

2007-2008

Catalog



CLACKAMAS
COMMUNITY COLLEGE

Smart.

www.clackamas.edu

You made a *Smart* choice.

DATES TO REMEMBER 2007-2008

Please check a current *Schedule of Classes* to confirm these dates.

SUMMER TERM	2007
Classes Begin	Monday, June 25
Independence Day Holiday (College closed).....	Wednesday, July 4
Eight-week session ends	Thursday, August 16
Labor Day Holiday (College closed)	Monday, September 3
Eleven-week session ends	Thursday, September 6
FALL TERM	2007
Inservice Week	September 17-21
Classes begin	Monday, September 24
Veterans Day Holiday (College closed)	Friday, November 12
Thanksgiving Holiday (College closed).....	Thurs.-Fri., November 22-23
<i>(Wednesday evening classes, beginning at 4 p.m. or later, are canceled prior to Thanksgiving.)</i>	
Finals week	December 3-8
Term ends	Saturday, December 8
Holiday (College closed).....	Mon. & Tues., Dec. 24-25
Winter Recess - College closed to the public.....	December 26-28
WINTER TERM	2008
New Year's Day Holiday (College closed)	Tuesday, January 1
Classes begin	Monday, January 7
Martin Luther King Jr. Holiday (College closed)	Monday, January 14
Skills Contest	Thursday, February 28
<i>(Day classes canceled at the Oregon City campus only. Evening classes, beginning at 4 p.m. or later, held as scheduled.)</i>	
Finals week	March 17-22
Term ends	Saturday, March 22
Spring Break.....	March 24-28
SPRING TERM	2008
Classes begin	Monday, March 31
Memorial Day Observance (College closed).....	Monday, May 26
Finals week	June 9-14
GED & Adult High School Diploma Graduation Ceremony	Thursday, June 12
College Certificate & Degree Graduation Ceremony.....	Friday, June 13
Term ends	Saturday, June 14

Table of Contents

<i>Dates to Remember</i>	2
<i>Getting Started</i>	5-12
How to apply for admission, select classes, register and make payment.	
<i>Degrees, Certificates & Approved Courses</i>	13-22
<i>Professional Technical</i>	23-70
Certificate and associate degree programs offered at Clackamas.	
<i>Additional Programs & Ways to Earn Credit</i>	71-76
<i>Transfer Information</i>	77-88
Information concerning transferring to four-year institutions.	
<i>Course Descriptions</i>	89-176
Detailed information about course content, prerequisites, number of credits and class hours per week.	
<i>Academic Regulations</i>	177-184
Academic regulations on attendance, college credits, grades, graduation and students' rights and responsibilities.	
<i>Student, Community & Business Resources</i>	185-196
<i>College Mission Statement</i>	197-204
The purpose of CCC's service to the community.	
<i>Faculty & Administration</i>	205-210
Information about full-time faculty and administration.	
<i>Glossary, Index, Maps</i>	211-224

Clackamas Community College complies with Title VI and VII of the Civil Rights Act of 1964, Equal Employment Act of 1965, Age Discrimination in Employment Act of 1967, Title IX of the Educational Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Vietnam Era Readjustment Assistance Act of 1974, the Americans with Disabilities Act of 1990, the Family Medical Leave Act of 1993, among other State and Federal Laws related to employment. Review and affirmation of college compliance will be held periodically.

Clackamas Community College does not discriminate on the basis of race, color, religion, gender, sexual orientation, marital status, age, national origin/ancestry, disability, family relationship or any other protected status in accordance with applicable law. The College's commitment to nondiscrimination applies to curriculum activity and all aspects of operation of the College.

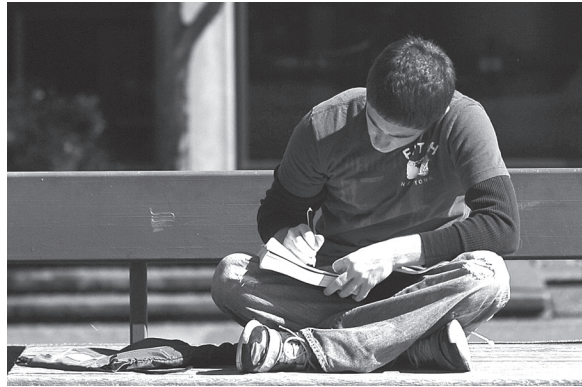
Our Credentials

Clackamas Community College is accredited by the Northwest Commission on Colleges and Universities (NWCCU). Programs at Clackamas Community College are approved for the education of veterans.

Credits earned in lower-division courses are transferable to public four-year colleges and universities in Oregon. Accreditation documentation is available in the President's Office.

Clackamas Community College's Equal Opportunity Statement ensures that the college does not discriminate on the basis of race, color, religion, gender, sexual orientation, marital status, age, national origin/ancestry, disability, family relationship in any area, curriculum activity, or operation of the college. General inquiries about this policy should be directed to the CCC Vice President of Instructional/Student Services or to the Director of Civil Rights, Department of Education, Seattle, WA. For specific information concerning physical access problems or sign language interpreter service, contact the Disability Resource Center at 503-657-6958, ext. 2324.

The information in this catalog reflects current programs, requirements, and costs as of May 2007. These items are subject to change, and Clackamas Community College reserves the right to make any necessary revisions in the information contained here without prior notice. This catalog is designed to provide assistance in program planning, but it does not constitute a legal contract between the student and the college.



Smart Choice

Getting Started

1. Complete an Application for Admission

General Admission

CCC OREGON CITY CAMPUS, REGISTRAR'S OFFICE
ROGER ROOK HALL, RR110
503-657-6958, ext. 2263

Clackamas Community College has an open door general admission policy and welcomes all students who can benefit from the instruction offered, regardless of their educational background. Adult enrollment (18 and older) is unrestricted. Students under 18 that have not completed high school or yet obtained a GED will be asked to comply with special enrollment requirements. Please see "Under-Age Students" for additional information.

CCC's general application for admission can be found:

- on the CCC website, www.clackamas.edu
- at your high school counseling office
- at any of our campuses (Oregon City, Wilsonville or Harmony)

Application materials* can be submitted at the Enrollment Services Center in Roger Rook Hall at our Oregon City campus or at our other campus locations. They can also be mailed/faxed to:

Registrar's Office
Clackamas Community College
19600 South Molalla Avenue
Oregon City, Oregon 97045-7998
Fax: 503-722-5864

**If you have taken classes at other colleges and would like this course work reviewed for transfer credit at CCC, include official copies of your transcripts with your application for admission or ask the college you previously attended to send a copy of your official transcript to the CCC Registrar's Office. You can request an evaluation of your transfer credit by submitting a Transfer Credit Evaluation Request form to the Registrar's Office.*

Special Admissions Programs

Some of our programs require special admission processes. If you are unsure about the special admission requirements for a particular program, you can make an appointment to talk with a faculty advisor or a staff member in the Advising & Counseling Center. Please note the following special admission programs, requirements and phone extensions for additional information:

**Adult High School Diploma (AHSD)/
General Educational Development (GED)**
503-657-6958, ext. 2595

See page 72, Special Programs.

Evening and Weekend Programs
503-657-6958, ext. 3108

See page 75, Special Programs.

Under-Age Students (16-18)

To take high school or college classes at CCC, the following options are available:

- If you are 16 years of age or older and want to get your high school diploma or GED at Clackamas, contact the Campus Learning Center, 503-657-6958, ext. 2595.
- To take high school credit recovery classes at CCC that will transfer back to your high school, contact the Dye Learning Center, 503-657-6958, ext. 2416.
- If you are under 18 and want to take college classes while still in high school contact the Registrar's Office, 503-657-6958, ext. 2262.
- If you want to earn Advanced College Credit while still in high school, contact your high school counselor or the CCC Advanced College Credit coordinator, 503-657-6958, ext. 2657.

CCC/PSU Co-Admission
503-657-6958, ext. 2263

Clackamas Community College offers a co-admission program with Portland State University. Through a special admissions process, students can be admitted to both institutions as they pursue their freshman and sophomore years at CCC. Co-admitted CCC students may take up to six PSU credits each term. Library and computer lab benefits are available at both institutions. Students do not have to pay the formal PSU admission fee until they transfer their junior year. CCC/PSU co-admission information and applications are available on the CCC Oregon City campus at the Advising & Counseling Center, the Registrar's Office, or on the CCC website at www.clackamas.edu/coadmit/coadmit.htm

International Students/ Program for Intensive English (PIE)

International Students 503-657-6958, ext. 2263
PIE, 503-657-6958, ext. 2596

Clackamas Community College is approved by the Department of Homeland Security (DHS) to accept qualified students from other countries. Students pursuing a college level course of study will be given an English placement test upon arrival. There is no TOEFL required for admission. Students needing a higher level of English proficiency to succeed in college credit courses will be placed in the Program for Intensive English.

Application materials and information are available by going to the CCC web page under International Students.

Clinical Lab Assistant/Medical Assistant/ Dental Assistant

503-657-6958, ext. 2263

Admission to these programs is by a special application process through which students enter a one-year certificate program. Interested students are encouraged to contact the Advising & Counseling Center or the Registrar's Office for more information on specific requirements and application procedures. Applications are available at the Advising & Counseling Center, the Registrar's Office, or on the CCC web page under the *Health Sciences Department* link.

FREQUENTLY-ASKED QUESTIONS:

When should I apply for admission?

We recommend that you apply at least one term in advance. The sooner your application is received, the sooner we can help you build your educational plan and keep you informed of important dates and events.

Should I apply for admission if I'm not quite sure when I will attend?

Please apply for the term that you think you will be starting your studies. If your plans change, just contact Admissions at 503-657-6958, ext. 2263 and ask to update your application to another term.

Nursing

503-657-6958, ext. 2263

Admission to the Nursing program is by a special admission process through which students enter a six-term/two-year program leading to an Associate of Applied Science degree. Interested students are encouraged to contact the Advising & Counseling Center or the Registrar's Office for more information on specific requirements and application procedures. Applications are available at the Advising & Counseling Center, the Registrar's Office, or on the CCC web page under the *Health Sciences Department* link.

2.

Arrange for Financial Aid

Office of Student Financial Services

CCC OREGON CITY CAMPUS, ROGER ROOK HALL, RR110
503-657-6958, ext. 2745

Clackamas Community College offers a full financial aid program. You may apply for two kinds of financial aid:

- awards based on financial need; and
- scholarships and grants based on academic achievement, special talents or community service.

Information and applications are available in the Student Financial Services Office and on the financial aid pages on the college website. The Student Financial Services Office can also provide sample loan repayment schedules for Federal Perkins Loans, Federal Stafford Student Loans and Federal PLUS Loans.

Financial aid recipients must maintain at least a 2.0 (C) grade point average while receiving financial aid. Full-time students receiving financial aid must complete 12 or more credits per term. Students enrolled in a two-year degree program are limited to 12 terms of full-time enrollment. Students enrolled in a one-year certificate program are limited to seven terms of full time enrollment to complete the certificate. Work on concurrent certificates or degrees must also be completed within the time frames stated above.

If you do not maintain a 2.0 GPA, take minimum credit requirements, or attend through 60 percent of the term while receiving federal financial aid (Federal Pell Grants, Federal Supplemental Educational Opportunity Grants, Oregon State Need Grants, Federal Work-Study, Federal Perkins Student Loans, Federal Stafford Student

Continued

Loans, or Federal PLUS Loans), you may be required to repay some of the aid you've received. Clackamas follows required federal Title IV refund policies. If you've lost your financial aid eligibility and want to have it reinstated, check with the Student Financial Services Office.

The college will use your financial aid award to pay your tuition and fees. If there is money left over, the Business Office will issue you a check for that amount.

For more information about financial aid, please contact the Student Financial Services Office at 503-657-6958, ext. 2745, or write to: Student Financial Services Office, Clackamas Community College, 19600 South Molalla Avenue, Oregon City, OR 97045-7998.

How to apply:

Complete a Free Application for Federal Student Aid (FAFSA). You may apply on the web at www.fafsa.ed.gov. It is important that you indicate Clackamas Community College as one of your schools of choice by indicating the school code, 004878, on your FAFSA.

Federal & State Financial Aid Programs

FEDERAL PELL GRANTS

You may be eligible for up to \$4,050 a year, depending on the amount of federal funding available. Awards are based on eligibility and enrollment status.

FEDERAL SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANTS

You may be eligible for up to \$1,050 a year. Part-time students (taking 6-11 credits a term) will receive smaller grants.

ACADEMIC COMPETITIVENESS GRANTS

This grant will provide up to \$750 for the first year of undergraduate study and up to \$1,300 for the second year of undergraduate study to full-time students. To qualify a student must be eligible for a Federal Pell Grant, have successfully completed a rigorous high school program, and have graduated from high school after 1/1/05 or 1/1/06 depending on enrollment status.

OREGON STATE OPPORTUNITY GRANTS

You must be enrolled for six or more credits to be eligible for Oregon State Opportunity Grants. Awards are renewable for up to four years. Oregon Opportunity Grants are funded through the Oregon Student Assistance Commission. If you are not an Oregon resident, contact your home state for eligibility requirements for your home state program.

FEDERAL COLLEGE WORK-STUDY

You may be eligible to receive an award to fund a paid part-time job through the college. Jobs are available both on campus and in the community. Part-time students (taking 6-11 credits a term) receive fewer dollars than full-time students.

FEDERAL PERKINS STUDENT LOANS

You may be eligible for up to \$2,400 during your first two years of college. Part-time students (taking 6-11 credits a term) will receive smaller loans. You must begin repaying the loan nine months after you drop below half-time enrollment (under six credits a term). Entrance and Exit Interview counseling sessions are required.

FEDERAL STAFFORD STUDENT LOANS

Most students are eligible to apply for Federal Stafford Loan funds. The Federal Stafford Loan is a Federally guaranteed loan. First year students (less than 45 credits completed) are eligible to borrow up to \$3,500, and second year students may borrow up to \$4,500 (Actual amount is dependent on student budget criteria.). The Student Financial Services Office provides information on our preferred lenders.

FEDERAL PARENT LOANS TO UNDERGRADUATE STUDENTS (PLUS)

Your parents may be eligible for Parent Loans to Undergraduate Students. Commercial banks and other participating lenders offer these loans. Parents may borrow the cost of education minus any financial aid.

CCC Financial Aid Programs

503-657-6958, ext. 2745

TUITION NEED WAIVERS

Clackamas Community College offers one-time tuition waivers each year to students who need assistance. If you're having trouble financing your education, contact the Student Financial Services Office for a tuition need waiver application at 503-657-6958, ext. 5008.

TAX CREDITS FOR EDUCATION

HOPE & LIFETIME LEARNING TAX CREDITS

The HOPE Scholarship Tax Credit and Lifetime Learning Tax Credit (LLTC) are available to students who attend Clackamas at least half-time (six or more credits) and are enrolled in an eligible course of study. Receipt of grants, scholarships and some forms of untaxed income used to pay tuition and fees will have an impact on the amount eligible to claim as expenses.

Contact a tax preparation specialist or the IRS for clarification on eligible expenses and how to file for these two tax credits.

Scholarships

503-657-6958, ext. 2373

Clackamas Community College offers various scholarship opportunities. The following are available:

HIGH SCHOOL SCHOLARSHIPS

Every year the CCC Foundation offers two full-time, full year tuition scholarships and one full-time, one term scholarship through each in-district public high school. Information and applications for these scholarships are available in December in your local high school counseling center or career center.

In-district high school students who compete in the annual Clackamas Regional Skills contest are eligible for CCC scholarships. Partial, one-term tuition scholarships are awarded to the top three winners in all categories of the competition. For more information contact CCC Student Outreach, 503-657-6958, ext. 2455.

TUITION SCHOLARSHIPS

If you possess special skills or plan to participate in extracurricular activities like art, athletics, speech, journalism, student government, music or theater, you may be eligible for a tuition waiver. Contact the appropriate college department to find out how to apply.

STUDENT SCHOLARSHIPS

The CCC Foundation funds a number of scholarships for new and returning students. There is one application form to complete for all scholarships, and the application is available late January through mid-March.

PRIVATE SCHOLARSHIPS

A variety of sources offer private scholarships. These scholarships are displayed in the scholarship rack located in the Community Center.

Veterans Benefits

503-657-6958, ext. 2554

If you are a veteran or reservist, you may be eligible for educational benefits. Benefits may also be available to spouses and dependent children of veterans. You should contact the Veterans Administration or the Veterans Specialist on campus to verify your eligibility.

Students who are interested in using veterans benefits to attend school should plan on starting the necessary paperwork at least two months prior to attendance to avoid delays in receiving benefits. (All educational costs are the students' responsibility and not dependent on receipt of benefits.)

Students receiving benefits must:

- Have credits for prior civilian or military training evaluated.
- Meet the standards of Satisfactory Progress and maintain at least a 2.0 GPA. (Students who do not meet these guidelines will be placed on probation. If the student does not complete the second term of attendance with a 2.0 GPA, benefits will be terminated under Unsatisfactory Progress.)
- Enroll for the full credit limit on variable credit and open entry/exit classes.
- Follow term schedule and attend all scheduled class meeting times.

FREQUENTLY-ASKED QUESTIONS:

How do I apply for financial aid?

The first step is to complete the FAFSA (Free Application for Federal Student Aid). Applications may be completed online. The results of the FAFSA are used to determine your eligibility to receive aid. If you list Clackamas Community College on your FAFSA, we will electronically receive your information and contact you for further information.

Can I apply for financial aid if I am not a full-time student?

Yes, you may qualify if you register for six or more credits and have filed your FAFSA.

Is there financial help other than federal financial aid?

Yes. Clackamas Community College has a wide range of scholarship opportunities for students who are enrolled or planning on enrolling. Some are available for part-time students as well. The open enrollment period for each year is from the end of January to mid-March. There is an application that must be completed and returned for you to be considered. Contact the Scholarship Coordinator, 503-657-6958, ext. 5008, for more information.

There are also some one-time assistance programs to help students who have special need. Contact the Student Financial Services Office for more information.

When do I apply for financial aid?

Awards are made on a first-come, first-served basis so it is important to file your financial aid form as soon as possible after January 1.

3.

Visit the Testing/ Assessment Center

Testing/Assessment Center

CCC OREGON CITY CAMPUS, ROGER ROOK HALL, RR136
503-657-6958, ext. 2269

Visit <http://depts.clackamas.edu/testing>
or call for testing hours.

To be successful in college, it is important to know your current reading, writing, math, and computer skill levels. These skill levels will be determined by the following:

EVALUATION OF PRIOR COURSEWORK

If you received credit for college writing, math or computer courses at Clackamas Community College or any other college or university, you may be placed based on this course work.

Bring a copy of your previously attended college transcripts to the Advising & Counseling Center for recommended placements in writing, math and computer courses at Clackamas Community College.

ACT OR SAT SCORES

If you have taken the ACT or SAT and your scores are high enough, you may be placed with these scores. Bring a copy of your scores to the testing center for evaluation. If your scores are not high enough, you will be asked to take one or more COMPASS tests.

COMPASS TESTS FOR READING, WRITING, AND MATH

If you are not able to be placed through prior coursework or ACT/SAT scores, you will need to take one or more of the COMPASS tests. These tests are computer-based, and are not timed.

COMPUTER PLACEMENT ASSESSMENT

If you have not previously received college credit for completing a computer course, you will need to take our computer assessment test. This assessment can also fulfill the computer competency requirement for some Clackamas Community College degrees. Before taking this test to establish computer competency, please consult with an academic advisor.

4.

Talk to an Advisor

Advising & Counseling Center

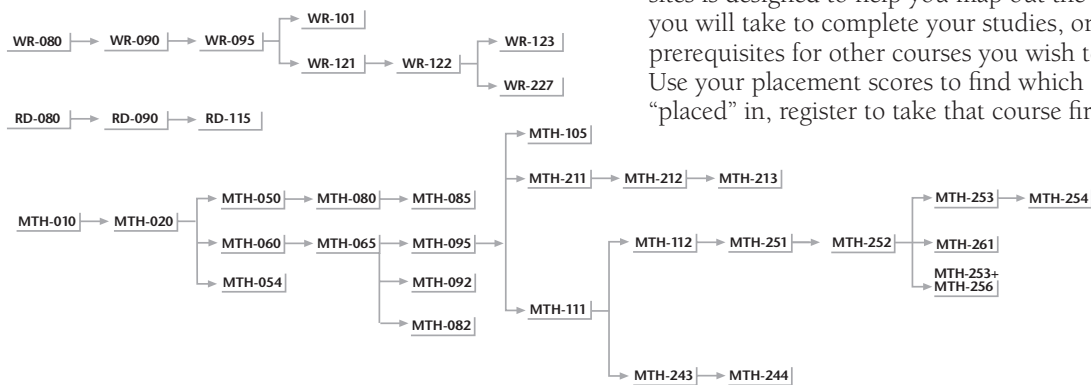
CCC OREGON CITY CAMPUS
BILL BROD COMMUNITY CENTER
503-657-6958, ext. 2794

If you are new to Clackamas Community College and you submitted an application for admission and completed placement testing, you are strongly encouraged to attend a New Student Advising Session. This two-hour session will provide you with general information about the college, and the registration process. Advisors will work with you to understand degree requirements, and create a class schedule. The advising sessions are a valuable opportunity to get to know the resources of the college and the keys for successful completion of your college goals.

In the event you are unable to attend a New Student Advising Session, you may come to the Advising & Counseling Center and request to meet with an academic advisor to discuss degree options, course scheduling and receive registration assistance. No appointment is necessary.

Faculty advisors in the academic departments are also available by appointment to provide specific information about your program of study. They can also serve

Prerequisites for required courses



This chart of reading, writing and math prerequisites is designed to help you map out the courses you will take to complete your studies, or to meet prerequisites for other courses you wish to take. Use your placement scores to find which course you “placed” in, register to take that course first.

as a mentor. Your faculty advisor's name, e-mail address, extension number and office number are listed in the *Schedule of Classes* each term.

If you plan to transfer to a four-year institution, work closely with an advisor to be sure you are fulfilling that school's transfer requirements. Catalogs for many Oregon colleges and universities are available in the Transfer Center which is located in the Advising & Counseling Center. The Transfer Center also contains additional campus and program information on in-state and out-of-state schools. There is also access to thousands of college catalogs via the Internet.

No matter what program you are working on, you should work with an advisor to be sure you're taking classes that meet your goals.

5. Register for Classes

Registrar's Office

CCC OREGON CITY CAMPUS, ROGER ROOK HALL, RR110
503-657-6958, ext. 2262

Registration is available for currently enrolled, returning and admitted students via the web, fax/mail-in and in person as explained in our *Schedule of Classes* each term. The *Schedule of Classes* is mailed to all households in the college district, is provided on our campuses, and is available on the web: www.clackamas.edu

The following is a checklist for students to review prior to registering:

- Complete an Application for Admission and submit to the Registrar's Office.
- Take college placement tests or have your SAT/ACT scores evaluated for writing and math placement at the Testing/Assessment Center.
- Update your student record with the Registrar's Office if changes have occurred to your name, address, phone number and/or program of study.
- Establish an education plan by attending an advising session, meeting with a faculty advisor or a staff member in the Advising & Counseling Center.
- Review a current *Schedule of Classes* to select courses and become familiar with important dates, policies and procedures.
- Complete a registration form or registration worksheet with the courses you have selected.
- Register via the web, mail, fax, or in person.
- Make arrangements to pay tuition and fees with the Student Accounts Office.

Registration and payment assistance is available at the following locations:

Oregon City Campus:

Enrollment Services Center, Roger Rook Hall
503-657-6958, ext. 2262
registrar@clackamas.edu

CCC Harmony Campus:

503-657-6958, ext. 3146

CCC Wilsonville Campus:

503-657-6958, ext. 4609

6. Pay for Classes

Student Accounts Office

CCC OREGON CITY CAMPUS, ROGER ROOK HALL, RR110
503-657-6958, ext. 2253

2007-2008 Tuition and Fees

Tuition and fee rates, as well as payment options information can be found in a current copy of the *Schedule of Classes*. Please note that tuition and fee rates are subject to change without prior notice.

	Tuition	General fee*
In-state students OR/CA/ID/NV/WA**:		
1-15 billing credits	\$57/credit	\$5/credit
16-18 billing credits	\$912	\$80
Above 18 billing credits	\$57/credit	\$5/credit

Out-of-state and international students (except California, Idaho, Nevada and Washington):

1-15 billing credits	\$198/credit	\$5/credit
16-18 billing credits	\$3,168	\$80
Above 18 billing credits	\$198/credit	\$5/credit

Other fees

Official transcript	\$5/copy
Late payment fee***	\$75
Nonrefundable third party billing fee	\$15
Returned bank item	\$25

Certain classes have special fees in addition to tuition and general fee. These are listed in the "Course Fee" column in the credit course listing.

**The general fee supports many CCC student activities including athletics, child care, new technology and student government.*

***In-state student: American citizen, immigrant or permanent resident of Oregon, California, Idaho, Nevada, or Washington.*

**** A late fee is assessed on any outstanding balance on the sixth Friday of the term.*

To reach any college office, call 503-657-6958 and dial the extension you want. (Hearing-impaired TTY/TDD 503-650-6649)

Factors That Determine Your Tuition

IN-STATE TUITION

To qualify as an in-state student for tuition purposes, you must be a U.S. citizen, immigrant or permanent resident who has established and maintained residency in Oregon, California, Idaho, Nevada or Washington at least 90 days prior to the first day of classes. A student registered as an aboriginal with an Oregon tribe will qualify for in-state tuition. A minor student whose parent(s) or guardian(s) is a bona fide Oregon resident will qualify for in-state tuition.

OUT-OF-STATE TUITION

You are an out-of-state student for tuition purposes if you are a U.S. citizen, immigrant or permanent resident who has not established residency in Oregon, California, Idaho, Nevada or Washington 90 days prior to the first day of classes or you are an international student/visitor.

You are an international student if you are a citizen of another country here on other than an immigrant visa. You will be required to have an I-20 to attend college. International students do not become residents regardless of the length of residency within the district.

SENIOR CITIZEN TUITION BENEFIT

If you are 62 years of age or older before the start date of the term, you are eligible for a senior citizen tuition benefit. Once your student record reflects this status, tuition will be charged at the rate of 1/2 of the in-state rate for all CCC sponsored credits classes (fees excluded). Tuition and fee charges must be paid on or before the second Friday of the term to avoid late payment fees. Fees may not be deferred, however, tuition may be paid in installments (See *Paying in Installments* in the *Schedule of Classes*.) Contact the Student Accounts Office for procedures to follow. You are also entitled to free admission to many college special events and athletic activities. For community education senior citizen tuition benefit policies, see individual Community School listings in the *Schedule of Classes*.

Note: The Senior Citizen Tuition Benefit does not waive any fees associated with courses.

Refund Policy

You may be entitled to a refund for classes that you have officially dropped according to the following refund schedule:

- **Classes scheduled to meet two weeks or less:**
Drop request must be filed before the beginning of class.
- **Classes scheduled to meet three to four weeks:**
Drop request must be filed during the first week of class.
- **Classes scheduled to meet five weeks or more:**
Drop request must be filed during the first two weeks of the class.

Drop requests are processed via the official college registration request form or the web. Eligibility for a refund is determined by the date that your official request is received. Ceasing to attend class or verbal notification does not constitute an official drop. This refund policy is in effect for all classes, seminars and workshops. If you have questions, contact the Student Accounts Office at ext. 2253. You can also refer to the *Schedule of Classes* for additional information.

Canceled Class

If your class has been canceled you will be notified and officially dropped. Your tuition and fees for this class will be adjusted appropriately.

FREQUENTLY-ASKED QUESTIONS:

How do I get advice about course offerings, degree programs and career opportunities?

Come by the Advising & Counseling Center in the CCC Community Center and you can get advice and information to help you plan your educational experience. You can also call ext. 2794 to make an appointment or have questions answered.

Can I find help in choosing a career and/or program of study?

If you haven't decided on your program of study, make an appointment with a counselor to develop an educational and career plan. Contact the Advising & Counseling Center at ext. 2794 to make an appointment.

How do I find out who my faculty advisor is and where I can reach them?

Faculty advisors' names, areas of expertise, extension numbers, e-mail addresses and room numbers are located in the registration information section of the *Schedule of Classes* which is published each term.



Smart Choice

Degrees, Certificates & Approved Courses

Degrees, Certificates & Approved Courses

Clackamas Community College has been approved by the Oregon State Board of Education to offer Associate (two year) degrees and Certificates of Completion (one year or less). Requirements for completing degrees and certificates have been determined by CCC, in accordance with the Oregon Community College Board of Directors, the State Board of Education criteria and the accreditation requirements of the Northwest Commission on Colleges and Universities. All courses used to fulfill a requirement in an associate degree or certificate of completion must be "college level". College level course work may include professional technical education and/or other courses that exceed basic skills, workplace readiness, and fundamental technical skills. CCC offers four associate degrees:

Associate of Arts Oregon Transfer Degree (AAOT)

The AAOT is a two year degree that has been designed for the student intending to transfer to a four-year college or university and pursuing upper division baccalaureate courses. CCC students who have earned an AAOT degree will be eligible for junior standing for the purposes of registration at any of the schools currently part of the Oregon University System (OUS). These schools include the University of Oregon, Oregon Institute of Technology, Oregon State University, Portland State University, Western Oregon University, Eastern Oregon University and Southern Oregon University. General requirements for obtaining the AAOT from CCC are as follows:

- Earn a minimum of 90 credits of college level course work numbered 100 and above
- Complete a distribution of recognized general education courses (see the AAOT worksheet/student planner on page 17)
- Establish a cumulative 2.0 GPA at CCC
- Establish residency by earning a minimum of 24 credits at CCC.

