using the SMAW process. Cutting and gouging processes, advanced welding theory, and AWS welding procedures are included. Prerequisites: WLD-111; or WLD-111A and WLD-111B

**WLD-212 Shielded Metal Arc Welding Pipe Welding**

2-4 credits, Fall/Winter/Spring

Provides theory and practical instruction in open root V groove pipe welding using E6010 and E7018 electrodes. Oxy-fuel pipe cutting will be included. Prerequisite: WLD-211

**WLD-213 Advanced Gas Metal Arc Welding/Flux-Cored Arc Welding**

4 credits, Summer/Fall/Winter

Acquire knowledge and skills to perform groove welds in all positions using the GMAW and FCAW processes. Industrial-cutting processes, advanced welding theory and AWS welding procedures are included. Prerequisites: WLD-113; or WLD-113A and WLD-113B

**WLD-215 Advanced Gas Tungsten Arc Welding**

4 credits, Winter/Spring

Acquire knowledge and skills to perform welds in all positions on plain carbon steel, stainless steel and aluminum using the GTAW process. Industrial cutting processes, advanced welding theory and AWS welding procedures are included. Prerequisites: WLD-115; or WLD-115A and WLD-115B

**WLD-230 CNC Press Brake**

3 credits, Not Offered Every Term

This is a hands-on class where students will learn how to safely set-up and operate a Computerized Numerically Controlled (CNC) Press Brake. Subjects include: basic calculations related to metal forming, tooling fundamentals, flat pattern development concepts, and CNC forming techniques. Prerequisites: WLD-100 and MTH-050

**WLD-250 Welding Fabrication I Beginning Project**

4 credits, Fall/Winter/Spring

Instruction in fabrication techniques including blueprint reading, layout, sketching, bills of material, job cost calculations, measuring, fitting, cutting and welding. Beginning projects will be assigned. Prerequisites: MFG-103 or MFG-111; and WLD-111, WLD-113, or WLD-115

**WLD-251 Welding Fabrication II Intermediate Project**

4 credits, Fall/Winter/Spring

Students will be assigned intermediate fabrication projects based on skills learned in WLD-250 Welding Fabrication I Beginning Project. Prerequisite: WLD-250

**WLD-252 Welding Fabrication III Advanced Project**

4 credits, Fall/Winter/Spring

Students will use techniques from WLD-250 Welding Fabrication I Beginning Project and WLD-251 Welding Fabrication II Intermediate Project to build advanced projects. Students will be responsible for managing their projects to completion. Prerequisite: WLD-251

**WLD-261 Welding Special Projects**

1-2 credits, Fall/Winter/Spring/Summer

Allows students to improve their welding skills while working on instructor-approved projects. May be repeated for up to 12 credits.

**WLD-270 Certified Welding Inspector (CWI) Study**

4 credits, Not Offered Every Term

This course provides the instruction and guidance needed for students to apply, study for, and take the AWS CWI exam. A list of study materials, reading assignments, and quizzes will be covered for all three portions of the exam, along with the tools and weld samples used in the practical portion of the exam. Recommended: At least one year of welding experience

**WLD-280 Welding Technology/CWE**

1-6 credits, Fall/Winter/Spring/Summer

Work-based learning experience in the welding trades. Coordination of instruction will occur with industry and the CWE department. May be repeated up to 9 credits. Corequisites: CWE-281

**WR****Writing****WR-080 Basic Writing Skills**

3 credits, Fall/Winter/Spring

Emphasizes paragraph development for native English speakers who wish to enhance basic writing skills. Grammar and punctuation are addressed in class and in a lab setting.