See pages 15 & 17 for the AAOT worksheet/student planner and additional information.

PROGRAM OUTCOME

Program outcomes for the Associate of Arts, Oregon Transfer degree include preparation to transfer into upper division baccalaureate courses and junior standing for the purposes of registration at a college within the Oregon University system.

Associate of Science Oregon Transfer Degree - Business (ASOT)

The Associate of Science Oregon Transfer - Business degree is a two year program designed for the student intending to transfer to a four-year college or university within the Oregon University System and is pursuing upper division baccalaureate courses in Business. CCC students who have earned the ASOT - Business degree and met the transfer institution's lower-division general education degree requirements will be eligible for junior standing for the purposes of registration. General requirements for obtaining the ASOT-Business degree from CCC are as follows:

- Earn a minimum of 90 credits of college level course work numbered 100 and above
- Complete a distribution of recognized general education courses (see the ASOT-Business Worksheet/Planner on page 19)

- Complete Business-Specific requirements
- Establish a cumulative 2.0 GPA at CCC
- Establish residency by earning a minimum of 24 credits at CCC

See pages 19 for the ASOT-Business Degree worksheet/student planner for specific requirements and additional information. It is strongly recommended that students contact the specific OUS campus' Business school early in the first year of their ASOT-Business program to be advised about additional requirements and procedures for admission consideration to the OUS institution and Business school.

PROGRAM OUTCOME

Program outcomes for the Associate of Arts, Oregon Transfer degree include preparation to transfer into upper division baccalaureate courses with a focus in Business and junior standing for the purposes of registration at a college within the Oregon University system.

Associate of General Studies (AGS)

The Associate of General Studies is a two year degree designed to provide flexibility and uses a variety of college level course work to meet degree requirements. Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four-year college or university upon completion of the AGS degree. General requirements for obtaining the AGS from CCC are as follows:

- Earn a minimum of 90 credits of college-level course work
- Complete related instruction course work from: communication, computation, human relations and physical education/health (see the AGS worksheet/student planner and additional information on pages 15 & 20.)
- Establish a cumulative 2.0 GPA at CCC
- Establish residency by earning a minimum of 24 credits at CCC
- Satisfy a computer competency requirement. (Computer competency can be satisfied by passing CS-090 or by placement into CS-120 as measured by the Computer Placement Exam.)

PROGRAM OUTCOME

Program outcomes for the Associate of General Studies degree include two year college degree experience that supports individual student need and interest.

For Associate of Applied Science degrees and certificates of completion, see pages 23-70.

Approved Related Instruction Courses

ASSOCIATE OF GENERAL STUDIES • ASSOCIATE OF APPLIED SCIENCE • CERTIFICATES

Associate of Applied Science (AAS) Associate of General Studies (AGS)

For an *Associate of Applied Science or Associate of General Studies* degree complete one course from each of the following requirement areas:

- **Communication**
- **Computation**
- **Human Relations**
- **Physical Education/Health**

Certificate of Completion (CC)

For a *Certificate of Completion* that is at least one academic year in program length complete one course from each of the following requirement areas:

- **Communication**
- **Computation**
- **Human Relations**

Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four year institution upon completion of any of these programs.

List of Approved Courses:

The following represents approved courses for meeting related instruction requirement areas.

Communication

WR-101, 121, 122, 123, 227

Computation

Computer Science: CS-133VB, 161, 162, 260
Mathematics: MTH-050, 054, 065 or above (except 199 and 299)

Human Relations

Anthropology: ANT-102, 103
Business: BA-285
Education: ED-121, 122, 258
History: HST-101, 102, 103, 121, 122, 123, 201, 202, 203
Political Science: PS-203, 205
Psychology: PSY-101, 110, 200, 205, 214, 215, 219, 221, 231, 240
Sociology: SOC-204, 205, 206, 223, 225, 230
Speech: SP-100, 105, 112, 126, 140, 218, 227

Physical Education/Health

Health: Courses with an HE prefix
Physical Education: Courses with an HPE or PE prefix

Student Guide 2007-2008
Associate of Arts Oregon Transfer Degree (AAOT)

Requirements		Courses
	<i>Writing (8 credits)</i>	WR-121, 122, 123 or 227 (Must have "C" grade or better)
	<i>Oral Communication (3 credits)</i>	SP-111 or 112 (Must have "C" grade or better)
	<i>Mathematics (4 credits)</i>	MTH-105, 111 or higher (Must have "C" grade or better)
	<i>Health & Physical Education (3 credits)</i>	Any combination of courses with a prefix of HPE, HE, PE
Must equal a minimum of 10 credits from at least 2 disciplines	<p><i>Arts & Letters</i> <i>(Courses used in this area must be at least 3 credits)</i></p> <p style="text-align: center;">GENERAL EDUCATION DISTRIBUTION AREA</p>	<p>Select courses with a prefix of: ASL, FR, GER, JPN, RUS, SPN (languages must be 200 level) ART, ENG, HUM (except HUM-100) J, MUP, MUS, PHL, R, TA SP-105 and above (except SP-111 and SP-112) WR (except WR-101, 121, 122, 123 or 227)</p>
Must equal a minimum of 15 credits from at least 2 disciplines	<p><i>Social Science</i> <i>(Courses used in this area must be at least 3 credits)</i></p> <p style="text-align: center;">GENERAL EDUCATION DISTRIBUTION AREA</p>	<p>Select courses with a prefix of: ANT, EC, GEO, HST, PS, PSY, SOC, SSC, WS</p>
Must equal a combined minimum of 15 credits	<p><i>Science/Math/Computer Science</i> <i>(Courses used in this area must be at least 3 credits)</i></p> <p style="text-align: center;">GENERAL EDUCATION DISTRIBUTION AREA</p>	<p>A. Select 3 lab courses from the biological and/or physical sciences to total a minimum of 12 credits. Select courses with a prefix of: ASC, BI* (except BI-055, BI-163), BOT, CH (except CH-150), ESR, G (except G-119, G-124), GS (except GS-160), PH, Z *Concurrent enrollment required for BI-160/BI-160L or BI-165C/BI-165CL</p> <p>B. Select remaining courses with a prefix of: ASC, BI, BOT, CH, CS, ESR, G, GS, MTH, PH, Z</p>
	<p><i>Elective Courses</i> Combined with above must equal 90 credits total</p>	<p>Other courses numbered 100 or above may be used in this area, which may include up to 12 credits of professional/technical courses. Please refer to the Professional/Technical pages 23-70 for a listing of courses that may be included in the 12 credits mentioned above.</p>

Note: Placement in RD-115 and/or WR-121 is recommended for courses on this page and in some cases, placement in MTH-105 or MTH-111 may also be recommended. See courses descriptions, pages 89-176.

Note: All courses must be 100 level or higher. Courses numbered 199, 280, and 299 can only be used in the electives areas. No course may be used to satisfy more than one requirement or distribution area.

Student Planner Worksheet 2007-2008
Associate of Arts Oregon Transfer Degree (AAOT)

This guide is to be used for educational planning/advising purposes only.

Requirements	Credits Required	CCC Courses Completed	Transferred Courses	Credits Earned	Credits Needed
<i>Writing</i> WR-121, 122, 123 or 227 (Must complete with a "C" grade or better)	8				
<i>Oral Communications/Rhetoric</i> SP-111 or SP-112 (Must complete with a "C" grade or better)	3				
<i>Mathematics</i> MTH-105, 111 or higher (Must complete with a "C" grade or better)	4				
<i>Health & Physical Education</i>	3				
<i>Arts & Letters*</i> Select a minimum of 10 credits from at least two disciplines.	10				
<i>Social Science*</i> Select a minimum of 15 credits from at least two disciplines.	15				
<i>Science/Math/Computer Science*</i> Select a minimum of 15 credits including 3 laboratory courses totaling at least 12 credits in biological or physical sciences.	15				
<i>Elective Courses</i> (May include up to 12 credits of professional/technical courses.)	<i>will vary</i>				
TOTALS					

(Total minimum of 90 credits required.)

Additional Graduation Requirements

- Complete a minimum of 90 credits
- Completion of at least 24 credits at CCC
- Establish cumulative GPA of 2.0 or above

Requests for official evaluation of transcripts, course equivalencies and completion of degree requirements are to be submitted to the Registrar's Office.

Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four-year institution upon completion of these programs. Call 503-657-6958, ext. 2794 or email: advising@clackamas.edu for more information.

Note: All courses must be 100 level or higher. Courses numbered 199, 280, and 299 can only be used in the electives areas. No course may be used to satisfy more than one requirement or distribution area.

** Courses used in these areas must be at least 3 credits.*

To reach any college office, call 503-657-6958 and dial the extension you want. (Hearing-impaired TTY/TDD 503-650-6649)

Student Guide 2007-2008
**Associate of Arts Oregon Transfer Degree-Business
 (ASOT-Business)**

Must equal a minimum of 12 credits from at least 2 disciplines	<i>Writing (8 credits)</i>	WR-121, 122, 227 (Must have "C" grade or better)
	<i>Oral Communication/Rhetoric (3 credits)</i>	SP-111 or SP-112 (Must have "C" grade or better)
	<i>Mathematics (12 credits)</i>	MTH-111 or higher, 4 credits of statistics (MTH-243 or MTH-244) are required (Must have "C" grade or better)
	<i>Computer Applications</i>	BA-131 or CS-121 and CS-125P (Must have "C" grade or better)
Must equal a minimum of 12 credits from at least 2 disciplines	<i>Arts & Letters (Courses used in this area must be at least 3 credits)</i>	Select courses with a prefix of: ASL, FR, GER, JPN, RUS, SPN (languages must be 200 level) ART, ENG, HUM (except HUM-100) J, MUP, MUS, PHL, R SP (courses numbered SP-126 and above) TA, WR (except WR-101, 121, 122, 227)
	GENERAL EDUCATION DISTRIBUTION AREA	
Must equal a minimum of 12 credits from at least 2 disciplines	<i>Social Science (Courses used in this area must be at least 3 credits)</i>	EC-201 and EC-202 (Must have "C" grade or better) and courses with a prefix of: ANT, EC, GEO, HST, PS, PSY, SOC, SSC, WS
	GENERAL EDUCATION DISTRIBUTION AREA	
Must equal a minimum of 12 credits	<i>Science (Courses used in this area must be at least 3 credits)</i>	A. Select lab science courses with a prefix of: ASC, BI* (except BI-055, BI-163), BOT, CH (except CH-150), ESR, G (except G-119, G-124), GS (except GS-160), PH, Z *Concurrent enrollment required for BI-160/BI-160L or BI-165C/BI-165CL
	GENERAL EDUCATION DISTRIBUTION AREA	
	<i>Business Specific</i>	BA-101, 226, 211, 212 and 213 (Must have "C" grade or better)
	<i>Elective and/or University Specific Requirements</i> Other courses numbered 100 or above may be used in this area, which may include up to 12 credits of professional/technical courses. Please refer to the Professional/Technical pages 23-70 for a listing of courses that may be included in the 12 credits mentioned above.	Determined by choice of transfer institution. Please contact your transfer advisor for assistance.

Note: Placement in RD-115 and/or WR-121 is recommended for courses on this page and in some cases, placement in MTH-105 or MTH-111 may also be recommended. See courses descriptions, pages 89-176.

Note: All courses must be 100 level or higher. Courses numbered 199, 280, and 299 can only be used in the electives areas. No course may be used to satisfy more than one requirement or distribution area.

Student Planner Worksheet 2007-2008
**Associate of Arts Oregon Transfer Degree-Business
 (ASOT-Business)**

This guide is to be used for educational planning/advising purposes only.

Requirements	Credits	CCC Courses	Transferred Courses	Credits Earned	Credits Needed
<i>Writing</i> WR-121, 122 or 227 (Must complete with a "C" grade or better)	8				
<i>Oral Communications/Rhetoric</i> SP-111 or SP-112 (Must complete with a "C" grade or better)	3				
<i>Mathematics</i> MTH-111 or higher, 4 credits of statistics (MTH-243 or MTH-244) are required (Must complete with a "C" grade or better)	12				
<i>Computer Applications</i> BA-131 or CS-121 and CS-125P (Must complete with a "C" grade or better)	<i>will vary</i>				
<i>Arts & Letters*</i> Select a minimum of 12 credits from at least two disciplines.	12				
<i>Social Science*</i> Select a minimum of 12 credits from at least two disciplines, including EC-201 and EC-202.	12				
<i>Science*</i> Select a minimum of 12 credits (lab science)	12				
<i>Business Specific</i> BA-101, 226, 211, 212 and 213 (Must complete with a "C" grade or better)	<i>will vary</i>				
<i>Elective Courses and/or University Specific Requirements</i> (Refer to your transfer school for specific university requirements. Up to 12 credits of professional/technical courses may be used.)	<i>will vary</i>				
	TOTALS				

Additional Graduation Requirements

- Complete a minimum of 90 credits
- Completion of at least 24 credits at CCC
- Establish cumulative GPA of 2.0 or above

(Total minimum of 90 credits required.)

Requests for official evaluation of transcripts, course equivalencies and completion of degree requirements are to be submitted to the Registrar's Office.

Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four-year institution upon completion of these programs. Call 503-657-6958, ext. 2794 or email: advising@clackamas.edu for more information.

Note: All courses must be 100 level or higher. Courses numbered 199, 280, and 299 can only be used in the electives areas.

No course may be used to satisfy more than one requirement or distribution area.

** Courses used in these areas must be at least 3 credits.*

Student Planner Worksheet 2007-2008

Associate of General Studies Degree (AGS)

This guide is to be used for educational planning/advising purposes only.

	Requirements	CCC Courses Completed	Transferred Courses	Credits Earned	Courses Needed
Complete one course from each of the related instruction areas	Communication				
	Computation				
	Human Relations				
	PE/Health				
	Total Related Instruction Credits				
Complete additional college level coursework for a total minimum of 90 credits combined with the above	Computer competency*				
	Other College Level Courses**				
TOTALS					

- Complete a minimum of 90 credits
- Completion of at least 24 credits at CCC
- Establish cumulative GPA of 2.0 or above
- Meet computer competency requirement

Requests for official evaluation of transcripts, course equivalencies and completion of degree requirements are to be submitted to the Registrar's Office.

* Satisfy the computer competency requirement by passing CS-090 or by placing into CS-120 as measured by the Computer Placement exam.

* College level course work may include professional technical education and/or other courses that exceed basic skills, workplace readiness and fundamental technical skills. Refer to the course description section of the catalog for details, see pages 89-176.

Associate of Applied Science (AAS) & Certificates of Completion

Acquire Practical Marketable Skills

Professional/Technical programs at Clackamas Community College provide the skills and work experience you'll need to qualify for a job upon graduation. Each program is planned with the help of local industry representatives to meet the needs of the current job market. Instruction is provided by trained, experienced professionals, and classes are conducted in an industry-like work setting with the latest equipment.

Cooperative Work Experience is an important feature of all CCC professional/technical programs. This special arrangement between CCC and local employers provides you with the opportunity to get on-the-job experience in the field of your choice while earning credit toward your degree or certificate.

CCC offers both one-year and two-year programs designed for employment in the field (many professional/technical programs offer both options). Specific degree and certificate requirements are listed on the following pages.

Program Area	AAS	CC
Accounting	■	
Accounting Clerk		■
Automotive Service Technology	■	
Business Management		■
Administrative Medical Office Assistant		■
Administrative Office Assistant		■
Administrative Office Professional	■	
Career Development Facilitator		■
Clinical Laboratory Assistant		■
Collision Refinishing Technology	■	
Collision Repair/Refinishing Technology		■
Collision Repair Technology	■	
Computer-Aided Drafting/ Computer-Aided Manufacturing	■	
Computer Application Specialist	■	■
Corrections	■	■
Crime Analysis		■
Criminal Justice	■	
Dental Assistant*		■
Drafting Technology	■	
Drafting Technology/Architectural	■	
Early Childhood Education & Family Studies	■	■
Electronic Publishing		■
Electronics Systems Technology	■	■
Emergency Management	■	
Emergency Medical Technology	■	■
Employment Skills Training		■
Energy & Resource Management	■	■
Fire Science (Wildland)	■	■
Geographic Information Systems (GIS) Technician	■	■
Gerontology		■
Gerontology Specialist		■
Horticulture	■	■

Associate of Applied Science (AAS) & Certificates of Completion (CC)

The Associate of Applied Science degrees and Certificates of Completion are professional technical in nature and are designed to prepare students for entry into the workforce. Occupational licensure, career advancement and further study at a four-year college or university are additional possible opportunities for students earning an AAS degree or Certificate of Completion at CCC. Certificates of Completion are generally a one year program and are designed with occupational program outcomes. Please refer to the specific AAS or CC program for certificate/degree requirements. General requirements for obtaining an AAS or CC include:

- Complete a minimum of 90 credits for an AAS degree
- Establish a cumulative 2.0 GPA at CCC
- Establish residency by earning a minimum of 24 credits at CCC for an AAS degree; 12 credits for a certificate of completion

Program Area	AAS	CC
Human Resource Management		■
Human Services	■	■
Industrial Technology	■	
Juvenile Corrections		■
Landscape	■	■
Manufacturing Technology	■	■
Marketing		■
Marketing & Management	■	
Medical Assistant		■
Microelectronics Systems Technology	■	■
Music Technology		■
Network & Microcomputer Specialist	■	■
Nursing	■	
Occupational Skills Training		■
Paraeducator		■
Project Management	■	■
Quality Control Technician		■
Retail Management	■	■
Semiconductor Operator		■
Supervisory Training		■
Utility Workforce Readiness		■
Water & Environmental Technology	■	■
Water/High-Purity Production		■
Web Design Specialist		■
Web Design & Development Specialist	■	
Welding Technology	■	■

* Pending national accreditation

Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four-year institution upon completion of any of these programs.



Smart Choice

Professional Technical

Professional/Technical Programs

Accounting.....	25	Fire Science (Wildland)	45
Accounting Clerk	25	Geographic Information Systems (GIS) Technician	46
Administrative Medical Office Assistant.....	26	Gerontology	47
Administrative Office Assistant (formerly Office Assistant)	26	Gerontology Specialist	47
Administrative Office Professional (formerly Business Technology).....	27	Horticulture.....	48
Automotive Service Technology	28	Human Resource Management.....	49
Business Management.....	29	Human Services.....	50
Career Development Facilitator.....	29	Industrial Technology (Apprenticeship).....	51
Clinical Laboratory Assistant.....	30	Juvenile Corrections	51
Collision Repair/Refinishing Technology.....	31	Landscape.....	52
Collision Refinishing Technology	31	Manufacturing Technology	53
Collision Repair Technology.....	32	Marketing.....	54
Computer-Aided Drafting/ Computer-Aided Manufacturing (CAD/CAM)	32	Marketing & Management.....	54
Computer Application Specialist	33	Medical Assistant	55
Crime Analysis	35	Microelectronics Systems Technology.....	56
Criminal Justice	35	Music Technology	57
Corrections.....	36	Network & Microcomputer Specialist.....	58
Dental Assistant*	37	Nursing.....	59
Drafting Technology	38	Occupational Skills Training.....	61
Drafting Technology/Architectural.....	39	Paraeducator.....	62
Early Childhood Education & Family Studies	40	Project Management.....	63
Electronic Publishing.....	41	Retail Management	64
Electronics Systems Technology	41	Supervisory Training.....	66
Emergency Management	42	Utility Workforce Readiness.....	66
Emergency Medical Technology	42	Water & Environmental Technology.....	66
Emergency Medical Technology - Paramedic.....	43	Water/High-Purity Production.....	67
Employment Skills Training	43	Web Design Specialist	68
Energy & Resource Management.....	44	Web Design & Development Specialist	68
		Welding Technology	69

* Pending National Accreditation

Accounting

ASSOCIATE OF APPLIED SCIENCE DEGREE

The Accounting program at Clackamas emphasizes developing an advanced understanding of accounting principles, analytical skills and the capacity to solve problems. Students should have the ability to reason, read with comprehension and compute math applications.

The program is not designed to lead to a traditional four-year business administration degree, although it may articulate with accelerated and nontraditional programs such as those offered by private universities.

PROGRAM OUTCOMES

Successful completion of this degree program should prepare students for entry-level employment in accounting and office careers. Students completing this degree may sit for a civil service exam at level GS8. They will analyze, summarize and record financial transactions and prepare summary statements for small and medium-sized businesses, both manually and using computerized systems.

CAREERS

Career opportunities include GS8 Accountant I, bookkeeper, data-entry clerk, financial staff accountant, cost accountant and general office clerk.

For information contact Hugo Grimaldi, ext. 2151 or hugog@clackamas.edu

ACCOUNTING ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM	CREDITS
BA-101 Introduction to Business	4
BA-104* Business Math	3
BA-211 Financial Accounting I	4
BA-226 Business Law I	4
WR-121 English Composition	3

WINTER TERM	CREDITS
BA-131 Introduction to Business Computing	4
BA-156 Business Forecasting	3
BA-177 Payroll Accounting	3
BA-212 Financial Accounting II	4
BA-251 Supervisory Management	3

SPRING TERM	CREDITS
BA-205 Solving Communication Problems with Technology	4
BA-213 Decision Making with Accounting Information	4
BA-218 Personal Finance	3
BA-285 Human Relations in Business	4

ACCOUNTING ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM	CREDITS
BA-223 Principles of Marketing	4
BA-240 Government Accounting	4
BA-256 Income Tax Accounting	3
— PE/Health requirement (see page 15)	1

WINTER TERM

BA-206 Management Fundamentals	4
BA-216 Cost Accounting	3
BA-222 Financial Management	3
BA-227 Business Law II	4

SPRING TERM

BA-217 Budgeting for Managers	3
BA-225 Business Report Writing	3
BA-248 Auditing	3
BA-280 Business/CWE	3
BT-105 Computerized Accounting	3

Minimum credits required for degree 91

* For this degree, BA-104 meets the Related Instruction Computation requirement.

Accounting Clerk

CERTIFICATE

Curriculum includes basic bookkeeping and accounting, including manual and computerized data entry, transaction analysis, preparation of financial statements and other related tasks. Graduates of this certificate can specialize in tax preparation or general accounting assistant work.

PROGRAM OUTCOMES

Successful completion of this certificate program should prepare students for entry-level bookkeeping tasks, including manual and computerized data entry, transaction analysis, preparation of financial statements and other related office tasks for an accounting firm or department. Students will be prepared to complete typical accounting clerk responsibilities such as journalizing, posting, assisting with tax, audit and other accounting procedures, preparing reports, communicating results and general office responsibilities.

CAREERS

Career opportunities include accounts payable clerk, accounts receivable clerk and data entry clerk for small and medium-sized service businesses.

For information contact Hugo Grimaldi, ext. 2151 or hugog@clackamas.edu

ACCOUNTING CLERK CERTIFICATE

FIRST TERM	CREDITS
BA-101 Introduction to Business	4
BA-104* Business Math	3
BA-211 Financial Accounting I or BA-111 General Accounting I	4
WR-121 English Composition	3

Continued

SECOND TERM

BA-131	Introduction to Business Computing	4
BA-156	Business Forecasting	3
BA-177	Payroll Accounting	3
BA-212	Financial Accounting II	
or BA-112	General Accounting II	4
BA-251	Supervisory Management	3

THIRD TERM

BA-205	Solving Communication Problems with Technology	4
BA-213	Decision Making with Accounting Information	4
BA-226	Business Law I	4
BA-280	Business/CWE	3
BA-285	Human Relations in Business	4

Minimum credits required for certificate 50

SUBSTITUTIONAL ACCOUNTING CLERK THIRD TERM FOCUS AREA FOR INCOME TAX PREPARERS:

THIRD TERM		CREDITS
BA-226	Business Law I	4
BA-280	Business/CWE	3
BA-285	Human Relations in Business	4
BT-110	Income Tax Preparation	8

* For this certificate, BA-104 meets the Related Instruction Computation requirement.

Administrative Medical Office Assistant

CERTIFICATE

The Administrative Medical Office Assistant certificate provides students with a strong foundation of basic skills in front office practice and procedures. Emphasis is placed on critical thinking and human relations skills. Course work includes Related Instruction requirements and industry-standard skill requirements.

PROGRAM OUTCOMES

Upon successful completion of this program, students should be qualified to work successfully in the front office of a medical office, clinic or patient-services business. Students will have the hard and soft skills needed to work under pressure, meeting the changing and diverse office needs of staff and patients.

CAREERS

Career opportunities may include opportunities to work at physicians' offices, hospitals, drug firms, insurance companies and medical departments of the government or large corporations.

For information contact Tanya Patrick, ext. 2426 or tan-yap@clackamas.edu

ADMINISTRATIVE MEDICAL OFFICE ASSISTANT CERTIFICATE

FALL TERM CREDITS

BI-055	Introduction to Human Biology	
or BI-101	General Biology	3-4
BT-112	Administrative Medical Assisting: Introduction	3
BT-124	Business Editing I	3
BT-160	Word I	3
MA-110	Medical Terminology	3

WINTER TERM

BA-104*	Business Math	3
BT-125	Business Editing II	3
BT-145	Administrative Medical Assisting: Insurance & Billing	3
BA-211	Financial Accounting I	
or BA 111	General Accounting I	4
BA-285	Human Relations in Business	4

SPRING TERM

BA-101	Introduction to Business	4
BA-280	Business/CWE	3
BT-113	Administrative Medical Assisting: Coding	3
BT-114	Administrative Medical Assisting: Ethical Issues	3
WR-121	English Composition	3

Minimum credits required for certificate 48-49

* For this certificate, this course meets the Related Instruction Computation requirement.

Administrative Office Assistant

CERTIFICATE

Formerly Office Specialist Training Program

A less than one year program. The Administrative Office Assistant is an intensive job training program designed for those seeking new career opportunities in administrative office support positions. This program covers two of the three required terms for the Administrative Office Assistant (one-year) certificate program.

PROGRAM PREREQUISITES

Students must meet certain requirements in order to apply to this program. Training takes place weekly, Tuesday through Friday from 8 a.m. until 3 p.m. *In order to enroll in this program, a student must first schedule an interview and meet with the instructor.*

PROGRAM OUTCOMES

Students completing this program should be eligible for entry-level employment in a variety of general office positions such as office clerk, receptionist, data entry clerk, office assistant or general office support.

CAREERS

Continued education and/or experience may lead to positions as administrative assistant, office manager, or legal or medical office assistants.

For more information contact Lynn Seaman, ext. 2136, or lynns@clackamas.edu

Information can also be found on the college's web site at <http://depts.clackamas.edu/business/office.htm>

ADMINISTRATIVE OFFICE ASSISTANT CERTIFICATE

FIRST TERM		CREDITS
BA-111	General Accounting I	4
BT-122	Keyboard Skillbuilding	2
BT-124	Business Editing I	3
BT-160	Word I	3
BT-172	Intro to Microsoft Outlook	2
SECOND TERM		
BA-104	Business Math	3
BT-125	Business Editing II	3
BT-161	Word II	3
BT-176	Excel	3
BT-216	Office Procedures	4
<i>Minimum credits required for certificate</i>		30

Administrative Office Assistant
CERTIFICATE

Formerly Office Assistant

This program provides a strong foundation of basic skills in office administration. Emphasis is placed on critical thinking and human relations skills. Course work includes Related Instruction requirements, industry-standard computer programs and specific business and office administration courses.

PROGRAM OUTCOMES

Students successfully completing this program should be eligible for entry-level employment in a variety of general office positions such as office clerk, receptionist, data entry clerk, office assistant, or general office support leading to positions (with experience) as an administrative assistant, legal assistant or office manager.

CAREERS

Career opportunities may include administrative assistant, legal secretary and medical secretary.

For information contact Tanya Patrick, ext. 2426 or tanyap@clackamas.edu

OFFICE ASSISTANT CERTIFICATE

FALL TERM		CREDITS
BA-104*	Business Math	3
BT-122	Keyboarding Skillbuilding	2
BT-124	Business Editing I	3
BT-160	Word I	3
WR-121	English Composition	3
WINTER TERM		
BA-285	Human Relations in Business	4
BT-125	Business Editing II	3
BT-161	Word II	3
BT-172	Introduction to Microsoft Outlook	2
BT-176	Excel	3
— —	BT/BA Elective	3
SPRING TERM		
BA-111	General Accounting I	
or BA-211	Financial Accounting I	4
BA-280	Business/CWE	3
BT-170	Access	3
BT-216	Office Procedures	4
BT-262	Integrated Projects	4
<i>Minimum credits required for certificate</i>		50
* For this certificate, BA-104 meets the Related Instruction Computation requirement.		

Administrative Office Professional
ASSOCIATE OF APPLIED SCIENCE DEGREE

Formerly Business Technology

This program provides a strong foundation of office and technology skills and courses in business administration, with an emphasis on critical thinking and human relations skills. The program includes related instruction requirements, industry standard computer programs and more advanced business administration courses.

PROGRAM OUTCOMES

Successful completion of this degree should provide students with the skills necessary for entry-level positions in a variety of administrative or office support roles in business, industry, or the medical or legal fields.

CAREERS

Career opportunities may include administrative assistant, office manager, project coordinator, legal assistant and medical secretary.

For information contact Tanya Patrick, ext. 2426 or tanyap@clackamas.edu

Continued

**ADMINISTRATIVE OFFICE PROFESSIONAL
ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR**

FALL TERM		CREDITS
BA-101	Introduction to Business	4
BA-104*	Business Math	3
BT-122	Keyboarding Skillbuilding	2
BT-124	Business Editing I	3
BT-160	Word I	3

WINTER TERM		CREDITS
BA-111	General Accounting I	4
or BA-211	Financial Accounting I	
BT-125	Business Editing II	3
BT-161	Word II	3
BT-172	Introduction to Microsoft Outlook	2
BT-176	Excel	3

SPRING TERM		CREDITS
BT-170	Access	3
BT-173	Intro to Microsoft Powerpoint	2
BT-216	Office Procedures	4
BT-262	Integrated Projects	4
WR-121	English Composition	3

**ADMINISTRATIVE OFFICE PROFESSIONAL
ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR**

FALL TERM		CREDITS
BA-120	Project Team Tools	3
BA-218	Personal Finance	3
BA-226	Business Law I	4
BA-285	Human Relations in Business	4
— —	Administrative Office Professional program electives	4

WINTER TERM		CREDITS
BA-156	Business Forecasting	3
BA-205	Solving Communication Problems with Technology	4
BA-224	Human Resource Management	4
BT-177	Microsoft Project	3
— —	PE/Health Requirement (see page 15)	1

SPRING TERM		CREDITS
BA-225	Business Report Writing	3
BA-280	Business/CWE	3
BT-220I	Desktop Publishing: InDesign	3
— —	Administrative Office Professional program electives	4
<i>Minimum credits required for degree (requirements + electives)</i>		92

* For this degree, BA-104 meets the Related Instruction Computation requirement.

ADMINISTRATIVE OFFICE PROFESSIONAL PROGRAM ELECTIVES

Any Business Administration (BA) or Business Technology (BT) course not included in the Administrative Office Professional program.

Automotive Service Technology

**ASSOCIATE OF APPLIED SCIENCE DEGREE
INTERNSHIP PROGRAM**

The program focuses on the repair and maintenance of passenger cars and light trucks. Course work includes cooperative work experience working for a local employer. Those who wish to specialize may take advanced mechanic studies courses for more in-depth experience. Students may enter the program any term.

PROGRAM PREREQUISITES

MTH-020 Fundamentals of Arithmetic or equivalent competency and RD-090 Intermediate Reading Skills or equivalent competency.

AUTOMOTIVE TECHNICIAN'S INTERNSHIP PROGRAM

Clackamas Community College and the Northwest Automotive Trades Association co-sponsor the Automotive Technician's Internship Program (ATIP) training program. The program serves a limited number of CCC students each year.

TOYOTA "T-TEN" INTERNSHIP PROGRAM

Students sponsored by a dealer attend Clackamas the first year and transfer to Umpqua or Clark for the completion of the course work. Clackamas Community College, in cooperation with Umpqua Community College and Clark College, provide a Toyota dealership internship program.

PROGRAM OUTCOMES

Program outcomes should include the skills for entry-level employment in the industry as auto technicians maintaining and repairing passenger cars and light trucks, including repairing air conditioning systems, engine and transmission rebuilding, front-end repair and alignment, brake service, starting and charging system repair and the diagnosis and repair of electronic engine controls and safety systems.

CAREERS

Career opportunities may include: automotive service mechanic/technician, recreational vehicle service technician and truck service mechanic/technician.

For information contact the Automotive Department, ext. 2354.

AUTOMOTIVE SERVICE TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM		CREDITS
AM-121	General Auto Repair I	3
AM-133	Engine Systems	7
MFG-109	Computer Literacy for Technicians	3
— —	Human Relations Requirement (see page 15) (Recommended: PSY-101 or SP-100)	3

WINTER TERM

AM-122	General Auto Repair II	3
AM-129	Electrical Systems	7
MTH-050	Technical Mathematics I or MTH-065 Algebra II	3-4

SPRING TERM

AM-123	General Auto Repair III	3
AM-131	Chassis Systems	7
WR-101	Communication Skills: Occupational Writing or WR-121 English Composition	3

AUTOMOTIVE SERVICE TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM CREDITS

AM-235	Power Transmission Systems	7
AM-245	Automatic Transmission Systems	7
— —	Health/PE Requirements (see page 15) (Recommended: HE-252)	3

WINTER TERM

AB-112	Collision Repair Welding I	2
AM-130	Brake Systems	7
AM-243	Fuel & Emission Control Systems	7

SPRING TERM

AM-224	Comfort Systems	4
AM-228	Service Shop Management	4
AM-244	Advanced Electrical & Fuel Systems	7
AM-280	Auto Mechanics/CWE	6

Minimum credits required for degree (requirements + electives) 96-97

Note: Alternative course schedules are available. Contact the Automotive Department for information.

**Business Management
CERTIFICATE**

Curriculum focuses on basic management and leadership skills, motivation, decision-making, ethics, work flow analysis, ergonomics, personality and human relations, communications, technological innovations and adapting to change.

PROGRAM OUTCOMES

Upon successful completion of this certificate students should be prepared for a variety of entry-level supervisory or management-trainee positions. Students will be prepared to perform management responsibilities such as budgeting, scheduling, planning, organizing, critical thinking, decision-making and managing scarce and diminishing resources.

CAREERS

Career opportunities may include management trainee, first-line supervisory, management analyst, merchandiser, or marketing/sales representative in small and medium-sized retail and service companies.

For information call Dale Hatfield, ext. 2361 or daleh@clackamas.edu; Joan Ryan, ext. 2363 or joanr@clackamas.edu

BUSINESS MANAGEMENT CERTIFICATE

FALL TERM CREDITS

BA-101	Introduction to Business	4
BA-104*	Business Math	3
BA-211	Financial Accounting I	4
BA-223	Principles of Marketing	4
WR-121	English Composition	3

WINTER TERM

BA-131	Introduction to Business Computing	4
BA-156	Business Forecasting	3
BA-206	Management Fundamentals	4
BA-226	Business Law I	4
BA-285	Human Relations in Business	4

SPRING TERM

BA-205	Solving Communication Problems with Technology	4
BA-217	Budgeting for Managers	3
BA-218	Personal Finance	3
BA-224	Human Resource Management	4
BA-280	Business/CWE	3

Minimum credits required for certificate 54

* For this certificate, BA-104 meets the Related Instruction Computation requirement.

Career Development Facilitator

**CERTIFICATE
PROFESSIONAL UPGRADE**

The Career Development Facilitator Certificate, a short-term certificate, is designed for individuals who are working in the field of career development and/or have already earned a degree in a related field. This certificate can also serve as a step toward earning a Global Career Development Facilitator Credential.

PROGRAM OUTCOMES

Upon completion of the program, students should possess the skills and knowledge to assist clients in identifying and exploring career options, researching occupational information, making career decisions and action plans, and conducting an effective job search.

CAREERS

The application of this credential will depend on the student's prior experience and training. Career development facilitator training can enhance the skills of human services professionals and educators in many fields. Career development facilitators may serve as work force development personnel, job search trainers, career workshop facilitators, career coaches, intake interviewers, career resource specialists, and employment/place-ment specialists.

For information contact Fran Page, ext. 2527 or franp@clackamas.edu or Dick Ashbaugh, ext. 2237 or dicka@clackamas.edu

Continued

CAREER DEVELOPMENT FACILITATOR CERTIFICATE

FALL TERM		CREDITS
HS-217	Career Development Facilitator I	4
WINTER TERM		
HS-218	Career Development Facilitator II	4
SPRING TERM		
HS-219	Career Development Facilitator III	4
— —	Career Development Facilitator program electives or general elective (any college course)	3-4
<i>Minimum credits required for certificate</i>		15-16

CAREER DEVELOPMENT FACILITATOR PROGRAM ELECTIVES

COURSE		CREDITS
HS-154	Community Resources	3
HS-260	Victim Advocacy & Assistance	4
HS-280	Human Services/CWE	4

Clinical Laboratory Assistant
CERTIFICATE

Clinical laboratory assistants serve a diverse ancillary role assisting other laboratory personnel, physicians and patients. Their duties may include data entry, laboratory billing practices and the performance of ambulatory assistant-level testing according to standard operating procedures. Students are trained in all aspects of the medical laboratory support personnel, including phlebotomy, specimen processing, quality control, laboratory orientation and regulation. Students will participate in unpaid, supervised externships in ambulatory or acute care laboratory settings.

The program is approved through the National Accrediting Agency for Clinical Laboratory Science (NAACLS).

PROGRAM PREREQUISITES

Admission to the Clinical Laboratory Assistant program is during summer term to enroll for fall classes. Admission is by special application only. Specific skill levels are required in reading, writing and math. Applicants are advised that a high level of dexterity, the ability to multi-task and a high degree of attention to detail are required for the successful completion of this program. A physical examination by a licensed health care provider, immunizations and a criminal history background check are required. Drug testing may be required.

PROGRAM OUTCOMES

Upon successful completion of the program, students should be eligible to sit for the National Certificate Association of Clinical Laboratory Science (NCA) Phlebotomy examination and/or the American Medical Technologist (AMT) Certified Office Laboratory Technician (COLT) examination. Students will be prepared for entry level employment as a clinical lab assistant/phlebotomist.

CAREERS

Career opportunities may include but are not limited to phlebotomist, laboratory specimen processor, waived testing analyzer, medical research assistant and physician office laboratory assistant.

Application packets with admission procedures and requirements are available from the Enrollment Services Center, the Advising & Counseling Center, or go to <http://depts.clackamas.edu/healthsciences>

For continuing education for healthcare providers see Healthcare Professional Development page 194.

For information contact Helen Wand, ext. 5055 or helenw@clackamas.edu

CLINICAL LABORATORY ASSISTANT CERTIFICATE

FALL TERM		CREDITS
BI-055	Introduction to Human Biology	
or BI-102	General Biology (prerequisite BI-101)	3-4
CLA-100	Introduction to Healthcare	2
CLA-101	Clinical Laboratory Assistant Skills I	4
MA-110	Medical Terminology	3
MA-115	Phlebotomy	1
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3
WINTER TERM		
CLA-102	Clinical Laboratory Assistant Skills II	4
CLA-115	Laboratory Administrative Skills	2
CLA-119	Phlebotomy/Laboratory Practicum I	3
CS-120	Survey of Computing	4
MTH-050	Technical Mathematics I	
or MTH-065	Algebra II	3-4
SPRING TERM		
CLA-103	Clinical Laboratory Assistant Skills III	4
CLA-120	Phlebotomy/Laboratory Practicum II	4
PSY-101	Human Relations	3
SP-100	Basic Speech Communication	
or SP-218	Interpersonal Communication	3-4
<i>Minimum credits required for certificate</i>		46-49

Current First Aid and CPR for Healthcare Providers (AHA or ASHI) are required during practicums and must be taken prior to winter term practicum. A criminal history background check is required and drug testing may be required.

Note: All clinical practicum courses are "Pass/No Pass". All other courses are letter grades and must be passed with a "C" grade or better in order to continue to the next quarter.

Core curriculum is sequential and may not be taken out of order, with the exception of CLA-100 which may be taken prior to beginning the program. Curriculum is intended to be completed in one academic year.

Collision Repair/Refinishing Technology

CERTIFICATE

The refinishing program at Clackamas simulates real working conditions in a modern shop facility. Training combines intensive theory and practical lab experience tailored to specific needs. Course work includes one term of cooperative work experience with a local employer. Program flexibility allows students to enter any term and proceed at their own pace. The certificate program is a four-term program.

Refinishing technicians prepare vehicles for paint, mix and tint paint, do spot repairs and overall refinishing. Course work covers the use of urethane systems including single, two-stage and tri-coat color applications. Skills needed by refinishing technicians include the ability to machine and hand-sand, work with hazardous materials and use product application techniques.

PROGRAM OUTCOMES

Program outcomes should include entry-level skills for employment in minor auto body repair in preparation for painting, automotive paint preparation and automotive painting and refinishing processes.

CAREERS

Career opportunities may include paint prep technician, paint detail technician and auto body painter in independent repair shops, auto dealerships, paint suppliers, heavy equipment dealers or truck painting facilities.

For information contact David Bradley, ext. 2628 or bradleyd@clackamas.edu

COLLISION REPAIR REFINISHING CERTIFICATE

FALL TERM		CREDITS
AB-112	Collision Repair Welding I	2
ABR-125	Collision Repair/Refinishing I	12
MTH-050	Technical Mathematics I	3-4
	or MTH-065 Algebra II	
WINTER TERM		
ABR-127	Collision Repair/Refinishing II*	12
MFG-109	Computer Literacy for Technicians	3
WR-101	Communication Skills: Occupational Writing	3
	or WR-121 English Composition	
SPRING TERM		
ABR-129	Collision Repair/Refinishing III	12
AM-228	Service Shop Management	4
— —	Health/PE Requirement (see page 15)	3
	(Recommended: HE-252)	

SUMMER TERM

ABR-180	Collision Refinishing/CWE	6
— —	Human Relations Requirement (see page 15)	3
	(Recommended: PSY-101)	
<i>Minimum credits required for certificate</i>		63-64

*Program requirements: Current enrollment in or successful completion of AB-112 Collision Repair Welding I and ABR-125 Collision Repair Refinishing I must be completed prior to enrolling in ABR-127 Collision Repair Refinishing II.

Collision Refinishing Technology

ASSOCIATE OF APPLIED SCIENCE DEGREE

The refinishing program at Clackamas simulates real working conditions in a modern shop facility. Training combines intensive theory and practical lab experience tailored to specific needs. Course work includes one term of cooperative work experience with a local employer. Program flexibility allows students to enter any term and proceed at their own pace.

Refinishing technicians prepare vehicles for paint, mix and tint paint, do spot repairs and overall refinishing. Course work covers the use of urethane systems including single, two-stage and tri-coat color applications. Skills needed by refinishing technicians include the ability to machine and hand-sand, work with hazardous materials and use product application techniques.

PROGRAM OUTCOMES

Program outcomes should include entry-level skills for employment in collision refinishing technology, including body preparation and painting and refinishing techniques.

CAREERS

Career opportunities may include collision repair, painter, restoration painter, estimator or manager in independent repair shops, auto dealerships, paint suppliers, heavy equipment dealers or truck painting facilities.

For information contact David Bradley, ext. 2628 or bradleyd@clackamas.edu

COLLISION REFINISHING TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FIRST TERM		CREDITS
AB-112	Collision Repair Welding I	2
ABR-125	Collision Repair/Refinishing I	12
MTH-050	Technical Mathematics I	3-4
	or MTH-065 Algebra II	
SECOND TERM		
ABR-127	Collision Repair/Refinishing II*	12
MFG-109	Computer Literacy for Technicians	3
WR-101	Communication Skills: Occupational Writing	3
	or WR-121 English Composition	

Continued

THIRD TERM

ABR-129	Collision Repair/Refinishing III	12
AM-228	Service Shop Management	4
— —	Health/PE Requirement (see page 15) (Recommended: HE-252)	3

COLLISION REFINISHING TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FOURTH TERM		CREDITS
ABR-225	Production Shop Techniques	10
— —	General elective (any college-level course)	3

FIFTH TERM

AB-149	Collision Repair Estimating I	2
ABR-142	Airbrush Art	2
ABR-227	Restoration Practices	10

SIXTH TERM

AB-150	Collision Repair Estimating II	2
— —	General elective (any college-level course)	3
ABR-180	Collision Refinishing/CWE	6
— —	Human Relations Requirement (see page 15) (Recommended: PSY-101)	3

Minimum credits required for degree (requirements + electives): 95-96

Recommended electives: ABR-152 Custom Painting Fundamentals, ABR-162 Basic Automotive Pinstriping.

*Program requirements: Current enrollment in or successful completion of AB-112 Collision Repair Welding I and ABR-125 Collision Repair Refinishing I must be completed prior to enrolling in ABR-127 Collision Repair Refinishing II.

Collision Repair Technology

ASSOCIATE OF APPLIED SCIENCE DEGREE

Course work covers advanced techniques for welding automotive metals, installing fixed and adjustable glass and repairing dents, fiberglass and rubber parts. Repair of electrical, safety, steering and suspension and air conditioning systems is also covered.

PROGRAM OUTCOMES

Program outcomes should include entry-level skills for employment to repair or replace damaged panels, parts and frames on both unibody and conventional frame vehicles.

CAREERS

Career opportunities are similar to those for collision repair/refinishing and may also include auto body repairer, auto body frame technician and auto body prep person.

For information contact Wayne Austen, ext. 2249 or waynea@clackamas.edu

COLLISION REPAIR TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM		CREDITS
AB-112	Collision Repair Welding I*	2
AB-113	Collision Repair I/Nonstructural	12
— —	Health/PE Requirement (see page 15) (Recommended: HE-252)	3

WINTER TERM

AB-111	Collision Repair/Chassis & Brakes	5
AB-123	Collision Repair Welding II	2
MTH-050	Technical Mathematics I	
— —	or MTH-065 Algebra II	3-4
WR-101	Communication Skills: Occupational Writing	
— —	or WR-121 English Composition	3

SPRING TERM

AB-133	Collision Repair II/Structural	12
AM-228	Service Shop Management	4

COLLISION REPAIR TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
AB-222	Collision Repair III/Advanced Structural	12
— —	Human Relations Requirement (see page 15) (Recommended: SP-100 or PSY-101)	3
— —	General elective (any college-level course)	3

WINTER TERM

AB-280	Collision Repair/CWE	6
AM-224	Comfort Systems	4
MFG-109	Computer Literacy for Technicians	3

SPRING TERM

AB-211	Collision Repair/Electrical I	4
AB-224	Advanced Collision Repair IV	10
AB-231	Collision Repair/Electrical II	3

Minimum credits required for degree (requirements + electives) 94-95

RECOMMENDED ELECTIVES

Any Automotive Service Technology (AM), Collision Repair (AB) or Collision Repair/Refinishing (ABR) course not included in the Collision Repair Technology Associate Degree program.

* Program requirement: Successful completion of AB-112 Collision Repair Welding I or current enrollment with AB-113 Collision Repair I/Nonstructural.

Computer-Aided Drafting/ Computer-Aided Manufacturing (CAD/CAM)

ASSOCIATE OF APPLIED SCIENCE DEGREE

This program combines training in computer-aided drafting (CAD) and computer-aided manufacturing (CAM). Course work emphasizes computer-aided mechanical drafting, machine tool fundamentals, computer numerical control (CNC) and computer-aided manufacturing.

PROGRAM OUTCOMES

Program outcomes should include entry-level skills for employment as a CNC/CAD/CAM technician and draftsman to provide a company with the needed computerized drafting or computer-aided manufacturing support. The technician's training involves the skills to support initial product design through manufacturing, including design and print-reading, CAD and kinematics drafting, machine tool operations and requisite mathematical and geometric instruction.

CAREERS

Career opportunities may include CNC programmer and operator, CAD technician, manufacturing engineering technician and CAD/CAM technician.

For information contact Mike Mattson (Manufacturing), ext. 2483 or mattsonm@clackamas.edu; Michael Jones (Drafting), ext. 2443 or mikej@clackamas.edu

MANUFACTURING ENGINEERING TECHNOLOGY
(OIT transfer courses)

The CCC Manufacturing Technology Department, in partnership with Oregon Institute of Technology (OIT), offers a significant number of transferable classes into OIT's Manufacturing Engineering Technology degree program. Contact the Manufacturing Department for more information, ext. 2483.

COMPUTER-AIDED DRAFTING/COMPUTER-AIDED MANUFACTURING (CAD/CAM) ASSOCIATE OF APPLIED SCIENCE DEGREE

FIRST TERM		CREDITS
CDT-102	Sketching and Problem Solving	3
CDT-103	Computer-Aided Drafting I	4
MFG-104	Print Reading	2
MTH-050**	Technical Mathematics I	3
WR-101**	Communication Skills: Occupational Writing	3
SECOND TERM		
CDT-104*	Professional Computing Basics	3
CDT-105	Computer-Aided Drafting II	4
MFG-105	Dimensional Inspection	2
MFG-111	Machine Tool Fundamentals I	6
MTH-080**	Technical Mathematics II	3
THIRD TERM		
MFG-106	Applied Geometric Dimensioning & Tolerancing for Manufacturing	3
MFG-112	Machine Tool Fundamentals II	6
MTH-085**	Technical Mathematics III	3
— —	CAD/CAM program elective	3
FOURTH TERM		
MFG-201	CNC I: Set-up & Operation	4
MFG-204	Computer-Aided Manufacturing I	4
— —	CAD/CAM program elective	3
— —	CAD/CAM program elective	3
— —	Human Relations requirement (see page 15)	3
FIFTH TERM		
MFG-113	Machine Tool Fundamentals III	6
MFG-202	CNC II: Programming & Operation	4
MFG-205	Computer-Aided Manufacturing II	4
— —	PE/Health requirement (see page 15)	3
SIXTH TERM		
MFG-206	Computer-Aided Manufacturing III	2
MFG-211	Machine Tool Fundamentals IV	6
MFG-221	Materials Science	3
MFG-280	Manufacturing Technology/CWE	4
— —	CAD/CAM program elective	3

Minimum credits required for degree: 100

CAD/CAM PROGRAM ELECTIVES (12 OR MORE CREDITS)

CDT-107	Computer-Aided Drafting III	4
CDT-108	CAD 3-D	3
CDT-108A	Introduction to Solid Modeling (recommended)	3
CDT-109A	Project Drafting I-CAD/CAM	2
CDT-110	Kinematics Drafting	3
CDT-223	Inventor Fundamentals (recommended)	3
CDT 225	Advanced Solid Modeling (recommended)	3
CDT-295	Tool Design	3
CDT-296	Tool Design II	3
MFG-203	CNC III: Applied Programming & Operation (recommended)	3

* MFG-209 Programming and Automation for Manufacturing, can be substituted for CDT-104.

Students with specialized job training needs may be eligible to substitute some classes. Consult your instructor or the department chair for more information.

**Substitute college transfer courses for these courses if you plan to continue your education at a higher education institution. It is recommended that you consult with a faculty advisor or a staff member in the Advising & Counseling Center for the transfer requirements of the specific advanced program or school.

Computer Application Specialist

**CERTIFICATE
ASSOCIATE OF APPLIED SCIENCE DEGREE**

The Computer Application Specialist program prepares students for technical support positions. Students may earn either a one-year certificate or a two-year Associate of Applied Science degree. The course work emphasizes development of analytical and problem-solving skills. Cooperative Work Experience (CWE) is supervised on-the-job employment that supplements the academic classroom environment.

PROGRAM PREREQUISITES

Prerequisites for first term classes include completed course work for CS-120 Survey of Computing, WR-095 Paragraph to Essay and MTH-065 Algebra II or placement in CS-121 Computer Applications, WR-121 English Composition, and MTH-065 Algebra II. This program is an open program, meaning that students may take any class in the program for which they have completed the prerequisite. Note: Placement at a level of math higher than MTH-092 does not satisfy the MTH-092 requirement.

PROGRAM OUTCOMES

Program outcomes should include entry-level skills for employment in technical positions using and supporting computer software, including operating systems, web development, spreadsheets, databases and programming software.

Continued

CAREERS

Career opportunities may include web designer, database specialist, software trainer, software installation and maintenance engineer, computer applications specialist, client support representative, customer service engineer, help desk technician or software consultant.

For information contact Debra Carino, ext. 5198 or dcarino@clackamas.edu

COMPUTER APPLICATION SPECIALIST CERTIFICATE

FALL TERM		CREDITS
CS-121	Computer Applications	3
CS-140	Operating Systems I	4
CS-150	Computer Tech Orientation	2
CS-225	Computer End-User Support	3
MTH-092	Math for Computer Technicians	4
WINTER TERM		
CS-125H	HTML & Web Site Design	3
CS-125P	Computer Publishing	3
CS-135W	Advanced Word Processing	3
CS-179	Data Communications Concepts	3
WR-101 or WR-121	Communications Skills: Occupational Writing English Composition	3
SPRING TERM		
BA-101 or BA-103	Introduction to Business Business Strategies for Computer Consultants	3-4
CS-135I	Advanced Web Design	3
CS-135S	Advanced Spreadsheet	3
CS-280	Computer Science/CWE	3
— —	Human Relations requirement (see page 15; recommended: BA-285 or PSY-101)	3-4
<i>Minimum credits required for certificate:</i>		46-48

COMPUTER APPLICATIONS SPECIALIST ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM		CREDITS
CS-121	Computer Applications	3
CS-140	Operating Systems I	4
CS-150	Computer Tech Orientation	2
CS-225	Computer End-User Support	3
MTH-092	Math for Computer Technicians	4
WINTER TERM		
CS-125H	HTML & Web Site Design	3
CS-135W	Advanced Word Processing	3
CS-179	Data Communications	3
CS-240W	Operating Systems II: Windows	3
WR-101 or WR-121	Communications Skills: Occupational Writing English Composition	3
SPRING TERM		
ART-225	Computer Graphics I	3
BA-101 or BA-103	Introduction to Business Business Strategies for Computer Consultants	3-4
CS-135I	Advanced Web Design	3
CS-133VB	Visual Basic.NET I	3
CS-280	Computer Science/CWE	3

COMPUTER APPLICATIONS SPECIALIST ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
CS-133S	Web Application Development I	3
CS-135DB	Advanced Database	3
CS-140U	Operating Systems I: Linux/UNIX	3
— —	Human Relations requirement (see page 15; recommended: BA-285 or PSY-101)	3-4
— —	Focus area	3-4

WINTER TERM		CREDITS
CS-125P	Computer Publishing	3
CS-195	Multimedia for the Web	3
CS-275	Database Design	3
HE-252 or HPE-295	First Aid/CPR Health & Fitness for Life	3
— —	Focus area	4-5

SPRING TERM		CREDITS
CS-135S	Advanced Spreadsheet	3
CS-133VA	Visual Basic for Applications	3
CS-280	Computer Science/CWE	6
— —	Focus area	3-6
<i>Minimum credits required for degree (requirements & electives)</i>		92-99

ADDITIONAL COURSES FROM FOCUS AREA

Complete all courses from one of the following Focus Areas (11-12 credits)

APPLICATION SUPPORT

ART-226	Computer Graphics II	3
BT-220I or BT-177	Desktop Publishing I: InDesign Microsoft Project	3
CS-226	Applications Support	3
CS-289I	Web Server Administration: Internet Information Server	3

WEB/DATABASE PROGRAMMING

CS-233S	Web Application Development II	3
CS-234S	Web Application Development III	3
CS-289I	Web Server Administration: Internet Information Server	3
CS-297W	Website Capstone	3

ACCOUNTING

BA-211	Financial Accounting I	4
BA-212	Financial Accounting II	4
BA-213	Decision Making with Accounting Information	4

PROGRAMMING

CS-161	Computer Science I	4
CS-162	Computer Science II	4
CS-260	Data Structures	4

Crime Analysis

CERTIFICATE

The course work for this one-year certificate program is designed to develop students' knowledge and skills in the area of crime analysis, as needed to assist in the investigation of crime and the administration of law enforcement. Areas emphasized include tactical crime analysis (as applied to crime patterns and series), strategic crime analysis (such as to investigate long-term criminal activities), and administrative crime analysis. Students may enter this program any term.

The course work for this program includes cooperative work experience which affords the student opportunity for hands-on experience with many local, federal and state law enforcement agencies.

PROGRAM OUTCOMES

Program outcomes should include the skills necessary for entry-level employment with a local law enforcement agency, as well as other opportunities with federal and state agencies.

CAREERS

Career opportunities may include law enforcement officer at the local, state, or national level, and non-sworn crime analyst at the local, state or national level. Many departments require college course work or degrees in addition to civil service requirements.

For information contact Dick Ashbaugh, ext. 2237 or dicka@clackamas.edu

CRIME ANALYSIS CERTIFICATE

FIRST TERM		CREDITS
CJA-110	Introduction to Law Enforcement	3
CJA-112	Patrol Procedures	3
CJA-122	Criminal Law	3
CJA-140	Introduction to Crime Analysis	1
CJA-210	Criminal Investigation I	3
CS-120	Survey of Computing	4
SECOND TERM		CREDITS
CJA-141	Introduction to Crime Mapping	1
CJA-142	Statistics for Crime Analysis	1
CJA-211	Criminal Investigation II	3
CS-121	Computer Applications	3
MTH-050	Technical Mathematics	3-4
or MTH-065	Algebra II	
PSY-101	Human Relations	3
WR-121	English Composition	3

THIRD TERM

CJA-101	Criminology	3
CJA-143	Crime Analysis (CA) and Statistical Analysis	1
CJA-144	Crime Analysis (CA) via Modus Operandi (MO)	1
CJA-145	Crime Analysis (CA) Capstone	1
CJA-146	Crime Analysis (CA)/Link Analysis	1
CJA-147	Profiling Violent Crimes	1
CJA-148	Crime Scene Analysis Profiling	1
CJA-149	Research Methods/Crime Analysis	1
CJA-150	Intro to Police Intelligence	1
CJA-151	Crime Intelligence Analysis (CIA)	1
CJA-152	Crime Scene Analysis (CSA) Capstone	1
CJA-153	Crime Intelligence Analysis (CIA) Capstone	1
CJA-280	Criminal Justice/Corrections/CWE	3
<i>Minimum credits required for certificate</i>		51-52

CRIME ANALYSIS PROGRAM ELECTIVES

The following courses are electives that supplement the Crime Analysis certificate.