**WR-101 Communication Skills: Occupational Writing**

3 credits, Fall/Winter/Spring/Summer

Develops basic modes of technical writing, including summaries, process analysis, instructions, and reports. Prerequisites: WRD-098 or placement in WR-121. Recommended: WRD-090 or placement in RD-115

**WR-121 English Composition**

4 credits, Fall/Winter/Spring/Summer

Introduces the academic essay: analyzing and developing a topic, writing grammatically correct and organized essays, reading professional writing, and applying writing techniques to a range of academic essay styles. Covers MLA formatting, including the use of sources, paraphrase, summary, and the creation of Works Cited pages. Prerequisites: WRD-098 or placement in WR-121. Recommended: WRD-090 or placement in RD-115

**WR-122 English Composition**

4 credits, Fall/Winter/Spring/Summer

This class examines the major principles of argumentation and persuasion including analyzing and writing persuasive essays and visual texts in addition to finding, using, and documenting sources. Prerequisites: WR-121 with a C or better. Recommended: WRD-090 or placement in RD-115

**WR-127 Scholarship Essay Writing**

1 credit, Fall/Winter

Introduces scholarship resources and the application process. Examines and applies the concept of 'telling the story of me,' and drafting, revising, and editing a complete scholarship application essay.

**WR-140 Introduction to Writing Creatively**

4 credits, Not Offered Every Term

Guides students through the discussion and practice of writing creatively in many genres, primarily poetry, fiction, drama, and creative nonfiction in a workshop format. May also include screenwriting, film, and performance genres. Recommended: WRD-098 or placement in WR-121

**WR-148 Self-Publishing: Design and Layout**

1 credit, Not Offered Every Term

This course will offer a hands-on approach to using book design software. The goal of this class is to introduce students to design, layout, and marketing techniques that will enable them to publish their own material.

**WR-149 Introduction to Blogging**

1 credit, Not Offered Every Year

In this course students will create and manage blogs of various content and purpose, exploring a variety of platforms and writing for diverse audiences.

**WR-220 Creative Writing: Comics**

4 credits, Not Offered Every Term

Designed for students with previous writing experience who wish to learn the techniques of scriptwriting for comics, graphic novels and/or narrative sequential art. Prerequisites: WRD-098 or placement in WR-121. Recommended: ENG-116 and WRD-090 or placement in RD-115

**WR-222 English Composition**

4 credits, Spring

A course in writing university-level research papers and pursuing lifelong learning through advanced research. Students learn to conduct thorough and creative research using a variety of tools and emphasizing scholarly sources. Prerequisites: WR-122.

**WR-227 Technical Report Writing**

4 credits, Fall/Winter/Spring/Summer

Introduction to report and proposal writing, stressing organization, form and style. Emphasis on materials gathered from professional fields such as medicine, dentistry, government, criminal justice, business, engineering, technology, science and public relations. Prerequisites: WR-121 with a C or better. Recommended: WRD-090 or placement in RD-115

**WR-240 Introduction to Creative Writing: Nonfiction**

4 credits, Not Offered Every Term

Techniques of writing and analyzing types of creative nonfiction such as literary journalism, memoirs, nature or science writing and personal essays. Prerequisites: WRD-098 or placement in WR-121. Recommended: WRD-090 or placement in RD-115

**WR-241 Introduction to Creative Writing: Fiction**

4 credits, Not Offered Every Term

Introduction to the theory, art and creative practice of fiction writing, with specific emphasis on short prose forms. Prerequisites: WRD-098 or placement in WR-121. Recommended: WRD-090 or placement in RD-115

**WR-242 Creative Writing: Poetry**

4 credits, Not Offered Every Term

Techniques of poetry writing. Analysis of the craft of poetry in traditional and non-traditional forms. Prerequisites: WRD-098 or placement in WR-121. Recommended: WRD-090 or placement in RD-115

**WR-243 Creative Writing: Playwriting**

4 credits, Not Offered Every Term

Designed for students with previous writing experience who wish to learn the technique of playwriting, including the art of dialogue and the elements of dramatic structure. Prerequisites: WRD-098 or placement in WR-121. Recommended: WRD-090 or placement in RD-115

**WR-244 Advanced Fiction Writing**

4 credits, Not Offered Every Term

For students with previous writing experience who wish to learn advanced techniques of writing fiction. Prerequisites: WR-241. Recommended: WRD-090 or placement in RD-115

**WR-245 Advanced Poetry Writing**

4 credits, Not Offered Every Term

For students with writing experience who wish to learn advanced techniques of writing poetry, including developing voice and style and exploring publishing. Prerequisites: WR-242

**WR-246 Editing and Publishing**

4 credits, Winter/Spring

For students with an interest in creative writing and/or literary journal design, layout, and publication who wish to develop editing and publishing skills. Includes the production of a literary journal. Recommended: WRD-098 or placement in WR-121

**WR-247 Advanced Playwriting**

4 credits, Not Offered Every Year

This course will continue to cover the narrative and dramatic techniques begun in Introduction to Playwriting. Students will create and workshop a one-act play, and explore avenues for future production.

**WR-248 Bookmaking: Design and Layout**

4 credits, Fall/Winter

This course covers the design and layout process to produce and publish manuscripts in book form. It includes basic design theory and the step-by-step process for laying out a manuscript using professional design software. Students will also learn how to submit publishable files for print-on-demand. Prerequisites: Pass WR-121

**WR-250 Book Promotion**

4 credits, Spring

The purpose of this course is to understand the role of marketing in book publishing, and to develop the necessary skills to create promotional materials including marketing plans, tip sheets, press releases, and collateral. Recommended: Previously completion of or current enrollment in WR-121.

**WR-262 Introduction to Screenwriting**

4 credits, Fall

Explores the fundamentals of screenplay composition through the use of various writing exercises and workshop techniques. Discussion of dramatic structure and the elements of good storytelling. Prerequisites: WRD-098 or placement in WR-121

**WR-263 Advanced Screenwriting**

4 credits, Not Offered Every Year

An expansion of fundamental skills initiated in the introductory course. Students will construct a feature-length screenplay, further develop their critical response skills through peer editing and review, and seek out options for production of their work. Can be repeated for up to 4 credits. Prerequisites: WR-262. Recommended: WRD-090 or placement in WR-121

**WR-265 Digital Storytelling**

4 credits, Winter

Digital Storytelling is a contemporary expression of the ancient art of storytelling. In this class students will write and create unique digital first person narratives using cloud-based editing tools, photographic and film images, music, and voice. Students will further become active participants in both local and global communities of storytellers. Prerequisites: WR-121

**WR-268 Nature Writing**

4 credits, Not Offered Every Year

Explores topics having to do with nature and the environment. Using a workshop format, students will develop the technique of nature writing, focusing on literary journalism, memoir, personal essay, and poetry. Prerequisites: WRD-098 or placement in WR-121. Recommended: WRD-090 or placement in RD-115

**WR-270 Food Writing**

4 credits, Not Offered Every Year

Learn to write uniquely and powerfully about food, from reviews to memoir and personal narrative. Recommended: WRD-098 or placement in WR-121



**WRD****Writing -Reading Skills****WRD-080 Reading/Writing Prep 2**

4 credits, Fall/Winter/Spring

This is the second foundational course for developing reading and writing skills. Students will develop secondary reading and writing skills by increasing habits of mind and building additional strategies to improve skills. Students will read from a broad range of texts, including introductory academic and popular literary texts, and write in an organized, structured manner that demonstrates attention to purpose, context and thought.

**WRD-090 Introductory College Reading & Writing 1**

5 credits, Fall/Winter/Spring/Summer

This course is the foundation for college-level reading and writing. Students will develop vocabulary skills and apply reading strategies to fiction and non-fiction texts to gain information for various purposes. Writing processes will be introduced and improved to create a simple academic text. Required: Placement in WRD-090

**WRD-090A Supplementary Instruction for WRD-090 Students**

1 credit, Fall/Winter/Spring/Summer

Provides individualized assistance to students in WRD-090. Students meet one-on-one with Writing Center tutors, who tailor tutoring and lab work to the students' individual needs and focus on fundamentals not directly taught in WRD-090. A WRD instructor oversees the tutoring and/or lab work to coordinate (and avoid duplication) with in-class instruction. Required: Tutoring dates and time arranged with instructor required. Corequisite: Take WRD-090

**WRD-098 Introductory Reading & Writing 2: College Preparation**

4 credits, Fall/Winter/Spring/Summer

This course builds on the basic reading and writing skills covered in WRD-090 and prepares students to be successful in WR-121, college-transfer-level composition. Students will read shorter college-level texts and create short essays responding to them. Topics include how to follow a writing process, perform basic research, work in a writing group, and reflect on one's own learning. Prerequisite: WRD-090 or WR-090, or placement in WRD-098

**WRD-098A Supplementary Instruction for WRD-098 Students**

1 credit, Fall/Winter/Spring/Summer

Provides individualized assistance to students in WRD098. Students meet one-on-one with Writing Center tutors, who tailor tutoring and lab work to the students' individual needs and focus on fundamentals not directly taught in WRD098. A WRD instructor oversees the tutoring and/or lab work to coordinate (and avoid duplication) with in-class instruction.