COURSE		CREDITS
CJA-200	Community Relations & Policing	3
CJA-212	Criminal Investigation III	3

Criminal Justice

ASSOCIATE OF APPLIED SCIENCE DEGREE

The course work for this two-year program is designed to develop students' knowledge and skills in the areas of law enforcement, courts and corrections. Areas emphasized include community policing, criminal investigation, routine patrol and criminological theory. Students gain an appreciation of the various parts of the criminal justice system and how they function as a whole. Students may enter this program any term.

The course work for this program includes cooperative work experience which affords the student opportunity for hands-on experience with many local, federal and state law enforcement agencies.

PROGRAM OUTCOMES

Program outcomes should include the skills necessary for entry-level employment with a local law enforcement agency, as well as other opportunities with federal and state agencies.

CAREERS

Career opportunities may include law enforcement officer at the local, state or national level, loss prevention officers and Homeland Security officers. Many departments require college course work or degrees in addition to civil service requirements.

For general information or information about transferring to a four-year institution contact Dick Ashbaugh, ext. 2237 or dicka@clackamas.edu

Continued

**CRIMINAL JUSTICE ASSOCIATE OF APPLIED SCIENCE DEGREE:
1ST YEAR**

FALL TERM		CREDITS
CJA-110	Introduction to Law Enforcement	3
CJA-112	Patrol Procedures	3
CJA-200	Community Relations & Policing	3
HE-250	Personal Health	3
WR-121	English Composition	3

WINTER TERM		CREDITS
CJA-120	Judicial Process	3
CJA-130	Introduction to Corrections	3
CJA-213	Interview & Interrogation	3
SP-111	Public Speaking	4
WR-122	English Composition	3

SPRING TERM		CREDITS
CJA-101	Criminology	3
CJA-201	Juvenile Delinquency	3
CJA-240	Cultural Diversity/Law Enforcement	3
HE-205	Youth Addiction	3
MTH-050	Technical Mathematics I	3-4
or MTH-065	Algebra II	

**CRIMINAL JUSTICE ASSOCIATE OF APPLIED SCIENCE DEGREE:
2ND YEAR**

FALL TERM		CREDITS
CJA-122	Criminal Law	3
CJA-210	Criminal Investigation I	3
CJA-223	Criminal Justice Ethics	3
CS-120	Survey of Computing	4
PSY-101	Human Relations	3

WINTER TERM		CREDITS
CJA-211	Criminal Investigation II	3
CJA-220	Substantive Law	3
CJA-243	Narcotics & Dangerous Drugs	3
SOC-206	Institutions & Social Change	4
— —	Criminal Justice program elective	3

SPRING TERM		CREDITS
CJA-203	Crisis Intervention	3
CJA-212	Criminal Investigation III	3
CJA-222	Procedural Law	3
CJA-280	Criminal Justice/Corrections/CWE	6
WR-227	Technical Report Writing	3

Minimum credits required for degree (requirements + electives) 96-97

CRIMINAL JUSTICE PROGRAM ELECTIVES

CJA-134	Correctional Institutions	
CJA-137	Mass Murder/Serial Killers	
CJA-138	Terrorism/Impact/Strategies	
CJA-140	Introduction to Crime Analysis (CA)	
CJA-141	Introduction to Crime Mapping	
CJA-142	Statistics for Crime Analysis	
CJA-143	Crime Analysis (CA) and Statistical Analysis	
CJA-230	Juvenile Corrections	
CJA-232	Corrections Casework	

Corrections

CERTIFICATE

The Corrections certificate program utilizes an interdisciplinary approach, including sociological, psychological and biological behavioral perspectives to provide students a well-rounded basis for interacting with corrections clients in a variety of correctional settings.

Course work includes cooperative work experience, hands-on experience in a correctional agency, to supplement and apply knowledge acquired in academic courses.

PROGRAM OUTCOMES

Successful completion of this certificate program should provide students with the skills and knowledge needed to qualify for an entry-level position in a state or local corrections system. Corrections professionals may also be qualified to move into other areas of law enforcement or social service.

CAREERS

Career opportunities may include correctional officer, work release counselor and corrections technician.

For information contact Dick Ashbaugh, ext. 2237 or dicka@clackamas.edu

CRIMINAL JUSTICE/CORRECTIONS CERTIFICATE

FALL TERM		CREDITS
CJA-110	Introduction to Law Enforcement	3
CJA-130	Introduction to Corrections	3
CS-120	Survey of Computing	4
SP-111	Public Speaking	4

WINTER TERM		CREDITS
CJA-120	Judicial Process	3
CJA-134	Correctional Institutions	3
HE-250	Personal Health	3
PSY-221	Introduction to Counseling	4
WR-121	English Composition	3

SPRING TERM		CREDITS
CJA-101	Criminology	3
CJA-203	Crisis Intervention	3
CJA-280	Criminal Justice/Corrections/CWE	3
MTH-050	Technical Mathematics I	3-4
or MTH-065	Algebra II	
WR-122	English Composition	3

Minimum credits required for certificate 45-46

Corrections

ASSOCIATE OF APPLIED SCIENCE DEGREE

The Corrections program utilizes an interdisciplinary approach, including sociological, psychological and biological behavioral perspectives to provide students with a well-rounded basis for interacting with corrections clients in a variety of correctional settings.

Course work includes cooperative work experience, hands-on experience in a correctional agency to supplement and apply knowledge gained in academic courses.

PROGRAM OUTCOMES

Successful completion of this degree should provide the skills and knowledge needed to qualify for a job in a federal, state or local corrections system. Corrections professionals may also be qualified to move into other areas of law enforcement or social service.

CAREERS

Career opportunities are generally in jail and prison facilities as well as community corrections agencies and may include correctional officer, correctional counselor and probation and parole officer.

For information contact Dick Ashbaugh, ext. 2237 or dicka@clackamas.edu

CRIMINAL JUSTICE/CORRECTIONS ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM	CREDITS
CJA-110 Introduction to Law Enforcement	3
CJA-130 Introduction to Corrections	3
CS-120 Survey of Computing	4
SP-111 Public Speaking	4
WR-121 English Composition	3

WINTER TERM	CREDITS
CJA-120 Judicial Process	3
CJA-134 Correctional Institutions	3
HE-250 Personal Health	3
PSY-221 Introduction to Counseling	4
WR-122 English Composition	3

SPRING TERM	CREDITS
CJA-101 Criminology	3
CJA-203 Crisis Intervention	3
HE-205 Youth Addiction	3
MTH-050 Technical Mathematics I	
or MTH-065 Algebra II	3-4
— — Criminal Justice program elective	3

CRIMINAL JUSTICE/CORRECTIONS ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM	CREDITS
CJA-122 Criminal Law	3
CJA-223 Criminal Justice Ethics	3
CJA-232 Corrections Casework	3
PSY-101 Human Relations	3
— — Criminal Justice program elective	3

WINTER TERM

CJA-201 Juvenile Delinquency	3
CJA-213 Interview & Interrogation	3
CJA-243 Narcotics & Dangerous Drugs	3
SOC-206 Institutions & Social Change	4
— — Criminal Justice program elective	3

SPRING TERM

CJA-230 Juvenile Corrections	3
CJA-240 Cultural Diversity/Law Enforcement	3
CJA-280 Criminal Justice/Corrections/CWE	6
— — Criminal Justice program elective	3

Minimum credits required for degree 94-95

CRIMINAL JUSTICE PROGRAM ELECTIVES

CJA-112 Patrol Procedures	
CJA-137 Mass Murder/Serial Killers	
CJA-138 Terrorism/Impact/Strategies	
CJA-140 Introduction to Crime Analysis (CA)	
CJA-141 Introduction to Crime Mapping	
CJA-200 Community Relations & Policing	
CJA-210 Criminal Investigation I	
CJA-211 Criminal Investigation II	
CJA-212 Criminal Investigation III	
CJA-220 Substantive Law	
CJA-222 Procedural Law	

Dental Assistant

CERTIFICATE

This program is designed to prepare students for entry level positions in the dental care setting. The goal of the program is to graduate students that have demonstrated competencies in clinical and administrative practices as well as demonstrated work ethics and professional values consistent with that of the American Dental Association (ADA). Core curriculum uses ADA standards and program approval by the ADA is pending.

PROGRAM PREREQUISITES

Admission to the Dental Assistant program is during spring term to enroll for fall classes. Admission is by special application only. Specific skills are required in reading, writing and math. Applicants are advised that a high level of dexterity, the ability to multi-task and a high degree of attention to detail are required for the successful completion of this program. A physical examination by a licensed healthcare provider, immunizations and a criminal history background check are required. Drug testing may be required. Students will participate in unpaid, supervised externships in the dental care setting.

PROGRAM OUTCOMES

Upon successful completion of the program, students should be eligible to take the necessary exams offered through the Dental Assistant National Board and the Oregon Board of Dentistry. Students will be prepared for entry level employment as a dental dsistant.

Continued

CAREERS

Career opportunities may include but are not limited to managed care facilities, private dental practices, state and county clinics, dental schools and the insurance industry.

Application packets with admission procedures and requirements are available from the Enrollment Services Center, the Advising & Counseling Center, or at <http://depts.clackamas.edu/healthsciences>

For continuing education for healthcare providers see Healthcare Professional Development page 194.

For information contact Maria Corona, ext. 2321 or mariac@clackamas.edu

DENTAL ASSISTANT PROGRAM CERTIFICATE

FALL TERM		CREDITS
DA-101	Dental Radiology I	3
DA-104	Clinical Procedures I	3
DA-107	Dental Materials I	3
DA-110	Clinical Practicum I	1
DA-115	Dental Science	1
DA-125	Dental Infection Control	1
MTH-050	Technical Mathematics I	
	or MTH-065 Algebra II	3-4
WINTER TERM		
CS-120	Survey of Computing	4
DA-102	Dental Radiology II	1
DA-105	Clinical Procedures II	3
DA-108	Dental Materials II	2
DA-120	Clinical Practicum II	5
DA-135	Pharmacology/Medical Emergencies	1
SPRING TERM		
DA-106	Clinical Procedures III	2
DA-130	Clinical Practicum III	8
DA-145	Dental Office Procedures	2
PSY-101	Human Relations	3
WR-101	Communication Skills: Occupational Writing	
	or WR-121 English Composition	3
<i>Minimum credits required for certificate</i>		49-50

Current CPR for Healthcare Providers (AHA) is required during practicums and must be taken prior to Fall Term Practicum. A criminal history background check is required and drug testing may be required.

Note: The ADA requires all courses receive a letter grade. Students must achieve a "C" or higher grade in all required courses prior to advancing to the next term.

Core curriculum is sequential and may not be taken out of order. Core curriculum is intended to be completed in one academic year.

Drafting Technology

ASSOCIATE OF APPLIED SCIENCE DEGREE
PROFESSIONAL UPGRADE

Professional drafters convert engineering sketches and designs into formal drawings for product manufacturing, building construction or facilities layout. The foundation of the Drafting Technology program is mechanical (manufacturing) drafting with exposure to each of the drafting fields, including architectural, structural, civil, industrial piping and sheet metal drafting. Students may enter the program any term. Course work covers the basics of 2D and 3D modeling, customization, and programming. Instruction stresses developing good work habits and logical problem solving that applies industrial standards and techniques.

Some courses are offered in distance learning formats that require that you have your own computer and a current version of AutoCAD.

Professional upgrade training and continuing education is available. Please refer to the course listings section for classes with a CAD prefix for short-term training.

DRAFTING FOR THE DISABLED

The program works with students with disabilities. The department can assist in customizing a workstation with adaptive equipment. Students pace themselves, allowing additional time for training to learn commands and procedures. Specific needs for adaptive equipment are dealt with on an individual basis.

PROGRAM OUTCOMES

Program outcomes should include the skills necessary for entry-level work as a drafter in engineering, manufacturing, construction, government, utilities, design, management, computer programming and related occupations.

CAREERS

Career opportunities may include: architectural and civil drafters, mechanical drafters and electrical drafters.

For information contact Michael Jones, ext. 2443 or mikej@clackamas.edu

COMPUTER-AIDED DRAFTING/COMPUTER-AIDED MANUFACTURING (CAD/CAM)

See degree program on page 32.

GEOGRAPHIC INFORMATION SYSTEMS (GIS)

See certificate and degree programs on page 46.

DRAFTING TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE

FIRST TERM	CREDITS
CDT-101 Drafting Technology Survey	3
CDT-102 Sketching and Problem Solving	3
CDT-103 Computer-Aided Drafting I	4
CDT-104 Professional Computing Basics	3
MTH-050* Technical Mathematics I (higher levels of math may be substituted)	3
SECOND TERM	
CDT-105 Computer-Aided Drafting II	4
CDT-106 Applied Descriptive Geometry	3
MTH-080* Technical Mathematics II	3
WR-101* Communication Skills: Occupational Writing	3
— — Human Relations requirement (see page 15)	3
THIRD TERM	
CDT-107 Computer-Aided Drafting III	4
CDT-108 CAD 3D	3
CDT-202 Architectural Drafting I	4
CDT-204 Civil Drafting	3
MTH-085* Technical Mathematics III	3
FOURTH TERM	
CDT-108A Introduction to Solid Modeling	3
CDT-109 Project Drafting I	5
CDT-110 Kinematics Drafting	3
CDT-111 Geometric Dimensioning & Tolerancing	3
CDT-201 AutoCAD Customization	3
FIFTH TERM	
CDT-203 Sheet Metal Drafting	3
CDT-206 CAD/CAM Integration	2
CDT-208 Schematic Drafting	3
CDT-209 Structural Drafting I	3
CDT-225 Advanced Solid Modeling	3
— — PE/Health requirement (see page 15)	1
SIXTH TERM	
CDT-207 Introduction to AutoLISP	3
CDT-210 Industrial Pipe Drafting	3
CDT-211 CAD Technical Communication	3
CDT-280 Drafting Technology/CWE	6
<i>Minimum credits required for degree</i>	96

* Substitute college transfer courses for these courses if you plan to continue your education at a higher education institution. It is recommended that you consult with a faculty advisor or a staff member in the Advising & Counseling Center for the transfer requirements of the specific advanced program or school.

Drafting Technology/ Architectural

ASSOCIATE OF APPLIED SCIENCE DEGREE

Professional drafters convert engineering sketches and designs into formal drawings for building construction and facilities layout. Instruction in each of the drafting fields, including architectural, structural, civil, industrial piping and sheet metal drafting will be given. Students may enter the program any term. Classes focus on industrial standards and techniques, building applicable skills, good work habits and logic.

This degree allows students to receive an Associate of Applied Science degree in Drafting Technology/Architectural by completing courses in residential and structural drafting in place of advanced mechanical drafting classes.

DRAFTING FOR THE DISABLED

The program works with students with disabilities. The department can assist in customizing a workstation with adaptive equipment. Students pace themselves, allowing additional time for training to learn commands and procedures. Specific needs for adaptive equipment are dealt with on an individual basis.

PROGRAM OUTCOMES

Program outcomes should include the skills necessary for entry-level work as a drafter in engineering, manufacturing, construction, government, utilities, design, management, estimating, computer programming and related occupations.

CAREERS

Career opportunities may include: architectural and civil drafters.

For information contact Michael Jones, ext. 2443 or mikej@clackamas.edu

DRAFTING TECHNOLOGY/ARCHITECTURAL ASSOCIATE OF APPLIED SCIENCE DEGREE

FIRST TERM	CREDITS
CDT-101 Drafting Technology Survey	3
CDT-102 Sketching and Problem Solving	3
CDT-103 Computer-Aided Drafting I	4
CDT-104 Professional Computing Basics	3
MTH-050* Technical Mathematics I (higher levels of math may be substituted)	3
SECOND TERM	
CDT-105 Computer-Aided Drafting II	4
CDT-106 Applied Descriptive Geometry	3
MTH-080* Technical Mathematics II	3
WR-101* Communication Skills: Occupational Writing	3
— — Human Relations requirement (see page 15)	3

Continued

THIRD TERM

CDT-107	Computer-Aided Drafting III	4
CDT-108	CAD 3D	3
CDT-202	Architectural Drafting I	4
CDT-204	Civil Drafting	3
MTH-085*	Technical Mathematics III	3

FOURTH TERM

CDT-201	AutoCAD Customization	3
CDT-209	Structural Drafting I	3
CDT-212A	Architectural Drafting II	3
CDT-212B	Architectural Materials	2
CDT-214	Building Codes	2
CDT-219	Architectural Detailing	3

FIFTH TERM

CDT-203	Sheet Metal	3
CDT-211	CAD Technical Communication	3
CDT-213	Architectural Drafting III	4
CDT-215	Structural Drafting II	4
MFG-221	Materials Science	3

SIXTH TERM

CDT-216	Structural Drafting III	4
CDT-217	Introduction to Remodeling	4
CDT-280	Drafting Technology/CWE	6
— —	PE/Health requirement (see page 15)	1-3

Minimum credits required for degree 97-99

RECOMMENDED PROGRAM ELECTIVE

CDT-207	Introduction to AutoLISP	3
---------	--------------------------	---

* Substitute college transfer courses for these courses if you plan to continue your education at a higher education institution. It is recommended that you consult with a faculty advisor or a staff member in the Advising & Counseling Center for the transfer requirements of the specific advanced program or school.

Early Childhood Education & Family Studies

CERTIFICATE ASSOCIATE OF APPLIED SCIENCE DEGREE

This program provides a foundation in the 10 early childhood care and education core knowledge categories. Course work is highly experiential and interactive, and follows DAP (Developmentally Appropriate Practices) as outlined by the National Association for the Education of Young Children (NAEYC).

PROGRAM OUTCOMES

Upon satisfactory completion of the one-year (four terms) certificate, students will have completed the education/training required for Oregon's Early Childhood Care and Education Professional Development Registry (PDR) at Step 8. Program outcomes should include the skills necessary for entry-level work in childhood care and education in both private and public school settings.

CAREERS

Upon satisfactory completion of the one-year (four terms) course work, students will receive a certificate in Early Childhood Education & Family Studies. This one-year certificate prepares participants for careers as early childhood care and education practitioners (home or center based), preschool teachers, or paraprofessionals in child and family support systems. Students who complete the certificate will have the option to continue on for a second year to obtain the Associate of Applied Science (AAS) degree in Early Childhood & Family Studies.

Upon completion of the second year course work for the AAS in Early Childhood and Family Studies degree, students will be prepared to work in a variety of educational and child and family support settings, as in charge teachers, or child and family support personnel. These settings include preschools, child care centers, private kindergartens, etc. Additionally, they will be prepared to work as paraprofessionals in public school settings (PK-elementary grades).

For information contact Patricia McIlveen, ext 2240 or patriciam@clackamas.edu

EARLY CHILDHOOD EDUCATION & FAMILY STUDIES CERTIFICATE

SUMMER TERM	CREDITS
MTH-050 Technical Mathematics I	
or MTH-065 Algebra II	3-4
WR-121 English Composition	
or WR-101 Communication Skills: Occupational Writing	3
FALL TERM	
CS-120 Survey of Computing	4
ECE-150 Introduction & Observation in Early Childhood Education	3
FN-110 Personal Nutrition	3
HDF-225 Prenatal, Infant & Toddler Development*	3
HDF-260 Child Abuse & Neglect	3
WINTER TERM	
ECE-154 Language & Literacy	3
ECE-209 Theory & Practicum	3
ECE-240 Lesson & Curriculum Planning	3
HDF-247 Preschool Child Development	3
HS-154 Community Resources	3
SPRING TERM	
ECE-239 Helping Children & Families Cope with Stress	3
ECE-280 Early Childhood Education/CWE	3
HDF-140 Contemporary American Families	3
HE-261 Community/CPR (Includes Infant CPR)	1
SP-140 Intro to Intercultural Communication	
or ED-258 Multicultural Education	3-4

Minimum credits required for certificate 50-52

**EARLY CHILDHOOD EDUCATION & FAMILY STUDIES
ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR**

Complete certificate program.

EARLY CHILDHOOD & FAMILY STUDIES ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
ED-100	Introduction to Education	3
ED-150	Creative Activities for Children	3
ED-270	Practicum I	4
— —	General electives (any college-level course)	6

WINTER TERM		CREDITS
ED-169	Overview of Students w/Special Needs	3
ED-258	Multicultural Education (or general elective)	3
ED-271	Practicum II	4
HDF-141	Parent-Child Relations I: Content & History	3

SPRING TERM		CREDITS
ED-114	Instructional Strategies in Math and Science	3
ED-246	School, Family & Community Relations (ECE)	4
ED-272	Practicum III	4
HDF-142	Parent Child Relations II: Intro to Parenting	3
— —	PE/Health elective	2-3

Minimum credits required for degree 95-98

*Up to 3 credits of ECE-175 may be substituted for HDF-225 - Prenatal, Infant, Toddler Development.

Electronic Publishing

CERTIFICATE

Curriculum focuses on the preparation of professional-looking reports, forms, newsletters, technical and academic papers, display advertising, brochures and business presentations. Course work emphasizes the key skill areas needed for success, including communications, design, computer applications and production. The program focuses on the high-tech administrative assistant skills needed for a high-end administrative support position.

PROGRAM OUTCOMES

Upon successful completion of this certificate students should be able to demonstrate entry-level skills to qualify for jobs in electronic publishing, both printed and online.

CAREERS

Career opportunities include graphic designer, desktop publisher and production artist.

For information contact Tanya Patrick, ext. 2426 or tanyap@clackamas.edu; Joan Ryan, ext. 2363 or joanr@clackamas.edu

ELECTRONIC PUBLISHING CERTIFICATE

FALL TERM		CREDITS
ART-115	Basic Design: Two Dimensional Design	4
BA-101	Introduction to Business	4
BA-131	Introduction to Business Computing	4
MTH-050	Technical Mathematics I	3
WR-121	English Composition	3

WINTER TERM

ART-116	Basic Design: Color Theory & Composition	4
BA-104	Business Math	3
BA-285	Human Relations in Business	4
BT-124	Business Editing I	3
BT-172	Introduction to Microsoft Outlook	2

SPRING TERM

ART-225	Computer Graphics I	3
BA-205	Solving Communication Problems w/Tech.	4
BA-280	Business/CWE	3
BT-125	Business Editing II	3
BT-220I	Desktop Publishing: InDesign	3

Minimum credits required for certificate 50

Electronics Systems Technology

**CERTIFICATE
ASSOCIATE OF APPLIED SCIENCE DEGREE
PROFESSIONAL UPGRADE**

Program course work focuses on a traditional electronics foundation, including a basic electronics series, digital logic series, a troubleshooting series, a physics series and a semiconductor linear circuit series. The degree focuses on electronics and engineering design principles and electronics systems and is taught in a team environment whenever possible.

Specific skill areas for the Electric Systems Technology degree include test equipment use, computer use, problem-solving, teamwork, understanding math and electronics fundamentals and writing and oral communication.

PROGRAM OUTCOMES

Program outcomes should include the knowledge and skills for entry-level employment as a technician in a wide variety of industries, such as circuit board manufacturing, medical electronics manufacturing and electronic equipment manufacturing and service.

CAREERS

Career opportunities may include engineering technician, manufacturing equipment technician, field services technician and operators and processors with large and small employers in high-tech industries.

For information contact Mike Mattson, ext. 2483 or mattsonm@clackamas.edu

ELECTRONICS SYSTEMS TECHNOLOGY CERTIFICATE

FIRST TERM		CREDITS
EET-112	Electronic Test Equipment & Soldering	1
EET-137	Electrical Fundamentals I	4
EET-139	Principles of Troubleshooting I	2
MTH-065	Algebra II	4
SM-150	Semiconductor Processing I	2
WR-101*	Communication Skills: Occupational Writing	3

Continued

SECOND TERM

EET-141	Electrical Fundamentals II	4
EET-157	Digital Logic I	3
MFG-109	Computer Literacy for Technicians	3
MTH-095	Algebra III	4
SP-100*	Basic Speech Communication	3

THIRD TERM

EET-127	Semiconductor Circuits I	4
EET-142	Electrical Fundamentals III	4
EET-257	Digital Logic II	4
MTH-111	College Algebra	5
SM-280	Electronics & Microelectronics/CWE	2
<i>Minimum credits required for certificate</i>		52

ELECTRONICS SYSTEMS TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

Complete certificate program.

ELECTRONICS SYSTEMS TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR**FOURTH TERM****CREDITS**

EET-215	Principles & Applications of MFG Equip Tech I	2
EET-227	Semiconductor Circuits II	3
EET-239	Principles of Troubleshooting II	2
MFG-107	Industrial Safety & OSHA	3
PH-201**	General Physics	5

FIFTH TERM

EET-250	Linear Circuits	3
EET-252	Control Systems	3
EET-254	Introduction to Microcontrollers	4
MFG-209	Programming & Automation for Manufacturing	3
PH-202**	General Physics	5

SIXTH TERM

EET-230	Laser and Fiber Optics	3
MFG-133	Programmable Logic Controllers	3
—	PE/Health requirement (see page 15)	3
PH-203**	General Physics	5
SM-280	Electronics & Microelectronics/CWE	2

Minimum credits required for degree (requirements & electives) 101

*Substitute college transfer courses for these courses if you plan to continue your education at a higher education institution. It is recommended that you consult with a faculty advisor or a staff member in the Advising & Counseling Center for the transfer requirements of the specific advanced program or school.

**The Physics with Calculus series PH-211/212/213 may be substituted.

ELECTRONICS ENGINEERING TECHNOLOGY

(OIT Transfer Courses)

The CCC Manufacturing Technology Department, in partnership with Oregon Institute of Technology (OIT), offers a number of transferable classes into OIT's Electronics Engineering Technology degree program. Contact Mike Mattson at 503-657-6958, ext. 2483 or mattsonm@clackamas.edu for more information.

Emergency Management

ASSOCIATE OF APPLIED SCIENCE DEGREE

Emergency Management course work prepares a student to make decisions, problem solve, communicate effectively and coordinate all sources necessary for preparedness, mitigation, response and recovery for any possible emergency or disaster. A program description and list of approved courses can be found on the Criminal Justice/Emergency Management website: <http://depts.clackamas.edu/crimjust/intro.htm>

PROGRAM OUTCOMES

Successful completion of this degree program should enable students to demonstrate the entry-level skills needed to acquire positions within public or private sector agencies responsible for preparedness planning and managing of any type of life-threatening disaster.

CAREERS

Career opportunities may include local emergency manager, FEMA worker, public safety manager, Homeland Defense Agency worker and risk assessment manager.

For information contact Dick Ashbaugh, ext. 2237 or dicka@clackamas.edu

Emergency Medical Technology

CERTIFICATE

Emergency Medical Technicians (EMTs) give immediate care to critically ill or injured people in the pre hospital setting and provide transport to hospitals, care facilities and private residences. The ability to work under pressure in challenging environments, think critically to make difficult decisions independently and perform life-saving skills precisely are essential to success in this career. A criminal history background check and immunizations are required and drug testing may be required.

EMTs in Oregon must be certified by the state through the Department of Health and Human Services, EMS & Trauma Systems Section (DHS EMS). National certification is available through the National Registry of EMTs (NREMT). Each certification requires approved continuing education classes in emergency care for certification renewal. The Clackamas Community College Emergency Medical Technology certificate program includes the required Oregon and national EMT-Basic certification and satisfies the first year of the Emergency Medical Technology - Paramedic Associate of Applied Science (AAS-EMT) degree required for certification as an Oregon EMT-Paramedic. Technicians can pursue advanced training for the AAS-EMT and bachelor's degree level upon transfer to an accredited degree-granting institution.

PROGRAM OUTCOMES

The EMT program at Clackamas Community College should prepare students to begin their careers in Emergency Medical Services (EMS) and continue their education to the paramedic level. The EMT-Basic course prepares students to test for both national and state certification. The EMT-Intermediate course prepares candidates to test for Oregon certification.

CAREERS

Career opportunities that may require EMT training include but are not limited to: firefighter (career or volunteer), paramedic, search and rescue, critical care transport or basic life support transport provider. The Emergency Medical Technology certificate leads to a career as a paramedic after completion of the AAS-EMT (Associate of Applied Science - EMT) degree at an accredited institution.

For continuing education for healthcare providers see Healthcare Professional Development page 194.

For information contact ext. 2274 or visit <http://depts.clackamas.edu/EMT>

EMERGENCY MEDICAL TECHNOLOGY CERTIFICATE

FALL TERM		CREDITS
BI-231	Human Anatomy & Physiology I	4
EMT-101	EMT Basic-Part I	5
EMT-105	Introduction to Emergency Medical Services	3
MTH-065	Algebra II	4
SP-111	Public Speaking	4
WINTER TERM		
BI-232	Human Anatomy & Physiology II	4
CS-120	Survey of Computing	4
EMT-102	EMT Basic-Part II	5
MA-110	Medical Terminology	3
WR-121	English Composition	3
SPRING TERM		
BI-233	Human Anatomy & Physiology III	4
CJA-203	Crisis Intervention	3
EMT-106	Emergency Communications & Patient Transportation	3
EMT-107	EMT Rescue	3
SOC-205	Social Stratification & Social System	4
<i>Minimum credits required for certificate</i>		56

Current CPR for Healthcare Providers (AHA or equivalent) is required. A criminal history background check is required and drug testing may be required.

Emergency Medical Technology - Paramedic

ASSOCIATE OF APPLIED SCIENCE DEGREE

Clackamas Community College will be offering the statewide consortium Associate of Applied Science Emergency Medical Technology-Paramedic degree that leads to certification as an Oregon and National Registry EMT-Paramedic. Program information will appear in the 2008-09 catalog. Current information on this new degree and the EMT program can be found at <http://depts.clackamas.edu/EMT>

Prerequisites for the new Emergency Medical Technology - Paramedic Associate of Applied Science degree are included in the current Emergency Medical Technology certificate.

Employment Skills Training

CERTIFICATE

The Employment Skills Training certificate provides a quick entry strategy for learning the knowledge and skills necessary to start or change a career path.

Combine college courses with specified hands-on instruction at a local employer to improve employability. The student's goals and needs are combined with information from employers, the labor market and the college to determine the knowledge and skills needed to obtain employment in a specific occupation. The student receives an individualized Employment Skills Training (EST) plan.

In addition to preparing a person for employment, the individualized EST plan guides the student in gaining more education and training which develops the student's career path. The program is open entry/open exit, allowing students to begin any term.

PROGRAM REQUIREMENTS

A certificate of completion is earned by completing at least 12 credits of occupationally related college-level classes. For every three occupationally related credits, one cooperative work experience credit may be included in the plan.

An EST plan must be developed with and approved by, a department's faculty advisor.

All of the college's collegiate level credit courses are eligible to be included in the certificate. Developmental courses may be included as prerequisites in a plan but can not be part of the EST certificate.

Continued

PROGRAM OUTCOMES

Program outcomes are specific to the student's goals and may include:

Individualized plan detailing the college courses to be completed and the knowledge and skills to be learned.

Occupation specific knowledge and skills developed on the job and in the classroom.

Basic employment skills, job search skills, career management skills and/or an introductory contact with an employer(s) and/or hiring manager(s).

CAREERS

Completion of an EST certificate can impact any career.

For information please contact the Career & Employer Resource Center at ext. 2232 or career@clackamas.edu or visit <http://depts.clackamas.edu/career>

Energy & Resource Management

CERTIFICATE ASSOCIATE OF APPLIED SCIENCE DEGREE

This program provides for instruction in traditional and alternative energy generation, distribution, operation, management and leadership.

PROGRAM OUTCOMES

The program outcomes should include skills for entry-level employment in the energy/utility workforce, application to a related apprenticeship, or articulation to a university with an energy focus.

This program is endorsed by the Utility Training Alliance and the Utility Education Training Alliance (UETA) to generate succession training and work force development.

CAREERS

Career options could include entry-level applied technical trades and engineering consulting, maintenance and warehouse operations, resource specialists in environmental protection, support personnel, service and equipment providers and installers, entry to professional training and technical positions.

For information contact Joe Roberts, ext. 4636 or jroberts@clackamas.edu

UTILITY WORKFORCE READINESS

See certificate program on page 66.

ENERGY & RESOURCE MANAGEMENT CERTIFICATE: 1ST YEAR

FALL TERM		CREDITS
ERM-100	Orientation to Energy & Resource Management	3
ERM-101	Energy & Resource Technology I: Intro	3
ERM-107	Career Portfolio or ERM program elective	3
ERM-170	Energy Industry Performance, Health & Safety I or ERM program elective	2
HPE-296	Health & Fitness for Industry I	2
WR-121	English Composition	3
WINTER TERM		
ERM-102	Energy & Resource Technology II: Electricity	3
ERM-170	Energy Industry Performance, Health & Safety I or ERM program elective	4
MTH-065	Algebra II	4
— —	General elective (any college-level course)	3
SPRING TERM		
ERM-103	Energy & Resource Technology III: Fossils Fuels	3
ERM-170	Energy Industry Performance, Health & Safety I or ERM program elective	6
ERM-180	Energy & Resource Management/CWE or ERM program elective	3
PSY-101	Human Relations or other Human Relations requirement (see page 15)	3
HPE-297	Health & Fitness for Industry II	2
<i>Minimum credits required for certificate</i>		47

ENERGY & RESOURCE MANAGEMENT ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

Complete certificate program.

ENERGY & RESOURCE MANAGEMENT ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
CS-120	Survey of Computing or General elective (any college-level course)	3-4
ERM-201	Energy Applications I: Renewable Energy Resources	6
ERM-270	Energy Industry Performance, Health & Safety II or ERM program elective	3
SSC-180	Pathway to Sustainability	5
WINTER TERM		
ERM-108	Career Marketing Strategies	3
ERM-202	Energy Applications II	6
ERM-270	Energy Industry Performance, Health & Safety II	3
SSC-181	Pathway to Sustainability	5
SPRING TERM		
ERM-203	Energy Applications III	6
ERM-280	Focused Energy & Resource Management/CWE	3
— —	General elective (any college-level course)	3
<i>Minimum credits required for degree</i>		93-94

ENERGY & RESOURCE MANAGEMENT PROGRAM ELECTIVES

ERM-211	Energy Industrial Organizational Development
ERM-212	Energy Industrial Leadership Development
ERM-214	Energy Industrial Communication Management
ERM-284	Intro to Energy & Resource Management Applications
ERM-285	Intermediate Energy & Resource Management Applications
ERM-286	Advanced Energy & Resource Management Applications

Fire Science (Wildland)

CERTIFICATE ASSOCIATE OF APPLIED SCIENCE DEGREE

The Fire Science (Wildland) program provides training that can lead to seasonal employment in wildland firefighting or to the first step to a career in the forest industry or park service. There are many career tracks in the field of wildland firefighting and forestry. It's exciting work that requires fundamental survival, safety and firefighting training and skills. It is also important to be physically fit, work well in a team environment, and respond quickly and efficiently to instruction/commands.

Clackamas Community College is a certified training site recognized by the Pacific Northwest Wildfire Coordinating Group (PNWCG) and the Oregon Department of Forestry. Program instructors are National Wildfire Coordinating Group (NWCG) certified and offer 15-30 years of wildland firefighting experience. Many of the courses carry NWCG certification as well as college credit.

PROGRAM OUTCOMES

The Fire Science (Wildland) certificate program outcomes should include a basic knowledge of fire behavior, survival and wildland firefighting skills for entry-level wildland firefighting positions, such as Firefighter 2. The two-year Fire Science (Wildland) associate's degree expands on the first year to provide advanced training and awareness including environmental regulations, physical and mental preparedness and supervisory and leadership training.

CAREERS

The certificate or degree can lead to careers as a wildland firefighter, forest and conservation technician, forest fire inspector or investigator, forest fire prevention specialist, independent firefighting contractor or employment in the timber industry.

For information contact Joe Crawford, ext. 5383 or jcrawford@clackamas.edu; Tom Laugle, ext. 2319 or toml@clackamas.edu or visit <http://depts.clackamas.cc.or.us/esh/wildland/>

FIRE SCIENCE (WILDLAND) CERTIFICATE

FIRST TERM	CREDITS
ESH-100 Environmental Regulations	3
FRP-130 Intro to Wildland Firefighting (S-130/S-190)	3
FRP-243 Survivor I: Map, Compass, GPS	2
HD-120 New Student College Success	1
MTH-050 Technical Math I or MTH-065 Algebra II	3-4
PE-185 Physical Education (recommended: Weight Training, Beg.)	1
WR-101 Communication Skills: Occupational Writing or WR 121 English Composition	3

SECOND TERM

ESH-101 Hazardous Waste Managements	2
FRP-211 Portable Pumps & Water Use (S-211)	1
FRP-216 Driving for the Fire Service (S-216)	2
FRP-244 Survivor II: Wilderness	2
HE-252 First Aid/CPR	3
PE-185 Physical Education (recommended: Weight Training, Int., or Rock Climbing)	1
— — General elective (any college-level course)	3-4
— — Human Relations requirement (Recommended: PSY 101)	3

THIRD TERM

FRP-110 Basic Wildland Fire Investigation (FI-110)	1
FRP-180 Wildland Fire/CWE	6
FRP-212 Wildfire Power Saws (S-212)	2
FRP-245 Survivor III: Weather of the NW	2
FRP-270 Basic Air Operations (S-270)	1
HOR-228 Plant Identification/Spring Physical Education (recommended: Weight Training, Adv. or Rock Climbing)	1
— — General elective (any college-level course)	3

Minimum credits required for certificate 52-54

FIRE SCIENCE (WILDLAND) ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

Complete certificate program.

FIRE SCIENCE (WILDLAND) ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FOURTH TERM	CREDITS
FRP-107 Wildland Fire Career Portfolio	3
FRP-131 Advanced Firefighter Training (S-131)	1
FRP-200 Basic Incident Command System (I-200)	1
— — Fire Science (Wildland) program elective	2
— — Science, Social Science or Fire Science (Wildland) program elective: (Recommended: EMT Basic Part I)	4-5
FRP-246 Survivor IV: Wilderness First Aid	2

FIFTH TERM

FRP-215 Fire Operations in the Urban Interface (S-215)	3
FRP-249 Leadership for Firefighters (L-280)	2
FRP-290 Intermediate Wildland Fire Behavior Fire (S-290)	3
— — Science, Social Science or Fire Science (Wildland) program elective (Recommended: EMT Basic Part II)	4-5
FRP-280 Wildland Fire/Advanced CWE	6

Minimum credits required for degree 91-96

Continued

FIRE SCIENCE (WILDLAND) PROGRAM ELECTIVES

COURSE		CREDITS
EMT-101	EMT Basic Part I	5
EMT-102	EMT Basic part II	5
EMT-107	EMT Rescue	3
ESR-171	Environmental Science	4
ESR-172	Environmental Science	4
ESR-173	Environmental Science	4
FRP-217	Interagency Helicopter Training (S-217)	3
FRP-220	Initial Attack Incident Commander (S-200)	1
FRP-232	Dozer Boss (Single Resource) (S-232)	1
FRP-236	Tactical Decision Making in Wildland Fire (S-336)	2
FRP-239	Division/Group Supervisor (S-339)	2
FRP-259	Task Force/Strike Team Leader (S-330)	2
FRP-260	Interagency Incident Management (S-260)	1
GEO-100	Introduction to Physical Geography	4
GS-109	Meteorology	4
HE-151	Body & Drugs I	3
HOR-226	Plant Identification/Fall	3

Geographic Information Systems (GIS) Technician

**CERTIFICATE
ASSOCIATE OF APPLIED SCIENCE DEGREE**

The Geographic Information Systems (GIS) Technician Associate of Applied Science (AAS) degree and certificate of completion offer instruction in the fields of geography, cartography, computer-aided drafting (CAD), global positioning systems (GPS), database theory and mathematics. The programs also include instruction in research skills, technical mathematics, computer programming, human relations skills and other field competencies

PROGRAM OUTCOMES

Program outcomes should include technician skills necessary for entry into a broad range of positions with city, county and state agencies and engineering firms and utilities that utilize GIS.

CAREERS

Career opportunities may include survey technician, mapping technician and cartography technician.

For information contact Michael Jones, 503-657-6958, ext. 2443 or mikej@clackamas.edu

**GEOGRAPHIC INFORMATION SYSTEMS TECHNICIAN
CERTIFICATE**

FALL TERM		CREDITS
CDT-104	Professional Computing Basics	3
GEO-100	Introduction to Physical Geography or GEO-110 Cultural & Human Geography	4
GIS-201	Introduction to Geographic Information Systems	4
GIS-210	Research Techniques	2
WR-101	Communication Skills: Occupational Writing or WR-121 English Composition	3
WINTER TERM		
CS-121	Computer Applications	3
GIS-220	CAD Skills for GIS	4
GIS-281	ArcGIS I	5
MTH-085	Technical Math III	3
SPRING TERM		
GIS-232	Data Collection & Application	3
GIS-234	Aerial Photo Interpretation	3
GIS-236	Visual Basic Programming for GIS	3
GIS-280	GIS/CWE (certificate only)	4
— —	Human Relations requirement (see page 15)	3
<i>Minimum credits required for certificate</i>		47

**GEOGRAPHIC INFORMATION SYSTEMS TECHNICIAN
ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR**

Complete certificate program.

**GEOGRAPHIC INFORMATION SYSTEMS TECHNICIAN
ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR**

SUMMER TERM		CREDITS
GIS-250	GIS Field Work	4
FALL TERM		
CDT-204	Civil Drafting	3
GIS-282	ArcGIS II	5
GIS-284	GIS Software Applications	5
— —	General elective (any college-level course)	6
WINTER TERM		
CDT-224	Professional Web Design	3
GIS-286	Remote Sensing	4
GIS-287	Spatial Modeling and Analysis	5
GIS-288	Advanced Databases for GIS	3
SPRING TERM		
GIS-280	GIS/CWE	6
GIS-289	Special Project	3
— —	PE/Health requirement (see page 15)	3
<i>Minimum credits required for degree</i>		93

Note: Terms must be taken in consecutive order. See program advisor for suggested general electives.

Gerontology

CERTIFICATE

The Gerontology program offers a one-year certificate on the study of aging, which is designed for individuals who work with older people. The one-year certificate can serve as the first year of a two-year Associate of Applied Science degree in Human Services.

PROGRAM OUTCOMES

This program should provide the basic skills and knowledge necessary for many entry-level positions working with older people in health and social service settings, senior centers, and residential facilities for the elderly.

CAREERS

Career opportunities may include activity director, volunteer coordinator, senior services case worker, information and referral worker, client advocate, and administrative and support personnel in senior residential facilities.

For more information contact Fran Page ext. 2527 or franp@clackamas.edu or Dick Ashbaugh ext. 2237 or dicka@clackamas.edu

GERONTOLOGY CERTIFICATE

FALL TERM		CREDITS
CS-120	Survey of Computing	4
PSY-101	Human Relations	
or BA-285	Human Relations in Business	3-4
SOC-230	Perspectives on Aging	4
WR-121	English Composition	
or WR-101	Communication Skills: Occupational Writing	3
— —	Gerontology program electives	3
WINTER TERM		
HS-170	Preparation for Field Experience in Human Services	3
MTH-050	Technical Mathematics	
or MTH-065	Algebra II	3-4
SOC-223	Psycho-Social Aspects of Aging	4
SOC-231	Health & Biological Aspects of Aging	4
— —	Gerontology program electives	3
SPRING TERM		
HS-154	Community Resources	3
HS-280G	Gerontology/CWE	6
SOC-232	Encounters with Death	4
— —	Gerontology program electives	3-4
<i>Minimum credits required (requirements + electives)</i>		50-53

Current CPR certificates are also required for a certificate in Gerontology.

GERONTOLOGY PROGRAM ELECTIVES:

COURSE		CREDITS
BA-223	Principles of Marketing	4
FN-110	Personal Nutrition	3
FN-225	Nutrition	4
HE-151	Body and Drugs I	3
HE-152	Body and Drugs II	3
HE-255	Body & Alcohol	3
HS-130	Introduction to Hospice	3
HS-260	Victim Advocacy and Assistance	4
HS-267	Intervention Strategies Working with Families	4

Other electives may be approved by the Gerontology program advisor.

Gerontology Specialist

CERTIFICATE PROFESSIONAL UPGRADE

The Gerontology Specialist certificate is designed for professionals who already have a degree and experience in a related field and who would like to learn more about the field of aging and about working with older adults.

PROGRAM OUTCOMES

Upon completion of the Gerontology Specialist certificate, students should have a general understanding of the biological, psychological, and sociological aspects of the aging process, including the challenges facing individuals and society as our population grows older.

CAREERS

The employment options for the individual completing the Gerontology Specialist certificate will depend on their prior training and experience. Education in gerontology is especially appropriate for professionals in health care, education, human services, and financial planning.

GERONTOLOGY SPECIALIST CERTIFICATE

FALL TERM		CREDITS
HS-154	Community Resources	3
SOC-230	Perspectives on Aging	4
WINTER TERM		
SOC-223	Psycho-Social Aspects on Aging	4
SOC-231	Health & Biological Aspects of Aging	4
SPRING TERM		
HS-280G	Gerontology/CWE	4
SOC-232	Encounters with Death	4
<i>Minimum credits required for certificate</i>		23

Horticulture

CERTIFICATE ASSOCIATE OF APPLIED SCIENCE DEGREE

Horticulture is a hands-on, broad-based curriculum where students participate in a laboratory-style practicum class which develops a full season's experience in growing and caring for plants. Students are involved in the day-to-day operation and maintenance of CCC's extensive greenhouse and landscape facilities, while training with tools of the trade: mowers, rototillers, tractors, pesticide applicators, greenhouse equipment and pruning tools. Students cultivate CCC's award-winning, All-American Selections Garden and landscape areas on the CCC campus.

CCC's Horticulture and Landscape programs are the only programs accredited in Oregon by the Professional Landcare Network (PLANET). This accreditation provides students with enhanced opportunities to follow national PLANET landscaping standards.

Students may begin this program any term. Degree options include a one-year certificate program or a two-year associate's degree program. Following the course offerings in the order listed is encouraged unless otherwise advised by the horticulture advisor. The certificate and associate's degree programs include a cooperative work experience class which requires working with a horticultural employer.

PROGRAM OUTCOMES

Program outcomes should include the skills necessary for entry-level employment into tree and shrub and perennial plant nurseries, greenhouse work, plant propagation, landscape design, landscape installation and maintenance, maintenance of interior plants, landscape supply and equipment sales.

Students are eligible to sit for the Oregon Certified Nursery Professional Exam. Students completing the Horticulture Associate of Applied Science (AAS) degree with a 2.5 GPA or higher, are eligible to take the Oregon Landscape Contractors License Exam.

CAREERS

Career opportunities include nursery and garden center manager and associate, nursery production, greenhouse grower, organic food production, supply and equipment sales, landscape design, installation and maintenance worker, parks department personnel and groundskeeper.

For information contact Elizabeth Howley, horticulture advisor, ext. 2389 or ehowley@clackamas.edu

OSU TRANSFER AGREEMENT

Some horticulture classes transfer to Oregon State University as part of a bachelor's degree. Horticulture students planning to continue their studies at a four-year college should consult the advisor (up to 45 credits of horticulture classes transfer as part of a bachelor's degree). The horticulture advisor will work with individual students in order to obtain the most recent transfer information.

OSU TRANSFER COURSES

HOR-215	Herbaceous Perennials	3
HOR-226	Plant Identification/Fall	3
HOR-227	Plant Identification/Winter	3
HOR-228	Plant Identification/Spring	3

HORTICULTURE CERTIFICATE

FALL TERM		CREDITS
CS-090	Computers for New Users	2
HOR-111	Horticulture Practicum/Fall	6
HOR-122	Greenhouse Crops-Potted Plants	
or HOR-123	Landscape Maintenance	3
HOR-226	Plant Identification/Fall	3
MTH-050	Technical Mathematics I	
or MTH-065	Algebra II (or higher level of math)	3-5

WINTER TERM

HOR-130	Plant Propagation Theory	
or HOR-131	Tree & Shrub Pruning/Winter	3
HOR-132	Pesticide Selection & Use	3
HOR-133	Horticulture Practicum/Winter	6
HOR-222	Horticultural Computer Applications	2
HOR-227	Plant Identification/Winter	3

SPRING TERM

HOR-140	Soils & Fertilizers	3
HOR-142	Greenhouse Crops-Bedding Plants	
or HOR-145	Turf Installation & Maintenance	3
HOR-143	Horticulture Practicum/Spring	6
HOR-228	Plant Identification/Spring	3
SP-100	Basic Speech Communication	3

SUMMER TERM

HOR-280	Horticulture/CWE	3
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3
<i>Minimum credits required for certificate</i>		58-60

HORTICULTURE ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM		CREDITS
CS-090	Computers for New Users	2
HOR-111	Horticulture Practicum/Fall	6
HOR-122	Greenhouse Crops-Potted Plants	
or HOR-123	Landscape Maintenance	3
HOR-226	Plant Identification/Fall	3
MTH-050	Technical Mathematics I	
or MTH-065	Algebra II (or higher level of math)	3-5

WINTER TERM

HOR-130	Plant Propagation Theory	
or HOR-131	Tree & Shrub Pruning/Winter	3
HOR-132	Pesticide Selection & Use	3
HOR-133	Horticulture Practicum/Winter	6
HOR-222	Horticultural Computer Applications	2
HOR-227	Plant Identification/Winter	3

SPRING TERM

HOR-140	Soils & Fertilizers	3
HOR-142	Greenhouse Crops-Bedding Plants	
or HOR-145	Turf Installation & Maintenance	3
HOR-143	Horticulture Practicum/Spring	6
HOR-228	Plant Identification/Spring	3

SUMMER TERM

HOR-281	Horticulture/CWE	6
---------	------------------	---

**HORTICULTURE ASSOCIATE OF APPLIED SCIENCE DEGREE:
2ND YEAR**

FALL TERM **CREDITS**

SPN-101	First Year Spanish	4
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3
— —	Horticulture program electives	6

WINTER TERM

HOR-230	Equipment Operation & Maintenance	3
— —	Select one: BA-101, BA-211, BA-223, HOR-238	3-4
— —	Horticulture program electives	6

SPRING TERM

HE-252	First Aid/CPR	3
SP-100	Basic Speech Communication	3
— —	Horticulture program electives	6

Minimum credits required for degree (requirements + electives) 92-95

HORTICULTURE PROGRAM ELECTIVES

HOR-114	Garden Design	1
HOR-134	Herb Growing & Gardening	1
HOR-144	Basic Pruning	1
HOR-146	Fruit Tree Short Course	1
HOR-147	Marketing Water Efficient Landscaping	1
HOR-211	Native Plant Identification	1
HOR-212	Flower Arranger's Garden/Fall	3
HOR-213	Computer-Aided Landscape Design	3
HOR-215	Herbaceous Perennial Plants	3
HOR-220	Plant Propagation/Fall	3
HOR-223	Flower Arranging	3
HOR-224	Landscape Installation	3
HOR-225	Principles of Arboriculture	3
HOR-229	Basic Landscape Design	3
HOR-231	Irrigation & Drainage Design	3
HOR-232	Commercial Floral Design	3
HOR-233	Plant Propagation/Winter	3
HOR-234	Intermediate Landscape Design	3
HOR-235	Weed Identification	2
HOR-236	Insect Identification	2
HOR-237	Disease Identification	2
HOR-238	Landscape Business Operations	3
HOR-239	Tree Climber Training	2
HOR-240	Irrigation & Drainage Practices	3
HOR-241	Nursery Management	3
HOR-242	Plant Propagation/Spring	3
HOR-243	Tree & Shrub Pruning/Spring	3
HOR-244	Environmental Landscape Design	3
HOR-245	Advanced Landscape Design	3

HOR-246	Organic Gardening	3
HOR-247	Hardscape Installation	3
HOR-248	Flower Arranger's Garden/Spring	3
HOR-250	Western Herbs	1
HOR-251	Herbal Products	1
HOR-252	Kitchen Herbs	1
HOR-280	Horticulture/CWE	3
HOR-281	Horticulture/CWE	6
HOR-282	Horticulture/CWE	3

Human Resource Management

CERTIFICATE

This certificate is recommended for students and/or professionals currently working in the human resource field who wish to obtain national certification in PHR (Professional in Human Resources) from the Human Resource Certification Institute. Though this certificate is intended to enhance the qualifications of people already working in the HR field, others may wish to take the classes to advance their own skills and knowledge.

PROGRAM OUTCOMES

Successful completion of this program should qualify the applicant to sit for the HR certificate exam; two years experience is also required before the certificate is issued to the successful applicant. Certification in Human Resource Management, along with experience and qualifications required by employers, include the skills necessary to be an employee, management trainee or manager in the human resource management field.

CAREERS

Career opportunities may include human resource manager, human resource assistant and information and records clerk.

For information contact Bill Waters, ext. 5062 or billw@clackamas.edu

HUMAN RESOURCE MANAGEMENT CERTIFICATE

FALL TERM **CREDITS**

BA-101	Introduction to Business	4
BA-111	General Accounting I	4
BA-224	Human Resource Management	4
BA-226	Business Law I	4
WR-101	Communication Skills: Occupational Writing	3

WINTER TERM

BA-177	Payroll Accounting	3
BA-206	Management Fundamentals	4
BA-254	Basic Compensation and Benefits	4
BA-285	Human Relations in Business	4
MTH-050	Technical Mathematics I	3

Continued

SPRING TERM

BA-205	Solving Communication Problems with Technology	4
BA-208	Employee Labor Relations	4
BA-217	Budgeting for Managers	3
BA-229	Employment Law	4
BA-280	Business/CWE	3

Minimum credits required for certificate 55

Human Services

ASSOCIATE OF APPLIED SCIENCE DEGREE

The two-year Human Services program offers training for entry-level positions in social service agencies. The degree combines academic course work with 12-14 credits of supervised field experience. In addition to general course work in human services and social sciences, students may select one or more Focus Areas for more concentrated preparation.

PROGRAM OUTCOMES

The Human Services degree provides training in skills such as interviewing clients, assessing assets and barriers to optimal client functioning, recognizing signs of major psychological and substance abuse disorders, understanding of service organizations; providing information and referral to community resources, facilitating workshops which teach basic personal and employment skills, and participating in the development and delivery of human services in public and private human service agencies.

CAREERS

Career opportunities include positions such as case managers and assistants, resource specialists, training and employment specialists, client advocates, activity directors, job and work experience site developers, program assistants, intake workers, and volunteer coordinators.

For information contact Dick Ashbaugh, ext. 2237 or dicka@clackamas.edu

HUMAN SERVICES ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM		CREDITS
CS -120	Survey of Computing	4
HS-100	Introduction to Human Services	3
PSY-215	Introduction to Developmental Psychology	4
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3
WINTER TERM		CREDITS
HS-156	Interviewing Theory and Techniques	3
HS-170	Preparation for Field Experience in Human Services	3
MTH-050	Technical Mathematics I	
or MTH-065	Algebra II	3-4
PSY-219	Introduction to Abnormal Psychology	4
— —	Human Services program elective/focus areas	3-4

SPRING TERM

HE-261	Community CPR	1
HS-154	Community Resources	3
SOC-205	Social Stratification and Social System	4
— —	Human Services program electives	6-8

HUMAN SERVICES ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
HE-151	Body and Drugs I	3
HS-260	Victim Advocacy and Assistance	
or HDF-260	Understanding Child Abuse & Neglect	3-4
HS-280	Human Services Generalist I/CWE	4
— —	Human Service program elective/focus area	6-8

WINTER TERM

HE-152	Body and Drugs II	3
HS-281	Human Services Generalist II/CWE	4
PSY-221	Introduction to Counseling	4
— —	Human Services program elective/focus area	6-8

SPRING TERM

HS-267	Intervention Strategies Working with Families	4
HS-282	Human Services Generalist III/CWE	4
SP-140	Introduction to Intercultural Communication	
or ED-258	Multicultural Education	3-4
— —	Human Services program elective/focus area	3-4

Minimum credits required for degree 91-102

HUMAN SERVICES PROGRAM**ADDITIONAL ELECTIVE FOCUS AREA REQUIREMENTS**

Students must complete a total of 18-24 elective credits (at a 100 level or above) related to their Human Services Program. Of the total electives, a minimum of 12 credits must be taken from a single Focus Area, such as one of the following:

GERONTOLOGY FOCUS AREA

COURSE	CREDITS	
HS-130	Introduction to Hospice Care	3
SOC-223	Psycho-Social Aspects of Aging	4
SOC-230	Perspectives in Aging	4
SOC-231	Health & Biological Aspects of Aging	4
SOC-232	Encounters with Death	4

CAREER DEVELOPMENT FACILITATOR FOCUS AREA

COURSE	CREDITS	
HS-217	Career Development Facilitator I	4
HS-218	Career Development Facilitator II	4
HS-219	Career Development Facilitator III	4

Transfer Option: With the approval of their Human Services Program Advisor, students planning to transfer to a four-year institution may use some of their general education requirements to meet the elective requirements for the A.A.S. in Human Services.

HUMAN SERVICES TRANSFER REQUIREMENTS

COURSE	CREDITS	
MTH-105 or higher	4-5	
WR-122	English Composition	3
WR-123	English Composition	3
or WR-227	Technical Writing	3
Select 12 or more credits from the following prefixes: ASC, BI (except BI-055, BI-163), BOT, CH (except CH-s50), ESR, G (except G-119, G-124), GS (except GS-160), PH, Z		

OTHER PROGRAM OPTIONS:

12 or more credits selected from any of the following certificate programs may be used to meet the Human Services Program Focus Area elective requirements (with the approval of the student's Human Services program advisor.) It is often possible for a student to earn a certificate in one of these programs along with an A.A.S degree in Human Services.

- Corrections/Juvenile Corrections
- Early Childhood Education and Family Studies
- Paraeducator
- Medical Assistant
- Business Management
- Emergency Medical Technology (EMT)
- Human Resource Management
- Marketing
- Project Management
- Supervisory Training

Industrial Technology (Apprenticeship)

ASSOCIATE OF APPLIED SCIENCE DEGREE

The Industrial Technology degree program is designed for students who are completing training or those who received an industry-approved certificate or journey-level certification and wish to earn an associate's degree.

PROGRAM OUTCOMES

Many occupations require completion of standardized training that is approved by industry. These occupations vary greatly. Program outcomes for the Industrial Technology program should allow individual students to complete such requirements for further work in industrial and technical occupations.