**WS**

Provides individualized assistance to students in WRD098. Students meet one-on-one with Writing Center tutors, who tailor tutoring and lab work to the students' individual needs and focus on fundamentals not directly taught in WRD098. A WRD instructor oversees the tutoring and/or lab work to coordinate (and avoid duplication) with in-class instruction.

**Women's Studies****WS-101 Introduction to Women's Studies**

4 credits, Not Offered Every Term

Course will examine and analyze the position of women in society and critically explore social issues relevant to women's lives and feminism historically and in the present/future. Topics: family, education, work, healthcare, sexuality, and political/economic status. Recommended: WRD-090 or placement in RD-115

**XCIV****Workshop: Citizen Preparation****XCIV-0001 Citizenship Preparation**

0 credits, Fall/Winter/Spring/Summer

Prepares students to pass the oral exam for U.S. citizenship. Students study U.S. history, government, citizens' rights and responsibilities, and U.S. symbols independently through a self-paced, online distance learning course, and periodic meetings with the Volunteer Tutor Coordinator, taking quizzes after completing separate modules.

**XHPD****Workshop: Health Professional Development****XHPD-C001 CPR-Initial**

0.6 CEUS, Fall/Winter/Spring/Summer

This workshop meet the learning outcomes to earn an American Heart Association (AHA) BLS for the Healthcare Provider CPR card. This meets both initial certification or renewal of AHA Healthcare Provider CPR card requirements. Open registration.

**XWLD****Workshop: Welding****XWLD-0001 American Welding Society (WLD) Certification 1 Plate Test**

0 credits, Fall/Winter/Spring/Summer

Welder certification in accordance with AWS D1.1 for one position for students enrolled in any CCC welding course.

**XWLD-0002 American Welding Society Certification 2 Plate Or 1 Pipe Test**

0 credits, Fall/Winter/Spring/Summer

Welder certification in any two positions, in accordance with AWS D1.1 for students enrolled in any CCC welding course.

**XWLD-0003 American Welding Society Certification Retake Test**

0 credits, Fall/Winter/Spring/Summer

Welder certification on retest in any position, in accordance with AWS D1.1 for students enrolled in any CCC welding course.

**XWLD-0004 Welding Process Documentation and Training**

0 credits, Fall/Winter/Spring/Summer

(1) Instructor will observe the current processes used by welders and write process documents, using recommendations from the American Welding Society (AWS.) Instructor will then work with welders to ensure compliance with processes. (2) Instructor will develop curriculum for and deliver custom Certified Welding Inspector training for Engineering staff.

## Z

**Zoology****Z-201 General Zoology**

4 credits, Fall

A lab course offering cellular and molecular basis of animal life including genetics, evolution, systematics, and protozoan diversity. Recommended: MTH-095 or MTH-098 with a C or better or placement in MTH-105 or MTH-111; WRD-090 or placement in RD-115; Placement in WR-121

**Z-202 General Zoology**

4 credits, Winter

A lab course covering the maintenance of the cellular environment, evolution of animal systems, and diversity of the less complex invertebrate animal phyla. Recommended: MTH-095 or MTH-098 with a C or better or placement in MTH-105 or MTH-111; WRD-090 or placement in RD-115; Placement in WR-121

**Z-203 General Zoology**

4 credits, Spring

A lab course covering diversity of the more complex invertebrate and vertebrate animal phyla. Includes animal behavior, distribution, ecology, and conservation. Recommended: MTH-095 or MTH-098 with a C or better or placement in MTH-105 or MTH-111; WRD-090 or placement in RD-115; Placement in WR-121

**Z-280 Zoology/CWE**

2-6 credits, Not Offered Every Term

Cooperative work experience. Provides students with on-the-job work experience in the field of Zoology. Corequisites: CWE-281