CAREERS

Career opportunities will vary with each individual and the type of training the student is completing or the field in which he/she is already employed.

For information contact Tom Laugle, ext. 2319 or Carol Peck, ext 2805, or toml@clackamas.edu

INDUSTRIAL TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE REQUIREMENTS

RELATED CLASSES

Industrial Technology students will receive a maximum of 48 credits for technical-related training classes and up to 24 credits of elective occupational classes.

RELATED INSTRUCTION COURSES

Completion of one course from each requirement area as specified in the catalog under "Approved Related Instruction Courses" (see page 15).

ELECTIVE OCCUPATIONAL COURSES

To complete the minimum credit hours required.

Minimum credits required for degree (requirements + electives) 90

Juvenile Corrections

CERTIFICATE

The Juvenile Corrections certificate is a one-year program developed in cooperation with the Oregon Youth Authority. Students are prepared to interview for an entry level position in a juvenile correctional facility. The certificate curriculum is challenging and is aimed at providing the skills most desired for working within the juvenile corrections system in Oregon.

Course work includes cooperative work experience, hands-on experience in a correctional agency enabling students to demonstrate the skills and knowledge acquired in the academic courses in a practical manner.

PROGRAM OUTCOMES

Program outcomes should include skills for employment in the juvenile justice system. Corrections professionals are usually qualified to move into other areas of law enforcement or social service.

CAREERS

Career opportunities are within secure facilities or in the community and may include youth correctional counselor, juvenile detention officer and group life coordinator.

For information contact Dick Ashbaugh, ext. 2237 or dicka@clackamas.edu

JUVENILE CORRECTIONS CERTIFICATE

FALL TERM		CREDITS
CJA-232	Corrections Casework	3
CS-120	Survey of Computing	4
PSY-200	Psychology as a Natural Science	4
PSY-205	Psychology as a Social Science	4
WR-121	English Composition	3
WINTER TERM		
CJA-201	Juvenile Delinquency	3
HE-205	Youth Addiction	3
PSY-219	Introduction to Abnormal Psychology	4
SOC-205	Social Stratification & Social Systems	4
WR-122	English Composition	3
SPRING TERM		
CJA-101	Criminology	3
CJA-203	Crisis Intervention	3
CJA-230	Juvenile Corrections	3
MTH-050	Technical Math I	
	or MTH-065 Algebra II	3-4
PSY-215	Introduction to Developmental Psychology	4
ADDITIONAL REQUIREMENT		
CJA-280	Criminal Justice/Corrections/CWE (can be taken Winter or Spring term)	3
<i>Minimum credits required for certificate</i>		<i>54-55</i>

Landscape

CERTIFICATE
ASSOCIATE OF APPLIED SCIENCE DEGREE

The Landscape certificate and degree programs are designed for students whose concentration is within the landscape career path. Students participate in a laboratory-style practicum class which develops a full season's experience in growing and caring for plants. Students are involved in the day-to-day operation and maintenance of CCC's extensive greenhouse and landscape facilities, arboretum and turf management areas, including training with tools of the trade: mowers, rototillers, tractors, pesticide applicators, greenhouse equipment and pruning tools. Students also cultivate CCC's award-winning, All-American Selections Garden and landscape areas on the CCC campus.

CCC's Landscape and Horticulture programs are the only programs accredited in Oregon by the Professional Landcare Network (PLANET). This accreditation provides students with enhanced opportunities to follow national PLANET landscaping standards, to network with landscape industry professionals, to extend their knowledge about landscape standards and practices and to attend the National PLANET Student Career Days each year.

Students may begin this program any term. Degree options include a less than one year certificate program or a two-year associate's degree program. Following the course offerings in the order listed is encouraged unless otherwise advised by the Horticulture advisor. The certificate and associate's degree programs include a cooperative work experience class and working with a horticultural employer.

PROGRAM OUTCOMES

Program outcomes should include the skills necessary for entry-level employment in landscape design, landscape installation, maintenance of landscapes, tree care industry and supply/equipment sales.

Students completing the Landscape Associate of Applied Science (AAS) degree with a 2.5 GPA or higher are eligible to take the Oregon Landscape Contractors License Exam.

CAREERS

Career opportunities include equipment sales, landscape design, installation and maintenance contractor, arborist, turf management, estate gardening, Parks Department personnel and groundskeepers.

For information contact Elizabeth Howley, Horticulture advisor, ext. 2389 or ehowley@clackamas.edu

OSU TRANSFER AGREEMENT

Some horticulture classes transfer to Oregon State University as part of a bachelor's degree. Landscape students planning to continue their studies at a four-year college should consult the advisor (up to 45 credits of horticulture classes transfer as part of a bachelor's degree). The Horticulture advisor will work with individual students in order to obtain the most recent transfer information.

LANDSCAPE CERTIFICATE

FALL TERM		CREDITS
HOR-224	Landscape Installation	3
HOR-225	Principals of Arboriculture	3
or HOR-226	Plant Identification/Fall	
HOR-229	Basic Landscape Design	3
or HOR-123	Landscape Maintenance	
HOR-235	Weed Identification	2
HOR-236	Insect Identification	2

WINTER TERM

HOR-132	Pesticide Selection & Use	3
HOR-231	Irrigation & Drainage Design	3
HOR-234	Intermediate Landscape Design	3
or HOR-230	Equipment Operation & Maintenance	
HOR-238	Landscape Business Operations	3
HOR-239	Tree Climber Training	
or HOR-227	Plant Identification/Winter	2-3

SPRING TERM

HOR-140	Soils & Fertilizers	3
HOR-145	Turf Installation & Maintenance	3
HOR-243	Tree & Shrub Pruning/Spring	3
HOR-247	Hardscape Installation	
or HOR-228	Plant Identification/Spring	2-3
HOR-280	Horticulture/CWE	3
<i>Minimum credits required for certificate</i>		42-43

LANDSCAPE ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM		CREDITS
HOR-111	Horticulture Practicum/Fall	6
HOR-123	Landscape Maintenance	3
HOR-226	Plant Identification/Fall	3
MTH-050	Technical Mathematics I	
or MTH-065	Algebra II (or higher level of math)	3-5
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3

WINTER TERM

HOR-131	Tree & Shrub Pruning/Winter	3
HOR-133	Horticulture Practicum/Winter	6
HOR-222	Horticultural Computer Applications	2
HOR-227	Plant Identification/Winter	3
— —	Human Relations requirement (see page 15)	3-4

SPRING TERM

HOR-132	Pesticide Selection & Use	3
HOR-140	Soils & Fertilizers	3
HOR-143	Horticulture Practicum/Spring	6
HOR-145	Turf Installation & Maintenance	3
HOR-228	Plant Identification/Spring	3

SUMMER TERM

HOR-281	Horticulture/CWE	6
---------	------------------	---

**LANDSCAPE ASSOCIATE OF APPLIED SCIENCE DEGREE:
2ND YEAR**

FALL TERM	CREDITS
HOR-224 Landscape Installation or HOR-225 Principles of Arboriculture	3
HOR-229 Basic Landscape Design	3
HOR-235 Weed Identification or HOR-236 Insect Identification	2
SPN-101 First Year Spanish	4
WINTER TERM	
HOR-230 Equipment Operation & Maintenance	3
HOR-231 Irrigation & Drainage Design	3
HOR-234 Intermediate Landscape Design or HOR-213 Computer Aided Landscape Design	3
HOR-237 Disease Identification or HOR-239 Tree Climber Training	2
HOR-238 Landscape Business Operations	3
SPRING TERM	
HOR-147 Marketing Water Efficient Landscaping	1
HOR-240 Irrigation & Drainage Practices	3
HOR-243 Tree & Shrub Pruning or HOR-245 Advanced Landscape Design	3
HOR-247 Hardscape Installation	3
HE-252 First Aid/CPR	3
<i>Minimum credits required for degree</i>	<i>98-101</i>

Manufacturing Technology

**CERTIFICATE
ASSOCIATE OF APPLIED SCIENCE DEGREE
PROFESSIONAL UPGRADE**

Course work in manufacturing technology prepares students for careers in high-tech manufacturing by producing products to exacting industrial standards utilizing current manual and computer-aided machine tool technology. Many classes are taught in a flexible, open-lab format and students may enter the program any term.

Individualized daytime and evening instruction is provided in the operation of machine tools such as: lathes, mills, surface and cylindrical grinders and common machine shop equipment. Included in the degree program is the study of computer numerical control (CNC) programming and machining for milling, turning and electrical discharge machining (EDM), as well as courses in computer-aided manufacturing (CAM) utilizing current industrial CAD/CAM software. Quality control is stressed while students are taught a wide range of measuring and inspection techniques. Other topics include courses offered in welding, materials science and basic electricity. Many students enroll in these courses to upgrade existing job skills and several of our courses satisfy the continuing education unit (CEU) requirements of local apprenticeships and trade organizations.

PROGRAM OUTCOMES

Program outcomes should include the skills necessary for entry-level technician and operator positions in manufacturing technology trades. Program outcomes also include the skills necessary for employment as apprentice machinist, leading to careers in tool and die making, maintenance machining, mold and model making.

CAREERS

Career opportunities may include machine tool operator, CNC programmer/operator and CAD technicians.

SHORT TERM TRAINING

For students who need a quick-entry strategy into the work force, an individualized education and employment plan can be created that concentrates the knowledge and skills necessary to start or change a career path. Please see a faculty advisor for more information. A short-term training certificate is available. For information contact Mike Mattson, Department Chair, ext. 2483 or mattsonm@clackamas.edu; or the Manufacturing Department, ext. 2062.

MANUFACTURING ENGINEERING TECHNOLOGY

(OIT Transfer Courses)

The CCC Manufacturing Technology Department, in partnership with Oregon Institute of Technology (OIT), offers a significant number of transferable classes into OIT's Manufacturing Engineering Technology degree program. Contact the Manufacturing Department, ext. 2062 for more information.

COMPUTER-AIDED DRAFTING/COMPUTER-AIDED MANUFACTURING (CAD/CAM) DEGREE

See degree program on page 32.

MANUFACTURING TECHNOLOGY CERTIFICATE

FIRST TERM	CREDITS
MFG-104 Print Reading	2
MFG-107 Industrial Safety & OSHA	3
MFG-111 Machine Tool Fundamentals I	9
MTH-050* Technical Mathematics I	3
SECOND TERM	
MFG-105 Dimensional Inspection	2
MFG-109 Computer Literacy for Technicians or MFG-209 Programming and Automation for Manufacturing	3
MFG-112 Machine Tool Fundamentals II	9
WR-101* Communication Skills: Occupational Writing	3
THIRD TERM	
MFG-106 Applied Geometric Dimensioning & Tolerancing for Manufacturing	3
MFG-113** Machine Tool Fundamentals III	6
— — Manufacturing Technology program elective	3-4
MFG-280 Manufacturing Technology/CWE	2
— — Human Relations requirement (see page 15)	3
<i>Minimum credits required for certificate</i>	<i>51-52</i>

Continued

MANUFACTURING TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

Complete certificate program.

MANUFACTURING TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FOURTH TERM		CREDITS
MFG-201	CNC I: Setup & Operation	4
MFG-204	Computer-Aided Manufacturing I	4
MFG-211	Machine Tool Fundamentals IV	6
MTH-080*	Technical Mathematics II	3

FIFTH TERM		CREDITS
MFG-202	CNC II: Programming & Operation	4
MFG-205	Computer-Aided Manufacturing II	4
— —	Manufacturing Technology program elective	3
— —	PE/Health requirement (see page 15)	3

SIXTH TERM		CREDITS
MFG-203	CNC III: Applied Programming & Operation	3
MFG-206	Computer-Aided Manufacturing III	2
MFG-221	Materials Science	3
MFG-280	Manufacturing Technology/CWE	2
— —*	General elective (any college-level course)	3

Minimum credits required for degree 95-96

MANUFACTURING TECHNOLOGY PROGRAM ELECTIVES (3 OR MORE CREDITS)

CDT-103	Computer-Aided Drafting I	4
CDT-108A	Introduction to Solid Modeling	3
CDT-223	Inventor Fundamentals	3
MFG-113	Machine Tool Fundamentals III	3
MFG-124	Statistical Process Control	3
WLD-150	Welding Processes	4

Or other technical courses with prior departmental approval

*Substitute college transfer courses for these courses if you plan to continue your education at a higher education institution. It is recommended that you consult with a faculty advisor or a staff member in the Advising & Counseling Center for the transfer requirements of the specific advanced program or school.

**Students seeking to earn the associate's degree must take 9 credits of MFG-113

Marketing

CERTIFICATE

This certificate focuses on identifying customer needs, developing goods and services to satisfy those needs, communicating information about products/services to potential customers and distributing the product.

PROGRAM OUTCOMES

Students who successfully complete this certificate should be qualified for entry-level marketing positions in areas such as retail and wholesale sales, market research, advertising and distribution. Skills developed in this certificate program should enhance the worker's employability and advancement potential in both technological and hard skills as well as the soft skills required for designing and implementing marketing programs in the workplace.

CAREERS

Career opportunities include wholesale and manufacturing sales representative, insurance and financial sales agents and marketing and advertising assistants.

For information contact Dale Hatfield, ext. 2361 or daleh@clackamas.edu; Joan Ryan, ext. 2363 or joanr@clackamas.edu

MARKETING CERTIFICATE

FALL TERM		CREDITS
BA-101	Introduction to Business	4
BA-131	Introduction to Business Computing	4
BA-224	Human Resource Management	4
WR-121	English Composition	3

WINTER TERM

BA-104*	Business Math	3
BA-156	Business Forecasting	3
BA-223	Principles of Marketing	4
BA-285	Human Relations in Business	4

SPRING TERM

BA-205	Solving Communication Problems w/Technology	4
BA-211	Financial Accounting I	4
BA-226	Business Law I	4
BA-238	Sales	3
BA-280	Business/CWE	3

Minimum credits required for certificate 47

* For this certificate, BA-104 meets the Related Instruction Computation requirement.

Marketing & Management

ASSOCIATE OF APPLIED SCIENCE DEGREE

This program focuses on identifying customer needs, developing goods and services to satisfy those needs, communicating information about products to potential customers and distributing the product to customers. This degree is designed to meet the needs of an entrepreneur who has or starts his own business, as well as to enhance the skills and employability of those already in business and management careers.

PROGRAM OUTCOMES

Upon successful completion of this program, students should be able to demonstrate the skills necessary for entry-level employment in areas such as retail and wholesale sales, marketing management, market research and advertising and distribution. Students will prepare effective presentations, develop an effective marketing plan, prepare winning sales presentations and prepare themselves for upward mobility in the marketing and management fields.

CAREERS

Career opportunities include supervisors or manager of retail sales workers, sales associate, marketing manager, call center supervisor and account manager.

For information contact Dale Hatfield, ext. 2361 or daleh@clackamas.edu; Joan Ryan, ext. 2363 or joanr@clackamas.edu

MARKETING & MANAGEMENT ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM		CREDITS
BA-101	Introduction to Business	4
BA-104*	Business Math	3
BA-224	Human Resource Management	4
WR-121	English Composition	3
WINTER TERM		
BA-131	Introduction to Business Computing	4
BA-156	Business Forecasting	3
BA-223	Principles of Marketing	4
BA-285	Human Relations in Business	4
SPRING TERM		
BA-205	Solving Communication Problems w/Technology	4
BA-211	Financial Accounting I	4
BA-226	Business Law I	4
BA-238	Sales	3

MARKETING & MANAGEMENT ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
BA-206	Management Fundamentals	4
BA-212	Financial Accounting II	4
BA-218	Personal Finance	3
BA-239	Advertising	4
— —	PE/Health requirement (see page 15)	1
WINTER TERM		
BA-213	Decision Making with Accounting Information	4
BA-222	Financial Management	3
BA-227	Business Law II	4
BA-249	Retailing	3
EC-201	Principles of Economics: MICRO	4
SPRING TERM		
BA-217	Budgeting for Managers	3
BA-225	Business Report Writing	3
BA-261	Consumer Behavior	4
BA-280	Business/CWE	3
— —	Marketing & Management program elective	4
<i>Minimum credits required for degree</i>		95

* For this degree, BA-104 meets the Related Instruction Computation requirement.

MARKETING & MANAGEMENT PROGRAM ELECTIVES

Any Business Administration (BA) or Business Technology (BT) course not included in the Marketing & Management program.

Medical Assistant

CERTIFICATE

Medical assistants function as members of the healthcare delivery team and perform administrative, clinical and transdisciplinary functions. The Medical Assistant program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), (35 East Wacker Drive, Suite 1970, Chicago, IL 60601-2208 or (312) 553-9355), on recommendation of the Curriculum Review Board of the American Association of Medical Assistants' Endowment (AAMAE).

PROGRAM PREREQUISITES

Admission to the Medical Assistant program is during spring term to enroll for fall term classes. Admission is by special application only. Specific skill levels are required in reading, writing and math. Placement tests are required prior to admission to the program. Prerequisites: WR-101 or WR-121 and SP-100 or SP-218 must be completed prior to applying for the Medical Assistant program. Applicants are advised that there is a certain level of dexterity and physical strength involved for successful completion of the program. A physical examination by a licensed healthcare provider, immunizations and a criminal history background check are required. Drug testing may be required. Students will participate in unpaid, supervised externships in the ambulatory care setting.

Application packets with admission procedures and requirements are available from the Enrollment Services Center, the Advising & Counseling Center, or at <http://depts.clackamas.edu/healthsciences>

PROGRAM OUTCOMES

Upon successful completion of the program, students will be eligible to sit for the American Association of Medical Assistants (AAMA) National Certification exam. Students will be prepared for entry-level employment as a medical assistant.

CAREERS

Career opportunities may include but are not limited to: employment in the ambulatory care setting, employment in the acute care setting, insurance billing and coding, administration and phlebotomy.

For continuing education for healthcare providers see Healthcare Professional Development page 194.

For information contact Karen Maynard, ext. 2219 or kmaynard@clackamas.edu

Continued

MEDICAL ASSISTANT PREREQUISITES

Complete the following prerequisites before applying to the Medical Assistant program.

COURSE		CREDITS
SP-100	Basic Speech Communication	
or SP-218	Interpersonal Communication	3-4
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3

MEDICAL ASSISTANT CERTIFICATE**FALL TERM**

BI-055	Introduction to Human Biology	
or BI-102	General Biology (prerequisite: BI-101)	3-4
CS-120	Survey of Computing	4
MA-110	Medical Terminology	3
MA-112	Medical Office Practice	4
MA-145	Medical Coding & Health Information Management	3

WINTER TERM

MA-116	Introduction to Medications	2
MA-117	Clinical Lab Procedures I	2
MA-118	Examination Room Techniques	3
MTH-054	Math for Health Care Professionals	3
PSY-101	Human Relations	3

SPRING TERM**(WEEKS 1-5)**

MA-115	Phlebotomy	1
MA-121	Clinical Lab Procedures II	2
PSY-215	Introduction to Developmental Psychology	4

(WEEKS 6-11)

MA-119	Medical Assistant Practicum I	4
MA-120	Medical Assistant Practicum II	6

Minimum credits required for certificate 53-55

Current First Aid and CPR for Healthcare Providers (AHA or ASHI) are required during practicums and must be taken prior to winter term practicum. A criminal history background check is required and drug testing may be required.

Note: All clinical/practicum courses are "Pass/No Pass". All other courses are letter grades and must be passed with "C" or better. Core curriculum is sequential and may not be taken out of order with the exception of MA-110 which may be taken before beginning the program. Core curriculum is intended to be completed in one academic year.

Individuals who have been found guilty of a felony, or pleaded guilty to a felony, may not be eligible to take the Certified Medical Assistant (CMA) Exam. Direct questions to: AAMA Certification Department; 20 N. Wacker Dr.; Suite 1575; Chicago, IL 60606; e-mail: certification@aama-ntl.org; phone: 800-228-2262.

Microelectronics Systems Technology

CERTIFICATE ASSOCIATE OF APPLIED SCIENCE DEGREE PROFESSIONAL UPGRADE

This program prepares students for entry into the microelectronics and semiconductor industries. Course work focuses on wafer manufacturing, integrated circuit fabrication, component manufacturing, microelectronic assembly and equipment maintenance. Specific skill areas include: silicon materials fabrication, silicon manufacturing, semiconductor processing, microcontamination and particle control, troubleshooting of equipment and systems, microlithography, ion implantation, etch and chemical vapor deposition.

PROGRAM OUTCOMES

Program outcomes include the skills necessary for entry-level employment into the microelectronics and semiconductor industries as technicians, operators and processors.

CAREERS

Career opportunities may include fabrication technician, equipment technician and product test technician.

For information contact Mike Mattson, ext. 2483 or mattsonm@clackamas.edu

MICROELECTRONICS SYSTEMS TECHNOLOGY CERTIFICATE

FIRST TERM		CREDITS
EET-112	Electronic Test Equipment & Soldering	1
EET-137	Electrical Fundamentals I	4
EET-139	Principles of Troubleshooting I	2
MFG-107	Industrial Safety & OSHA	3
MTH-050*	Technical Mathematics I	3
SM-150	Semiconductor Processing I	2
WR-101*	Communication Skills: Occupational Writing	3
SECOND TERM		
EET-141	Electrical Fundamentals II	4
EET-157	Digital Logic I	3
ESH-100	Environmental Regulations	2
MFG-109	Computer Literacy for Technicians	3
MTH-080*	Technical Mathematics II	3
SM-160	Semiconductor Processing II	2
THIRD TERM		
EET-127	Semiconductor Circuits I	4
EET-142	Electrical Fundamentals III	4
MTH-085*	Technical Mathematics III	3
SM-170	Semiconductor Processing III	2
SM-280	Electronics & Microelectronics/CWE	2
SP-100*	Basic Speech Communication	3
<i>Minimum credits required for certificate</i>		53

MICROELECTRONICS SYSTEM TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

Complete certificate program.

MICROELECTRONICS SYSTEMS TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FOURTH TERM		CREDITS
CH-104	Introductory Chemistry	5
EET-215	Principles & Applications of Mfg. Equip. Tech.	2
EET-239	Principles of Troubleshooting II	2
MFG-104	Print Reading	2
— —	Human Relations requirement (see page 15)	3

FIFTH TERM		
EET-250	Linear Circuits	3
MFG-140	Principles of Fluid Power	3
MFG-209	Programming and Automation for Manufacturing	3
SM-136	Photolithography	2
SM-280	Electronics & Microelectronics/CWE	2
— —**	Microelectronics Systems Technology program elective	3

SIXTH TERM		
EET-230	Laser and Fiber Optics	3
MFG-124	Statistical Process Control	3
MFG-133	Programmable Logic Controllers	3
SM-229	Vacuum Technology	2
— —	PE/Health requirement (see page 15)	3
<i>Minimum credits required for degree (requirements & electives)</i>		97

*Substitute college transfer courses for these courses if you plan to continue your education at a higher education institution. It is recommended that you consult with a faculty advisor or a staff member in the Advising & Counseling Center for the transfer requirements of the specific advanced program or school.

**Microelectronics Systems Technology program electives: Any course with an EET, SM, MFG, WLD or CDT prefix.

ELECTRONICS ENGINEERING TECHNOLOGY (OIT Transfer Courses)

The Manufacturing Technology Department, in cooperation with Oregon Institute of Technology (OIT), offers a number of transferable microelectronics classes into OIT's Electronics Engineering Technology degree program. Contact Mike Mattson, ext. 2483 or mattsonm@clackamas.edu, for more information.

Music Technology

CERTIFICATE

The Music Technology certificate gives students the core skills needed to enter the sound and music production industry.

PROGRAM OUTCOMES

Program outcomes should include the skills necessary for entry-level employment into a variety of music and sound careers.

CAREERS

Careers include recording engineer, live sound engineer, media and sound post-production for internet companies, sound/music for video games, sound/media engineer for TV, recording/sound for advertising production, video post-production engineer, sound engineer for radio, video production engineer, film sound recording engineer, film post production for mixed media, film post production for sound only, film sound designer (FX), film foley artist, technical support for music production software companies, technical development for music production hardware and software and sound technical development for software companies.

For information contact Brian Rose, ext. 5226 or brianr@clackamas.edu

MUSIC TECHNOLOGY CERTIFICATE

FALL TERM		CREDITS
MUS-107	Introduction to Audio Recording I	3
MUS-140	Careers in Music	3
MUS-142	Introduction to Electronic Music I: MIDI	3
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3
— —	Music Technology program basics (see list)	3-4
— —	Music Technology program electives (see list)	2-4

WINTER TERM		
MUS-108	Introduction to Audio Recording II	3
MUS-141	Introduction to the Music Business	3
MUS-143	Introduction to Electronic Music II: Sequencing & Sampling	3
MTH-050	Technical Mathematics I	
	or higher levels of math may be substituted	3-5
— —	Music Technology program basics	3-4
— —	Music Technology program electives	2-4

SPRING TERM		
MUS-109	Introduction to Audio Recording III	3
MUS-144	Introduction to Electronic Music III: Digital Audio	3
MUS-280	Music/CWE	2
SP-100	Basic Speech Communication	
	(or SP-126, SP-218, SP-140)	3-4
— —	Music Technology program basics	3
— —	Music Technology program electives	2

Minimum credits required for certificate 50-61

Continued

MUSIC TECHNOLOGY PROGRAM BASICS

Complete 9 credits from the following:

MUP-100	Individual Instruction–non-music majors	1
MUS-101	Music Fundamentals	3
MUS-102	Music Fundamentals	3
MUS-103	Music Fundamentals	3
MUS-105	Music Appreciation	3
MUS-131	Piano for Pleasure	1
MUS-132	Piano for Pleasure	1
MUS-133	Piano for Pleasure	1
MUS-134	Group Voice	1
MUS-135	Group Voice	1
MUS-136	Group Voice	1
MUS-137	Group Guitar I: Guitar for Dummies	1
MUS-138	Group Guitar II	1
MUS-139	Group Guitar III	1
MUS-202	Music Literature: Baroque-Classical	4
MUS-205	Music Literature: History of Jazz	4
MUS-206	Music Literature: History of Rock Music	4

MUSIC TECHNOLOGY PROGRAM ELECTIVES

Complete 6 credits from the following:

MUS-101	Music Fundamentals	3
MUS-102	Music Fundamentals	3
MUS-103	Music Fundamentals	3
MUS-105	Music Appreciation	3
MUS-130	Music and Media	1
MUS-131	Piano for Pleasure	1
MUS-132	Piano for Pleasure	1
MUS-133	Piano for Pleasure	1
MUS-134	Group Voice	1
MUS-135	Group Voice	1
MUS-136	Group Voice	1
MUS-137	Group Guitar I: Guitar for Dummies	1
MUS-138	Group Guitar II	1
MUS-139	Group Guitar III	1
MUS-145	Introduction to Digital Sound, Video & Animation	3
MUS-146	Entertainment Law & New Media	3
MUS-147	Music, Sound & Moviemaking	1
MUS-148	Live Sound Engineering	3
MUS-202	Music Literature: Baroque-Classical	4
MUS-205	Music Literature: History of Jazz	4
MUS-206	Music Literature: History of Rock Music	4
MUP-100	Individual Lessons: non-music majors	1
MUP-102	Concert Band	2
MUP-104	Pep Band	1
MUP-105	Jazz Ensemble	2
MUP-121	Clackamas Chorale	1
MUP-122	Chamber Choir	2
MUP-125	Voice Jazz Ensemble	2
MUP-141	College Orchestra	1
MUP-241	College Orchestra	1

Network & Microcomputer Specialist

CERTIFICATE ASSOCIATE OF APPLIED SCIENCE DEGREE

Students may earn either a one-year certificate or a two-year Associate of Applied Science degree. The course work emphasizes development of analytical and problem-solving skills. Cooperative Work Experience (CWE) is supervised on-the-job employment that supplements the academic classroom environment.

PROGRAM PREREQUISITES

Prerequisites for first term classes include completed course work or placement out of CS-120 Survey of Computing, WR-095 Paragraph to Essay and MTH-065 Algebra II. This program is an open program, meaning that students may take any class in the program for which they have completed the prerequisite. Note: Placement at a level of math higher than MTH-092 does not satisfy the MTH-092 requirement.

PROGRAM OUTCOMES

Program outcomes should include skills for entry-level positions in network administration and microcomputer support. Microcomputer specialists install, maintain, upgrade and troubleshoot PC hardware. Network specialists, using software such as Novell, Linux/Unix, or Windows, work with organizational computers to keep hardware and software operational and provide secure access to business information.

CAREERS

Career opportunities may include network specialist, computer service technician, field engineer, customer service engineer, computer technician, and PC/LAN support specialist.

For information contact Debra Carino, ext. 5198 or dcarino@clackamas.edu

NETWORK & MICROCOMPUTER CERTIFICATE

FALL TERM		CREDITS
CS-121	Computer Applications	3
CS-140	Operating Systems I	4
CS-150	Computer Technician Orientation	2
CS-225	Computer End-User Support	3
MTH-092	Math for Computer Technicians	4
WINTER TERM		
CS-125H	HTML & Web Site Design	3
CS-179	Data Communications Concepts	3
CS-227	PC Hardware & Repair I	4
CS-240W	Operating Systems II: Windows	3
WR-101	Communications Skills: Occupational Writing	
or WR-121	English Composition	3

SPRING TERM

CS-140U	Operating Systems I: Linux/UNIX	3
CS-228	PC Hardware & Repair II	4
CS-279W	LAN I: Windows Server Administration	4
CS-280	Computer Science/CWE	3
— —	Human Relations requirement (see page 15; recommended: BA-285 or PSY-101)	3-4
<i>Minimum credits required for certificate</i>		49-50

NETWORK & MICROCOMPUTER SPECIALIST ASSOCIATES OF APPLIED SCIENCE DEGREE: 1ST YEAR

Complete certificate program.

NETWORK & MICROCOMPUTER SPECIALIST ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM CREDITS

CS-135DB	Advanced Database	3
CS-229	Network System Repair & Troubleshooting	4
CS-240U	Operating Systems II: Linux/UNIX	3
CS-279N	LAN I: Novell Administration	4
— —	PE/Health requirement (see page 15)	1

WINTER TERM

CS-284	Network Security	3
CS-288W	LAN II: TCP/IP	4
CS-289I	Web Server Administration: Internet Information Server	3
CS-287X	Microsoft Exchange Server	3
— —	Network & Microcomputer program elective	3-4

SPRING TERM

CS-280	Computer Science/CWE	6
CS-289A	Web Server Administration: Apache	3
CS-297N	Network Capstone	4
— —	Network & Microcomputer program elective	3-4
<i>Minimum credits required for degree</i>		96-99

NETWORK & MICROCOMPUTER PROGRAM ELECTIVES

Complete 6-8 credits from the following:

BA-101	Introduction to Business	4
BA-103	Business Strategies for Computer Consultants	3
— —	Any computer science course numbered 125 or above except: CS-178, CS-178E and CS-295E	

Note: Students may not take more than 6 credits of CWE in a term.

Nursing

ASSOCIATE OF APPLIED SCIENCE DEGREE

The Nursing program at Clackamas Community College is a full partner in the Oregon Consortium for Nursing Education (OCNE). The curriculum in OCNE nursing programs is a competency-based curriculum developed in collaboration with Oregon Health & Science University (OHSU) and other community colleges around the state. This curriculum, which has been approved by the Oregon State Board of Education as well as the Oregon State Board of Nursing, can ultimately culminate in a Baccalaureate of Science degree with a focus in nursing on the community college campus offered by OHSU. For more information on the OCNE curriculum, refer to www.ocne.org.

Admission into the Nursing program is by special application only. Acceptance to the nursing program allows for co-admission to Clackamas Community College and Oregon Health & Science University, School of Nursing.

A physical examination by a licensed health care provider, immunizations and criminal history background check are required. Drug testing may also be a required. Drug use and/or conviction of a felony may result in the Oregon State Board of Nursing denying licensure upon graduation.

PROGRAM OUTCOMES

The OCNE curriculum addresses the need for nurses to be skilled in clinical judgment and critical thinking, evidenced based practice, relationship-centered care, interdisciplinary collaboration, and assisting individuals and families across the life span regarding self-care practices in areas of health promotion, acute and chronic illness as well as end of life issues.

The OCNE curriculum is designed as a four-year course of study, the first year devoted to pre-admission requirements. The second and third year of designated study will be taken at Clackamas Community College. Upon completion of the CCC nursing program, students will be eligible to receive their Associate of Applied Science degree in nursing and take the national examination (NCLEX-RN) for registered nurse licensure. Graduates of the nursing program at Clackamas Community College should be prepared for entry-level employment as a registered nurse. The student may elect to continue for the fourth year of study, leading to a Baccalaureate of Science degree with a focus in nursing offered by OHSU.

CAREERS

Career opportunities may include but are not limited to entry-level employment as a registered nurse in the acute care setting, sub-acute setting and the ambulatory care setting.

Continued

Information regarding the program, the application process and pre-nursing academic advising sessions are available at <http://depts.clackamas.edu/healthsciences/nur.asp>

For continuing education for healthcare providers, see Healthcare Professional Development page 194.

PROGRAM PREREQUISITES

Students are eligible to apply for admission to the nursing program after completion of a minimum of 30 quarter credits of courses from the prerequisite list. The 30 credits must include at least BI-231 and Math competency (MTH-095 or higher).

Application to the nursing program requires a minimum GPA of 3.0 for all prerequisites completed. All completed prerequisites will be counted toward the prerequisite GPA (45 maximum term credits).

Completion of all prerequisite courses must be with a letter grade of "C" or better. Plus and minus grades will not be factored into the GPA calculations. BI-231 must be completed and math competency must be demonstrated by the end of winter term 2007. The remaining prerequisites must be completed by the end of summer term 2007.

If a course has been taken more than once, the most recent grade received will be the course considered.

NURSING PROGRAM PREREQUISITES

COURSE		CREDITS
BI-231	Human Anatomy/Physiology I	4
BI-232	Human Anatomy/Physiology II	4
BI-233	Human Anatomy/Physiology III	4
FN-225	Nutrition	4
PSY-215	Introduction to Developmental Psychology	4
WR-121	English Composition	3
WR-122	English Composition	3
	Humanities, Social Science, or Natural Science	14

- At least 6 of the 14 credits must come from Social Sciences
- See chart of approved courses

ELECTIVE CREDITS:

Students may need to take elective credits in order to meet the 45 credit prerequisite minimum required for entry into the nursing program. Elective credits may come from any subject area and must be 100-level or higher. (NOTE: MTH-095 may be applied toward prerequisite credits but not toward the BSN degree.)

PREREQUISITE COMPETENCIES

COURSE		CREDITS
MTH-095	Algebra III	4
CS-120	Survey of Computing	4
<i>Total credit hours needed for admission into the nursing program</i>		45

The 45 credits of prerequisites are part of the total required credits for the degree. Students must have documentation of having taken a biology course with genetic content before progressing in the second term of the nursing program. BI-101, BI-112 or BI-211 will satisfy this requirement.

NOTE: Courses listed above may have prerequisites. See course descriptions for those requirements.

NURSING ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM		CREDITS
BI-234	Microbiology	4
NRS-110	Foundations of Nursing – Health Promotion	5
NRS-110C	Clinical/Lab Application	4
WINTER TERM		
NRS-111	Foundations of Nursing in Chronic Illness I	2
NRS-111C	Clinical/Lab Application	4
NRS-230	Clinical Pharmacology I	3
NRS-232	Pathophysiological Processes I	3
WR-123	English Composition	
or WR-227	Technical Report Writing	3
SPRING TERM		
NRS-112	Foundations of Nursing in Acute Care I	2
NRS-112C	Clinical/Lab Application	4
NRS-231	Clinical Pharmacology II	3
NRS-233	Pathophysiological Processes II	3

NURSING ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
NRS-221	Foundations of Nursing in Chronic Illness II & End of Life	3
NRS-221C	Clinical/Lab Application	6
— —	Humanities, Social Science, Natural Science or Nursing electives	0-6

NOTE: Students must choose AAS or BS track prior to the start of winter term.

Students who choose the BS track will not be eligible for RN licensure until the completion of their BS degree at the end of fourth year of the nursing curriculum.

Students who choose the AAS track will complete requirements for the AAS degree and be eligible for RN licensure at the end of the third year of the nursing curriculum.

WINTER TERM		CREDITS
NRS-222	Foundations of Nursing in Acute Care II & End of Life	3
NRS-222C	Clinical/Lab Application	6
— —	Humanities, Social Science, Natural Science or Nursing electives	0-6

SPRING TERM

NRS-224	Scope of Practice and Preceptorship for AAS Completion	3
NRS-224C	Clinical/Lab Application	6
— —	Humanities, Social Science, Natural Science or Nursing electives	0-6
<i>Minimum credits required for AAS degree</i>		112

Students must achieve “C” or higher grades in all required courses (including prerequisites) prior to advancing to the next term.

Core curriculum is sequential and may not be taken out of order. Core nursing curriculum is intended to be completed in two academic years for an AAS degree.

Current CPR for Healthcare Providers (AHA or ASHI) is required prior to fall term of the first year of the nursing program. A criminal history background check is required. Drug testing may also be required.

APPROVED COURSES TO MEET PREREQUISITE/ELECTIVE CREDIT REQUIREMENTS FOR THE NURSING PROGRAM

NOTE: All electives must be taken at the 100 level or higher unless otherwise noted.

HUMANITIES (ARTS & LETTERS)

Courses used in this area must be at least 3 credits.

Select courses with a prefix of:

ASL, FR, GER, JPN, RUS, SPN (other foreign languages are OK; languages must be 200 level)

ART, ENG, HUM (except HUM 100), J, MUP, MUS,PHL, R, TA SP (courses numbered SP-126 and above)

WR (except WR-101, 121, 122, 123 or 227)

SOCIAL SCIENCE

Courses used in this area must be at least 3 credits.

Select courses with a prefix of:

ANT, EC, GEO, HST, PS, PSY, SOC, SSC, WS

NATURAL SCIENCES (SCIENCE/MATH/COMPUTER SCIENCE)

Courses used in this area must be at least 3 credits.

Select courses with a prefix of:

ASC, BI* (except BI-055, BI-163), BOT, CH (except CH-150), CS, ESR, G (except G-119, G-124), GS (except GS-160), MTH (MTH-095 accepted), PH, Z

*Concurrent enrollment required for BI-160/BI-160L or BI-165C/BI-165CL

NURSING

NUR-160, NUR-217, NUR-288

BACCALAUREATE OF SCIENCE DEGREE WITH A FOCUS IN NURSING

After receiving the AAS in Nursing degree, students who wish to continue on for their baccalaureate degree may do so through co-admission at OHSU. Students who plan to continue through to OHSU must be aware that to earn their Baccalaureate of Science Degree with a focus in Nursing, they must have:

- Two years of the same high school foreign language or two terms of college-level foreign language credit (includes American Sign Language) or a foreign language proficiency examination.
- MTH-243 Probability and Statistics

COURSE WORK FOR A BACCALAUREATE OF SCIENCE DEGREE WITH A FOCUS IN NURSING THROUGH OHSU WILL INCLUDE THE FOLLOWING NURSING CLASSES:

NRS-410	Population Based Care: Chronic Illness & Health Promotion
NRS-411	Epidemiology
NRS-412	Leadership Outcomes Management in Nursing
NRS-424	Clinical Immersion I Capstone I or Minor course work
NRS-425	Clinical Immersion II Capstone II or Minor course work

At least 15 credits of elective credit must be taken at the upper division level (300/400 level) for the BS program. These can be taken under a co-enrollment agreement with PSU, OIT, EOU, or SOU.

Occupational Skills Training

CERTIFICATE

The Occupational Skills Training program provides the opportunity for students to receive hands-on training in a specific occupational area. This program is designed for students who need or prefer work-based training to develop their skills. Students may begin their training at any time.

Students participate in supervised and structured work-based training in addition to classroom instruction. The program utilizes local businesses as training sites.

Individualized training plans are developed in consultation with the student, work-site trainer, CCC faculty and program coordinator.

PROGRAM OUTCOMES

Individualized training curriculum and employment plan, which describe the skills and knowledge necessary for the student to become competitively employable.

Contact with employers beyond what would ordinarily be available through an application process.

Increased occupational skills through hands on training provided by an employer and through general education and occupation related classroom instruction.

Continued

CAREERS

Career opportunities may be available in a variety of occupations, depending on the goals, skills and aptitude of the student and the availability of local training sites.

For information contact the Occupational Skills office at ext. 2085 or ext. 2232, or visit <http://depts.clackamas.edu/career>

OCCUPATIONAL SKILLS TRAINING CERTIFICATE**PROGRAM REQUIREMENTS**

OST-180	Occupational Skills Training	24
— —	Occupational Related Courses	15

RELATED INSTRUCTION REQUIREMENTS

WR-101	Communication Skills: Occupational Writing	3
MTH-050	Technical Mathematics I	3
— —	Human Relations requirement (see page 15)	3
<i>Minimum credits required for certificate</i>		48

Paraeducator

CERTIFICATE

The Paraeducator certificate program is designed to meet the professional development needs of teacher assistants. Course work provides a basic foundation in theory and practical application in how children learn, teaching strategies, developing positive relationships with students, integrating current technology into the learning environment, addressing the needs of special-need students and the role of the classroom in a multi-cultural society.

Course work includes related instruction requirements, cooperative work experience and core courses in education that are scheduled in late afternoons or offered online to meet the needs of currently employed teacher assistants and students exploring educational careers.

The *No Child Left Behind Act* of 2002 now mandates that paraeducators who work in Title I schools have two years of college, an associate's degree, or pass a competency test equivalent to sophomore level course work in reading, writing, math and teaching strategies.

PROGRAM OUTCOMES

Completion of the Paraeducator certificate program provides more than half the necessary credits for the two-year requirement as well as a strong foundation in education and teaching. Completion of the remaining requirements should include the skills necessary to work as a teacher assistant in a variety of public and private elementary and secondary school settings.

PORTLAND STATE UNIVERSITY TRANSFER AGREEMENT

Portland State University will accept the CCC Paraeducator Certificate as part of a 90 credit Associate of General Studies. Talk with a staff member in the Advising & Counseling Center at CCC, or Paula Hamm at ext. 2804 for requirements.

CAREERS

Career opportunities may include paraeducator positions in public or private elementary or secondary schools.

For information contact Paula Hamm, ext. 2804 or paulah@clackamas.edu

PARAEDUCATOR CERTIFICATE

FALL TERM		CREDITS
ED-100	Introduction to Education	3
ED-131	Instructional Strategies	3
ED-229	Learning and Development	3
WR-121	English Composition	3
WINTER TERM		
ED-113	Instructional Strategies in Reading and Language Arts	3
ED-169	Overview of Students with Special Needs	3
ED-200	Foundations of Education	3
ED-280	Practicum/CWE	3-6
SPRING TERM		
CS-121E	Computer Applications for Educators	3
ED-114	Instructional Strategies in Math and Science	3
ED-130	Comprehensive Classroom Management	3
ED-254	Instructional Strategies for English Language Learners	3
SUMMER TERM		
ED-235	Educational Technology	3
ED-258	Multicultural Education	3
MTH-065	Algebra II	4
RD-090	Intermediate Reading Skills*	3
<i>Minimum credits required for certificate</i>		49-52

*The reading requirement may be challenged in the testing center.

Project Management

CERTIFICATE

This program is designed for students who are interested in upgrading their professional skills, those who want to learn new and valuable personal and professional skills and those who might be interested in pursuing the two-year Project Management Associate of Applied Science (AAS) degree.

PROGRAM OUTCOMES

Program outcomes should include the skills necessary for gaining entry-level employment in a variety of business and management settings including utilities, manufacturing, merchandising, retail sales, construction, consulting, government and non-profit organizations. This program prepares the student to continue working toward an AAS degree in project management or another closely related AAS degree.

CAREERS

Career opportunities include career enhancement such as more marketable skills in one's current employment or job opportunities in a project management training program.

For information contact Kathy Christensen, ext. 5275 or kathc@clackamas.edu

PROJECT MANAGEMENT CERTIFICATE

COURSE		CREDITS
BA-120	Project Team Tools	3
BA-122	Teamwork: Project Management	3
BA-123	Leadership and Motivation: Project Management	3
BA-124	Negotiation: Project Management	3
BA-125	Risk Management: Project Management	3
BA-126	Project Management: Workshop	3
BT-177	Microsoft Project	3
<i>Minimum credits required for certificate</i>		21

Project Management

ASSOCIATE OF APPLIED SCIENCE DEGREE

Upon completion of the two-year Project Management Associate of Applied Science (AAS) degree program, students are qualified to sit for the national certification examination in project management and to receive the PMP professional designation.

PROGRAM OUTCOMES

Students successfully completing this program should be able to demonstrate the skills necessary for employment in a variety of business and management settings, including utilities, manufacturing, merchandising, retail, sales, construction, consulting, government and non-profit organizations. More complex program outcome skills include project and business design, budgeting, team management, project management and project evaluation.

CAREERS

Careers may include construction project manager, cost estimator and educational project manager.

For information contact Kathy Christensen, ext. 5275 or kathc@clackamas.edu

PROJECT MANAGEMENT ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

		CREDITS
FALL TERM		
BA-101	Introduction to Business	4
BA-120	Project Team Tools	3
BA-122	Teamwork: Project Management	3
MTH-065	Algebra II	4
WR-101	Communication Skills: Occupational Writing	3
WINTER TERM		
BA-123	Leadership and Motivation: Project Management	3
BA-125	Risk Management: Project Management	3
BA-131	Introduction to Business Computing	4
BA-206	Management Fundamentals	4
BT-177	Microsoft Project	3
SPRING TERM		
BA-124	Negotiation: Project Management	3
BA-126	Project Management Workshop	3
BA-217	Budgeting for Managers	3
BA-285	Human Relations in Business	4

PROJECT MANAGEMENT ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

		CREDITS
FALL TERM		
BA-111	General Accounting I	4
BA-223	Principles of Marketing	4
BA-226	Business Law I	4
BA-280	Business/CWE	3
— —	PE/Health requirement (see page 15)	1

Continued

WINTER TERM

BA-267	Organizational Development and Behavior	4
BA-280	Business/CWE	3
— —	BT/BA elective	5

SPRING TERM

BA-162	Procurement for Managers	3
BA-225	Business Report Writing	3
BA-268	Applied Project Demonstration	6
BA-281	Business/CWE	3

Minimum credits required for degree 90

Retail Management

CERTIFICATE PROFESSIONAL UPGRADE

A less than one year program. This certificate is sponsored by members of the retail industry and is recommended for students currently working in retail sales positions or those students who would like to work in retail sales and progress into management roles and responsibilities. Course work is specific to the retail industry and focuses on preparing retail employees for upward mobility.

PROGRAM OUTCOMES

Upon successful completion of this certificate, students should be able to demonstrate skills necessary to successfully work as retail sales associates and to advance to higher levels of responsibility including supervisory management. Students should develop hard and soft skills in technology and communication to be effective support personnel as well as team leaders and motivators.

CAREERS

Career opportunities include retail clerks, cashiers, manager trainees, sales associates and other similar positions in all types of retail establishments.

For information contact Dale Hatfield at ext. 2361 or daleh@clackamas.edu or Joan Ryan at ext. 2363 or joanr@clackamas.edu

RETAIL MANAGEMENT CERTIFICATE

COURSE		CREDITS
BA-104	Business Math	3
BA-111	General Accounting I	4
BA-131	Introduction to Business Computing	4
BA-205	Solving Communication Problems with Technology	4
BA-206	Management Fundamentals	4
BA-223	Principles of Marketing	4
BA-224	Human Resource Management	4
BA-249	Retailing	3
BA-285	Human Relations in Business	4
SP-111	Public Speaking	4
Minimum credits required for certificate		38

Note: This certificate is designed to be completed in less than one year.

Retail Management

CERTIFICATE

This certificate is sponsored by members of the retail industry and is recommended for students currently working retail sales positions or those students who would like to work in retail sales and progress into management roles and responsibilities. Course work is specific to the retail industry and focuses on preparing retail employees for upward mobility.

PROGRAM OUTCOMES

Upon successful completion of this certificate, students should be able to demonstrate skills necessary to successfully work as retail sales associates and to advance to higher levels of responsibility including supervisory management. Students should develop hard and soft skills in technology and communication to be effective support personnel as well as team leaders and motivators.

CAREERS

Career opportunities include retail clerks, cashiers, manager trainees, sales associates, and other similar positions in all types of retail establishments. For information contact Dale Hatfield at ext. 2361 or daleh@clackamas.edu or Joan Ryan at ext. 2363 or joanr@clackamas.edu

RETAIL MANAGEMENT CERTIFICATE**FALL TERM**

BA-104*	Business Math	3
BA-131	Introduction to Business Computing	4
SP-111	Public Speaking	4
WR-101 or WR-121	Communication Skills: Occupational Writing English Composition	3

WINTER TERM

BA-111	General Accounting I	4
BA-205	Solving Communication Problems with Technology	4
BA-206	Management Fundamentals	4
BA-223	Principles of Marketing	4

SPRING TERM

BA-224	Human Resource Management	4
BA-249	Retailing	3
BA-285	Human Relations in Business	4
— —	any BA/BT course not already included in the Retail Management program	4

Minimum credit required for certificate 45

* For this certificate, BA-104 meets the Related Instruction Computation requirement.

Retail Management

ASSOCIATE OF APPLIED SCIENCE DEGREE

This degree is sponsored by members of the retail industry and is recommended for students currently working in retail supervisory and middle management, as well as traditional students who desire to work in retail sales and progress into management roles and responsibilities. Course work is specific to the retail industry and focuses on preparing retail employees for upward mobility.

PROGRAM OUTCOMES

Upon successfully completing this degree, students should be able to demonstrate the skills necessary to work as retail sales supervisors and managers, and to advance to higher levels of responsibility including corporate advancement opportunities. Successful students will develop hard and soft skills in technology and communication to be effective team leaders and motivators. Students will experience a variety of roles in the retail industry and will pursue a career pathway that leads to increasing challenge, responsibility and opportunities.

CAREERS

Career opportunities include retail store managers, team managers, supervisors, corporate interns and trainees, and similar positions in all types of retail establishments. For information contact Dale Hatfield at ext. 2361 or daleh@clackamas.edu or Bill Waters at ext. 5062 or billw@clackamas.edu

RETAIL MANAGEMENT ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM	CREDITS
BA-104* Business Math****	3
BA-131 Introduction to Business Computing	4
BA-285* Human Relations in Business	4
WR-101* Communication Skills:Occupational Writing	
or WR-121 English Composition**	3
— — BA/BT/HD elective	1
WINTER TERM	
BA-206 Management Fundamentals	4
BA-214 Business Communication	
or BA-205 Solving Communication Problems with Technology	3-4
BA-223 Principles of Marketing	4
SP-111 Public Speaking	4
SPRING TERM	
BA-111 General Accounting I	
or BA-211 Financial Accounting I**	4
BA-224 Human Resource Management	4
BA-249 Retailing	3
— — BA/BT/HD electives	4

RETAIL MANAGEMENT ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM	CREDITS
BA-217 Budgeting for Managers	3
BA-251 Supervisory Management	3
HE-261* Community CPR	1
SP-140 Intercultural Communication**	4
— — BA/BT/HD electives	4
WINTER TERM	
BA-112 General Accounting II	
or BA-212 Financial Accounting II**	4
BA-226 Business Law 1**	4
EC-200 Introduction to Economics	4
or EC-201 Microeconomics**	
with EC-202 Macroeconomics**	8
SP-105 Listening**	4
SPRING TERM	
BA-124 Negotiation: Project Management	3
BA-238 Sales	3
BA-261 Consumer Behavior	4
BA-280 Business/CWE	3
— — BA/BT/HD electives	1
<i>Minimum credits required for degree</i>	<i>90</i>

*Meets general education requirements (computation, communication, human relations, health/PE)

** For transferring to the 3+1 program at Marylhurst University, these classes are required. (They cannot be waived or substituted.)

***Will accept WR-123 if the student is transferring in credits or if the credits were taken prior to entering the program.

****For this degree, BA-104 meets the Related Instruction Computation requirement. For transferring to Marylhurst for the articulated bachelor's degree, MTH-105 or MTH-111 meets the computation requirement.

MARYLHURST UNIVERSITY TRANSFER AGREEMENT

Marylhurst University will accept the CCC Retail Management Associate of Applied Science degree plus a third year module of courses at Clackamas that will transfer as the first three years of a bachelor's degree. Marylhurst will accept the following Clackamas courses as their third year:

THIRD YEAR ARTICULATION TO MARYLHURST UNIVERSITY

FALL TERM	CREDITS
BI-101 General Biology**	4
MTH-105 Contemporary Math**	
or MTH-111 College Algebra	4-5
WINTER TERM	
BI-102 General Biology**	4
MTH-243 Probability and Statistics**	4
WR-122 English Composition**	3
SPRING TERM	
BA-267 Organizational Development and Behavior**	4
BI-103 General Biology**	4
WR-227 Technical Report Writing***	3

Supervisory Training

CERTIFICATE PROFESSIONAL UPGRADE

A less than one year program. This program is designed for those students who are interested in supervisory positions, employees desiring advancement to supervisory positions and supervisors seeking to upgrade supervisory skills.

PROGRAM OUTCOMES

Students successfully completing this program should be prepared for employment in a supervisory role or to move upward with their current employer in career advancement.

CAREERS

Career opportunities may include supervisor or manager of retail sales work force, supervisor or manager of personal services workers or supervisor or manager of non-retail sales workers.

For information contact Dale Hatfield, ext. 2361 or daleh@clackamas.edu

SUPERVISORY TRAINING CERTIFICATE

COURSE		CREDITS
BA-205	Solving Communication Problems with Technology	4
BA-206	Management Fundamentals	4
BA-217	Budgeting for Managers	3
BA-224	Human Resource Management	4
BA-285	Human Relations in Business	4
WR-121	English Composition	3
<i>Minimum credits required for certificate</i>		22

Utility Workforce Readiness

CERTIFICATE

A less than one year program. Earn a utility industry workforce readiness certificate offered as part of the Energy and Resource Management program. Curriculum is based on the themes, concepts and issues directly related to technical utility careers.

PROGRAM OUTCOMES

Program outcomes should prepare students for a technical career in the utility industry. To recognize safety as the first and foremost guide to practice. Accept personal responsibility to comply with all laws, performance standards, and service area requirements. Protect wildlife, habitat, and surrounding area from harm while executing work assignments. Produce reliable results that blend safety and performance into a unified utility worker practice. Operate and maintain vehicles, tools and equipment as a signature of personal practice. Advance the reputation of the company and trade from a personal demonstration of a premier practice. Communicate with others to plan and deliver a work process.

CAREERS

The certificate is designed to prepare a student for entry into multiple technical jobs in the utility industry such as ground worker, general laborer or technical assistant. Due to an aging work force, the utility industry is gearing up to replace their soon to be retiring work force. The training provided in this certificate is in anticipation of the jobs that soon will be available.

For information contact Joe Roberts, ext. 4636 or jobroberts@clackamas.edu

UTILITY WORKFORCE READINESS CERTIFICATE

FIRST TERM		CREDITS
ERM-100	Orientation to Energy & Resource Management	3
ERM-101	Energy & Resource Technology I: Intro	3
ERM-107	Career Portfolio	3
ERM-108	Career Marketing Strategies	3
SECOND TERM		
ERM-172	Energy Industry Performance Development	6
ERM-180	Energy & Resource Management/CWE	6
ERM-272	Energy Industry Performance Management	3
PSY-101	Human Relations	3
<i>Minimum credits required for certificate</i>		30

Water & Environmental Technology

CERTIFICATE ASSOCIATE OF APPLIED SCIENCE DEGREE PROFESSIONAL UPGRADE

The Water & Environmental Technology program provides professional/technical classes combined with field experience. Classes are offered in day/evening combinations and have enrollment limits to enhance instructional quality and job placement.

Course work emphasizes fundamental aspects of drinking water distribution, drinking water treatment, wastewater collection and wastewater treatment. Course work includes 240 hours of industry cooperative work experience, laboratory methods in environmental chemistry, aquatic microbiology and preparation for the provisional operator certification exams.

PROGRAM PREREQUISITE

MTH-065 Algebra II must be completed prior to fall term entry.

PROGRAM OUTCOMES

Program outcomes should include the skills necessary for entry-level employment in a variety of water-management industries; cities, counties and state agencies; and businesses, including wastewater treatment plants, drinking water treatment plants, environmental laboratories, source control programs, engineering firms, surface water management agencies, environmental agencies and organizations.

CAREERS

Career opportunities may include water and/or liquid waste treatment plant and system operator, environmental science technician and environmental engineering technician. Careers may also include environmental lab technician, source control technician, surface water specialist and environmental regulator.

For information contact John Lewis, ext. 2206 or jlewis@clackamas.edu

WATER & ENVIRONMENTAL TECHNOLOGY CERTIFICATE

FALL TERM		CREDITS
CH-104	Introductory Chemistry	
or CH-221	General Chemistry	5
MTH-082*	Math for Water Technology	2
WQT-110	Wastewater Operations I	3
WQT-111	Waterworks Operations I	3
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3
— —	Human Relations requirement (see page 15; recommended: PSY-101)	3

WINTER TERM

BI-204	Elementary Microbiology	4
MTH-082*	Math for Water Technology	2
WQT-120	Wastewater Operations II	3
WQT-121	Waterworks Operations II	3
WQT-122	Water Distribution/Wastewater Collection Systems	3
WQT-123	Environmental Chemistry I	3

SPRING TERM

CS-120	Survey of Computing	4
WQT-130	Wastewater Operations III	4
WQT-131	Water Treatment	4
WQT-132	Collection & Distribution Lab	1
WQT-134	Environmental Chemistry II	2
WQT-180	Water & Environmental Projects I	5

Minimum credits required for certificate 57

*4 credits of MTH-082 are required for the certificate and may not be substituted or waived.

WATER & ENVIRONMENTAL TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

Complete certificate program.

WATER & ENVIRONMENTAL TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
WQT-241	Aquatic Microbiology	4
WQT-242	Hydraulics/Water & Wastewater	3
WQT-245	Instrumentation & Control	4
WQT-280	Water & Environmental Projects II	5

WINTER TERM

MTH-095	Algebra III	
or MTH-111	College Algebra	4-5
— —	Geography elective (recommended: GEO-130)	4
— —	Speech elective (recommended: SP-111)	3-4

SPRING TERM

CS-121	Computer Applications	3
HE-252	First Aid/CPR	3
— —	General elective (any college-level course)	3-4

Minimum credits required for degree (requirements + electives) 93-96

WATER & ENVIRONMENTAL TECHNOLOGY PROGRAM ELECTIVES

BA-101	Introduction to Business
PS-203	U.S. Government: State & Local Institutions
PSY-240	Interpersonal Awareness & Growth
SOC-206	Institutions & Social Change
SP-111	Public Speaking

PROFESSIONAL UPGRADE COURSES

The following courses are designed to upgrade professional skills and in some cases assist in preparation for state certification examinations.

WQT-009	Certification Review/Wastewater Operators	(CEU)
WQT-009	Certification Review/Waterworks Operators	(CEU)
WQT-009	Cross Connect. Backflow Assembly Tester	(4.0 CEU)
WQT-009	Cross Connection Specialist Course	(3.2 CEU)
WQT-009	Equipment Maintenance & Repair	(CEU)
WQT-009	Pretreatment	(CEU)
WQT-009	Water & Wastewater Short Schools	(2.1 & 2.3 CEU)
WQT-010	Wastewater Operations I	3 credits
WQT-011	Waterworks Operations I	3 credits
WQT-020	Wastewater Operations II	3 credits
WQT-021	Waterworks Operations II	3 credits
WQT-030	Wastewater Operation III	3 credits
WQT-031	Water Treatment	3 credits

Water/High-Purity Production

CERTIFICATE PROFESSIONAL UPGRADE

A less-than-one-year program. The Water/High Purity Production certificate program provides classes and hands-on experience with advanced water treatment methods used in the high-tech industry. The certificate program has been developed in cooperation with Intel Corporation.

PROGRAM PREREQUISITE

MTH-065 Algebra II must be completed prior to fall term entry.

PROGRAM OUTCOMES

Program outcomes for the Water/High Purity Production Certificate should include skills for entry-level employment in the water production technology field of the high-tech industry.

CAREERS

Career opportunities may include high-purity lab technician and high-purity production technician.

For information contact John Lewis, ext. 2206 or jlewis@clackamas.edu

Continued

HIGH PURITY WATER CERTIFICATE

FALL TERM		CREDITS
WQT-245	Instrumentation & Control	4
WINTER TERM		
MTH-082	Math for Water Technology	1
WQT-125	High Purity Water Production I	3
SPRING TERM		
WQT-135	High Purity Water Production II	4
WQT-180	Water & Environmental Projects I	5
<i>Minimum credits required for certificate</i>		17

Web Design Specialist

CERTIFICATE

The Web Design program should prepare students for technical positions related to web and graphic design. This multidisciplinary program incorporates classes from computer science and art. Course work includes a strong emphasis on computer graphics and design, data communications theory, operating systems, and web design with a focus on current industry standards. Cooperative Work Experience (CWE) is supervised on-the-job employment that supplements the academic classroom environment.

PROGRAM PREREQUISITES

Prerequisites for first term classes include completed course work or placement out of CS-120 Survey of Computing, WR-095 Paragraph to Essay, and MTH-060 Algebra I or placement in CS-121 Computer Applications, WR-121 English Composition, and MTH-065 Algebra II. This program is an open program, meaning that students may take any class in the program for which they have completed the prerequisite.

PROGRAM OUTCOMES

Program outcomes should include entry-level skills for employment in web design, production, and graphic design. Students will be exposed to a wide range of web development tools and graphic design techniques and applications.

CAREERS

Career opportunities may include web designer, web production staff, and graphic designer.

For information contact Debra Carino, ext. 5198 or dcarino@clackamas.edu

WEB DESIGN SPECIALIST CERTIFICATE

FALL TERM		CREDITS
ART-115	Basic Design: Two Dimensional Design	4
CS-121	Computer Applications	3
CS-140	Operating Systems I	4
CS-150	Computer Technician Orientation	2
MTH-065	Algebra II	4

WINTER TERM

ART-225	Computer Graphics I	3
CS-125H	HTML & Web Site Design	3
CS-179	Data Communications	3
CS-240W	Operating Systems II: Windows	3
WR-121	English Composition	3

SPRING TERM

ART-226	Computer Graphics II	3
ART-262	Digital Photography & Photo-Imaging	3
CS-135I	Advanced Web Design	3
CS-280	Computer Science/CWE	3
— —	Human Relations requirement (see page 15; BA-285 or PSY-101 recommended)	3-4

Minimum credits required for certificate: 47-48

Web Design & Development Specialist

ASSOCIATE OF APPLIED SCIENCE DEGREE

The Web Design & Development Specialist program prepares students for technical positions related to web programming and design. This multidisciplinary program incorporates classes from computer science, art, English and business. Course work includes computer graphics and design, web development with a focus on current industry standards, web server administration, data-driven web programming, multimedia and animation, and technical writing. Cooperative Work Experience (CWE) is supervised on-the-job employment that supplements the academic classroom environment.

PROGRAM PREREQUISITES

Prerequisites for first term classes include completing course work for CS-120 Survey of Computing, WR-095 Paragraph to Essay, and MTH-060 Algebra I or placement in CS-121 Computer Applications, WR-121 English Composition and MTH-065 Algebra II. This program is an open program, meaning that students may take any class in the program for which they have completed the prerequisite.

PROGRAM OUTCOMES

Program outcomes should include entry-level skills for employment in web design, production, programming, and development fields, as well as graphic design fields. Students will be exposed to a wide range of web-related programming languages, web development tools, and graphic design techniques and applications.

CAREERS

Career opportunities may include web designer/consultant, webmaster, web programmer, web systems specialist, and graphic designer.

For information contact Debra Carino, ext. 5198 or dcarino@clackamas.edu

WEB DESIGN & DEVELOPMENT SPECIALIST ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM		CREDITS
ART-225	Computer Graphics I	3
CS-121	Computer Applications	3
CS-140	Operating Systems I	4
CS-150	Computer Technician Orientation	2
MTH-065	Algebra II	4

WINTER TERM		
ART-226	Computer Graphics II	3
CS-125H	HTML & Web Site Design	3
CS-179	Data Communications	3
CS-240W	Operating Systems II: Windows	3
WR-121	English Composition	3

SPRING TERM		
ART-227	Computer Graphics III	3
ART-262	Digital Photography & Photo-Imaging	3
CS-280	Computer Science/CWE	3
CS-1351	Advanced Web Design	3
— —	Human Relations requirement (see page 15; BA-285 or PSY-101 recommended)	3-4

WEB DESIGN & DEVELOPMENT SPECIALIST ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
BA-103	Business Strategies for Computer Consultants	3
CS-135DB	Advanced Database	3
CS-133S	Web Application Development I	3
CS-140U	Operating Systems I: Linux/UNIX	3
WR-122	English Composition	3

WINTER TERM		
CS-195	Multimedia for the Web	3
CS-233S	Web Application Development II	3
CS-275	Database Design	3
CS-289I	Web Server Administration	3
PE-185	Physical Education	1
WR-227	Technical Report Writing	3

SPRING TERM		
ART-221	Flash Animation: Design & Techniques	3
CS-234S	Web Application Development III	3
CS-280	Computer Science/CWE	6
CS-289A	Web Server Administration: Apache Web Server	3
CS-297W	Website Capstone	3

Minimum credits required for degree (requirements & electives) 95-96

Welding Technology

**CERTIFICATE
ASSOCIATE OF APPLIED SCIENCE DEGREE
PROFESSIONAL UPGRADE**

This program prepares students for entry into these industries: fabricated structural metal products, motor vehicles and equipment, construction and heavy construction, transportation equipment, ship and boat building and repair, aircraft and parts, self-employment and miscellaneous fabricated metal products.

CCC's welding instructors are American Welding Society (AWS) certified professionals and utilize AWS curriculum, the international standard.

Course work focuses on the knowledge and skills to perform:

- Fillet welds and groove welds using:
 - Shielded metal arc welding (SMAW)
 - Gas metal arc (GMAW)
 - Flux cored arc welding (FCAW)
 - Gas tungsten arc (GTAW)
 - Steel, stainless steel and aluminum
 - A variety of different electrodes
- Plasma arc cutting (PAC), air carbon arc cutting (CAC-A) and gouging, manual and automatic oxy-fuel cutting (OFC and OFC-Track Burner) processes
- Knowledge of materials science and welding theory
- Print reading, inspection, quality, safety and shop practices
- Fabrication techniques, including job cost calculations, layout, sketching, bills of material, fitting and cutting welding applied to real projects designed by industry partners

PROGRAM OUTCOMES

Program outcomes include the skills necessary for entry-level employment in large, medium and small employers in the industries listed above as trained welders, flame and plasma cutters, fabricators, fitters and welding machine operators. Welders can advance to more skilled jobs with additional training and experience, such as technicians, supervisors, inspectors or instructors.

CAREERS

Career opportunities may include welding, fabrication, construction, production welding, CNC cutting machine operation and sheet metal.

Continued

SHORT-TERM TRAINING

For students who need a quick-entry strategy into the work force, an individualized education and employment plan can be created that concentrates the knowledge and skills necessary to start or change a career path. Please see a faculty advisor for more information. A short-term training certificate is available.

For information contact Mike Mattson, ext. 2483 or mattsonm@clackamas.edu Sue Caldera, ext. 2013 or suec@clackamas.edu or the Manufacturing Department, ext. 2062.

WELDING TECHNOLOGY CERTIFICATE

FIRST TERM		CREDITS
MFG-107	Industrial Safety & OSHA	3
MTH-050*	Technical Mathematics I	3
WLD-111	Shielded Metal Arc Welding (STICK)	8
WLD-261	Welding Special Projects	2
SECOND TERM		
MFG-109	Computer Literacy for Technicians	3
WLD-100	Welder's Print Reading I	3
WLD-113	Gas Metal Arc Welding & Flux Core Arc Welding (GMAW/FCAW)	8
WLD-261	Welding Special Projects	2
WR-101*	Communication Skills: Occupational Writing	3
THIRD TERM		
MFG-221	Materials Science	3
WLD-115	Gas Tungsten Arc Welding (GTAW)	8
WLD-200	Welder's Print Reading II	3
WLD-280	Welding Technology/CWE	2
— —	Human Relations requirement (see page 15)	3
<i>Minimum credits required for certificate</i>		54

**WELDING TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE
DEGREE: 1ST YEAR**

Complete certificate program.

**WELDING TECHNOLOGY ASSOCIATE OF APPLIED SCIENCE
DEGREE: 2ND YEAR**

FOURTH TERM		CREDITS
MFG-111	Machine Tool Fundamentals I	3
WLD-250	Welding Fabrication I Beginning Project	4
— —	Welding program elective	2-4
— —*	General elective (any college-level course)	3
FIFTH TERM		
WLD-213	Advanced GMAW/FCAW Welding	4
WLD-251	Welding Fabrication II Intermediate Project	4
— —*	General elective (any college-level course)	3
— —	PE/Health requirement (see page 15)	3
SIXTH TERM		
WLD-215	Advanced GTAW Welding	4
WLD-252	Welding Fabrication III Advanced Project	4
WLD-261	Welding Special Projects	2
WLD-280	Welding Technology/CWE	2
<i>Minimum credits required for degree (requirements & electives)</i>		92-94
* Substitute college transfer courses for these courses if you plan to continue your education at a higher education institution. It is recommended that you consult with a faculty advisor or a staff member in the Advising & Counseling Center for the transfer requirements of the specific advanced program or school.		
WELDING PROGRAM ELECTIVES		
COURSE		CREDITS
WLD-210	Beginning SMAW Pipe Welding	2
WLD-211	Advance SMAW Welding	4
WLD-212	SMAW Pipe Welding	2



Smart Choice

Additional Programs & Ways to Earn Credit

Additional Programs & Ways to Earn Credit

Apprenticeships

CCC OREGON CITY CAMPUS

503-657-6958, ext. 2689 or connieh@clackamas.edu

In order to take apprenticeship training classes, students need to first be accepted into the apprenticeship program by the Joint Apprenticeship Training Council (JATC) for that particular trade. The first step for anyone interested in an apprenticeship program is to log onto http://egov.oregon.gov/BOLI/ATD/A_Atlopen.shtml and click on the area in which you are interested in applying (Portland, Salem, Eugene, etc.). You will find information about available apprenticeship training. Each apprenticeship group has their own methods and standards for selecting new apprentices.

Clackamas Community College offers courses for registered apprentices and people interested in becoming an apprentice. For an apprentice who has attained journeyman status, you may be able to use your journeyman card to receive credit toward an Associate of Applied Science degree.

Basic Skills Development

CCC OREGON CITY CAMPUS

503-657-6958, ext. 2595

The Dye Learning Center offers academic assistance to students in all college programs. Emphasis is placed on mastering the basic skills needed to reach educational goals. Programs are available to help students earn a GED, complete a high school diploma, learn English as a Second Language, and improve basic academic skills.

Adult High School Diploma

DYE LEARNING CENTER

503-657-6958, ext. 2595

Clackamas Community College is authorized by the State Board of Education to award the Adult High School Diploma (AHSD). Students who enter the college's high school diploma program may transfer credits from accredited high schools. AHSD students may also enroll in college credit classes and receive high school and college credit for the same class.

Students must be at least 16 years old. Those under 18 are admitted with a referral or a release from compulsory attendance from their local high school. See the current *Schedule of Classes* for information.

REQUIREMENTS FOR ADULT HIGH SCHOOL DIPLOMA

Complete a minimum of 22 high school units:

Subject Units

Language Arts	3
(<i>Shall include the equivalent of one unit in written composition.</i>)	
Mathematics	2
Science	2
US History	1
Global Studies	1
Government & Civics	1
Health Education	1
Physical Education	1
Career Education	1
Personal Finance	1
Applied/Fine Arts or Foreign Language	1
(<i>One unit shall be earned in any one.</i>)	
Technology	1
Electives	6
Total:	22

In addition, students graduating in the 2006-2007 school year and thereafter must develop an education plan and education profile, build a collection of evidence to demonstrate extended application, demonstrate career-related knowledge and skills and participate in career-related learning experiences.

All AHSD candidates must have a ninth grade reading level or better and demonstrate minimum competency in reading, writing, speaking, listening, computing and reasoning.

In addition to the credit and competency requirements, students must maintain a 2.0 GPA at the college and successfully complete at least 12 college credits or two high school units through CCC.

Adult Basic Education

CCC OREGON CITY CAMPUS

503-657-6958, ext. 2595

CCC HARMONY CAMPUS

503-657-6958, ext. 2595

Instruction offered to improve reading, writing and math skills, individual schedules are arranged. Students must be at least 16 years old. Fees are determined at assessment.

ABE/GED tutoring is available. Individual tutoring for adults prepares student for upgrading basic skills and General Education Development (GED).

Basic Skills for College Success

DYE LEARNING CENTER
503-657-6958, ext. 2595

The Campus Learning Center offers instruction in all basic skills including credit classes in reading, spelling, vocabulary and study skills, GED preparation and high school credit classes. Additional study skills assistance is available through individualized discussion/counseling, and self-instructional materials and media. Both day and evening classes are held for students age 16 through adult.

Bridges

FAMILY RESOURCE CENTER
503-657-6958, ext. 2456

The Bridges program provides assistance to students, ages 16-21 in making the transition from alternative high school programs to further education, training or the work force. Emphasis is placed on overcoming barriers, becoming self-directed, increasing self-awareness and self-esteem, and setting career and educational goals.

Gateway to College

MOD 1 & 2
503-657-6958, ext. 5227

The Gateway to College program at Clackamas Community College serves at-risk youth, 16 to 20 years old. Gateway students have the opportunity to earn a high school diploma while achieving college success. Students simultaneously accumulate high school and college credits, earning their high school diploma while progressing toward an associate's degree or certificate. Gateway staff support students through a first term cohort experience; in subsequent terms, students continue their connection to staff for academic advising, support and problem solving.

General Educational Development

DYE LEARNING CENTER
503-657-6958, ext. 2595

Students may earn high school equivalency certificates by passing General Educational Development (GED) tests. Students must be at least 16 years old; those under 18 are admitted only with a referral or a letter of release from compulsory attendance obtained from the high school principal or counselor. A fee is charged each term. Spanish GED is also available. Refer to the current *Schedule of Classes* for local GED options.

Registration for GED preparation classes takes place in the Campus Learning Center. Department placement tests are required.

GED preparation is also available by telecourse. Thirty minute sections of GED preparation are broadcast on PBS and three local cable channels. Individual guidance is available as needed and a workbook is provided for home use.

CCC HARMONY CAMPUS
503-657-6958, ext. 2595

GED prep classes are offered to assist students in mastering their basic skills to earn a GED. Students may earn high school equivalency certificates by passing General Educational Development (GED) tests. Students must be at least 18 years old to be eligible for the class. A fee is charged each term for the class. Refer to the current *Schedule of Classes* for local GED options.

Orientation and registration for GED preparation classes takes place at the Harmony Campus. Department placement assessments are required.

Life & Career Options Program

FAMILY RESOURCE CENTER
503-657-6958, ext. 2456

The Life and Career Options Program (LCOP) prepares people to enter or re-enter the job market. Day and evening classes offered each term help people overcome barriers to self-sufficiency. This program helps participants explore career options, develop job-search skills, establish career and educational goals, and access community resources. Free workshops are also offered.

Skills for College Success

CCC OREGON CITY CAMPUS
503-657-6958, ext. 2582

The Skills Development Department offers classes in reading, writing and study skills for students who want to develop techniques and enhance skills in preparation for success in college or the workplace.

Tri-City Alternative Program

CLAIRMONT HALL
503-657-6958, ext. 2414

The Tri-City Alternative Program (TCAP) is a college program serving 15- to 17-year-olds who plan to earn high school credits toward a diploma or prepare for a GED. TCAP provides a combination of large group/small group and one-on-one assistance for students in order to further develop academic and personal skills needed for the workplace and continuing education.

Continued

Young Parent Opportunity Program

FAMILY RESOURCE CENTER
503-657-6958, ext. 2592

The Young Parent Opportunity Program (YPOP) is a comprehensive educational program which provides an opportunity for pregnant or parenting teens to continue their education, increase parenting skills and prepare for employment.

Cooperative Work Experience

CCC OREGON CITY CAMPUS, COMMUNITY CENTER, CC129
503-657-6958, ext. 2273/2232

The Cooperative Work Experience (CWE) program offers students the opportunity to earn college credit by working in a job directly related to their program of study. CWE offers expanded learning experiences through exposure to actual work situations, organizational relationships, equipment, and techniques that cannot be duplicated in the classroom.

CCC's CWE program creates a vital bridge between college studies and workplace success.

Student Benefits

- Improved job skills
- Increased professional confidence
- Valuable employer contacts
- College credit for on-the-job experience
- Work experience suitable for a résumé
- Possible source of income to cover college expenses

Requirements & Registration for CWE:

- Complete the CWE application form, and determine number of work hours and appropriate credits.
- Contact program instructor or the CWE Office prior to the beginning of the term.
- Register for 1) the appropriate CWE course for program of study and 2) the classroom or online CWE seminar.
- Set and accomplish (with the help of a CWE instructor and work site supervisor) 3–5 measurable learning objectives designed to improve job performance).
- Participate in a CWE seminar course on workplace success skills and complete seminar assignments.
- Successfully complete 60-216 hours of work experience for 2-6 variable credits.

Credit & Grading

Cooperative Work Experience is a variable credit course; the number of credits earned depends on the number of hours worked and the program requirements. Students may earn a maximum of six CWE credits per term and a maximum of 12 CWE credits per year.

Work/Credit Chart			
# of Credits	Hours Worked Per Week	Total Hours Per Term	Seminar Hours Per Week
6 credits	18-20 hours	180-216 hours	1.5 hours
5 credits	15-17 hours	150-179 hours	1.5 hours
4 credits	12-14 hours	120-149 hours	1.5 hours
3 credits	9-11 hours	90-119 hours	1.5 hours
2 credits	6-8 hours	60-89 hours	1.5 hours

For More Information

Drop by the Cooperative Work Experience Office in the Community Center, CC129, or call 503-657-6958, ext. 2273/2232, or visit <http://depts.clackamas.edu/coop>

College Credit Alternatives

CCC OREGON CITY CAMPUS
503-657-6958, ext. 2794

There are several alternative ways you can earn college credit from Clackamas Community College.

Advanced College Credit

CCC OREGON CITY CAMPUS, BARLOW HALL, B250/B251
503-657-6958, ext. 2657
<http://depts.clackamas.edu/acc>

CCC has agreements with high schools in the college district to grant college credit for certain approved college-equivalent classes. This program allows students to earn college credit while still in high school. Students must complete the curriculum as approved by the college and earn a grade of A or B to be eligible for the college credit. Students must register with the college and pay a one-time flat fee for the credits earned through ACC.

CCC has agreements with the following high schools: Canby, Clackamas, Clackamas Middle College, Colton, Estacada, Gladstone, La Salle, Milwaukie, Molalla, Oregon City, Rex Putnam, Sabin-Schellenberg Center, Westside Christian, West Linn and Wilsonville.

For more information, contact your high school counselor or the CCC Advanced College Credit coordinator, 503-657-6958, ext. 2657.

Advanced Placement (AP)

CCC OREGON CITY CAMPUS, ROGER ROOK HALL
503-657-6958, ext. 2264

If you took college-level courses in high school, you may be eligible for college credit and placement into college classes. You will need to take the AP Program Examination at your high school and have your test results sent to the CCC Registrar's Office. If you qualify for advanced placement, an evaluation specialist in the Registrar's Office will work with the appropriate college department for assigning credit.

Credit for Prior Learning (CPL)

**CCC OREGON CITY CAMPUS
BILL BROD COMMUNITY CENTER**
503-657-6958, ext. 2794

Clackamas Community College's CPL program can award college credit for knowledge and skills acquired outside the classroom. For more information contact the CCC Advising & Counseling Center.

Distance Learning

There are many alternatives to on-campus courses that allow busy students to pursue their educational goals. These courses may involve the use of computers, video, television, print materials by correspondence, voice-mail, e-mail and the Internet. Some of these courses require orientation, class meetings, lab work and testing on campus. Distance education courses are listed in the *Distance Learning* section of the quarterly *Schedule of Classes* and special icons indicate these nontraditional classes in the credit course listing.

Correspondence

503-657-6958, ext. 2379

The Drafting Department offers a variety of AutoCAD and drafting technology courses in a correspondence format. The courses require that students have a computer and a current version of AutoCAD software.

Online

503-657-6958, ext. 2462

Online classes are delivered via computer. They may include lectures, labs, projects and testing. Students interact with the instructor and other students via computer. To participate in an online course, students need access to a computer, an Internet service provider and a web browser. Computers are available on campus in the Streeter Lab and Dye Learning Center, as well as many public libraries. For more information see: dl.clackamas.edu or for statewide courses: <http://www.oregoncollegesonline.org> or <http://OregonONE.org>

Telecourses

503-657-6958, ext. 2462

Individual telecourses may be broadcast on campus, rented for use at home, or viewed via cable television. In addition to televised lessons, telecourse instruction may include textbooks, classroom discussion, and assignments and exams. For more information see: dl.clackamas.edu or <http://www.oregoncollegesonline.org> Call for broadcast information.

Evening/Weekend Transfer Degree Offerings

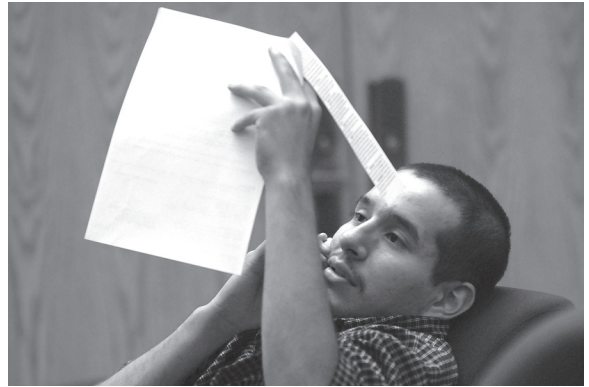
CCC HARMONY CAMPUS
503-657-6958, ext. 3108

Classes held at the CCC Harmony Campus provide students the opportunity to obtain a transfer degree by attending evenings and weekends. These classes are listed each term in the Schedule of Classes in the Harmony Campus section. Academic advising and student services are available.

Office Specialist Training Program

CCC OREGON CITY CAMPUS
503-657-6958, ext. 2136 or lynns@clackamas.edu
<http://depts.clackamas.edu/business/office.htm>

The Office Specialist Training program is an intensive job training program designed for those seeking new career opportunities in administrative office support positions. This program covers two of the three required terms for the Office Assistant certificate program. Students must meet certain requirements in order to apply to this program. Training takes place weekly, Tuesday through Friday from 8 a.m. until 3 p.m.



Smart Choice

Transfer Information

Transferring? Take Your First Two Years at Clackamas

Any of the options described below can work well if you want to begin your bachelor's degree at Clackamas Community College. Students using any of these options must still complete lower division coursework required for their major and meet the transfer admission requirements for the four-year university where they plan to transfer.

Associate of Arts Oregon Transfer Degree (AAOT)

This degree is designed for students who want to transfer to an Oregon University System (OUS) school, but may or may not have a chosen major. All OUS schools and many of Oregon's private universities and colleges accept the AAOT to meet their lower division (100 and 200 level) general education requirements.

Associate of Science Oregon Transfer Degree - Business (ASOT)

This degree is designed for students who wish to transfer to an OUS school and complete a bachelor's degree in business. Students must complete OUS school specific courses in business while completing the ASOT. Students should work closely with academic advisors at both CCC and the OUS school of their choice to insure they meet any additional requirements and procedures for admission to both the OUS school and the chosen business degree program.

Associate of General Studies (AGS)

This flexible degree uses a broader variety of coursework to meet degree requirements than do any of the other associate-level degrees designed for transfer. Not all courses that may apply to completion of the AGS are transferable to four-year institutions. It is important to work closely with an academic advisor to individualize and choose courses to maximize transferability.

Transfer Course Work

This option is for students who have selected a transfer school and want to meet some of the course requirements for that school with CCC courses. Students need to know the degree requirements at their intended transfer school and work with a CCC advisor in order to choose courses.

The Oregon Transfer Module (OTM)

The OTM represents the first year of a bachelor's degree, or approximately half of an associate's degree (45 credits). The OTM is designed for students who wish to transfer to an Oregon University System (OUS) school or another Oregon community college. Completion of the OTM can help those students taking courses at multiple post-secondary institutions by ensuring transferability of coursework. This is not a degree or certificate but is documentation on a student's transcript that they have met a subset of common general education requirements. Please refer to the following page for Student Guide information. Students interested in the OTM should meet with an academic advisor in the Advising & Counseling Center, see pages 10-11) .

Transfer Steps

See a faculty advisor or an academic advisor in the Advising & Counseling Center for support in following these steps:

- Contact the four-year university you plan to attend to check entrance requirements and the suggested freshman and sophomore classes required in your chosen field.
- Work with a faculty advisor or an academic advisor for an initial written Educational Plan and before you register for classes each term.
- Check with the college or university a term or two before completing your work at CCC to make sure you are meeting all their requirements.
- Apply for admission to the college or university by their transfer student deadline.
- Have your credits transferred to the four-year institution after you complete your studies at CCC.

Student Guide 2007-2008
Oregon Transfer Module (OTM)



Requirements		Courses
Foundational Skills	<i>Writing (2 courses)</i>	WR-121, 122, 123 or 227
	<i>Oral Communication (1 course)</i>	SP-111 or 112
	<i>Mathematics (1 course)</i>	MTH-105, 111 or higher
Introduction to Disciplines	<i>Arts & Letters (3 courses)</i>	Select courses with a prefix of: ASL, FR, GER, JPN, RUS, SPN (languages must be 200 level) ART, ENG, HUM (except HUM-100) J, MUP, MUS, PHL, R, SP (courses numbered SP-126 and above), TA WR (except WR-101, 121, 122, 123 or 227)
	<i>Social Science (3 courses)</i>	Select courses with a prefix of: ANT, EC, GEO, HST, PS, PSY, SOC, SSC, WS
	<i>Science/Math/Computer Science (3 courses)</i>	A. Select at least one lab courses from the biological or physical sciences with a prefix of: ASC, BI* (except BI-055, BI-163), BOT, CH (except CH-150), ESR, G (except G-119, G-124), GS (except GS-160), PH, Z *Concurrent enrollment required for BI-160/BI-160L or BI-165C/BI-165CL B. Select remaining courses with a prefix of: ASC, BI, BOT, CH, CS, ESR, G, GS, MTH, PH, Z
	<i>Elective Courses</i> Combined with above must equal at least 45 credits.	Courses must be from the Introduction to Disciplines areas (Arts & Letters, Social Science, or Science/Math/Computer Science)

Notes:

1. All courses must be 100 level or higher.
2. All courses must be at least 3 credits.
3. All courses must be passed with a grade of "C-" or better.
4. Students must have a minimum cumulative GPA of 2.0 at the time the module is posted.
5. No course may be used to satisfy more than one requirement or distribution area.
6. Courses numbered 199, 280, and 299 can only be used in the electives area.

Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four-year institution upon completion of these programs. Call 503-657-6958, ext. 2794 or email: advising@clackamas.edu for more information.

Student Planner Worksheet 2007-2008
Oregon Transfer Module (OTM)



This guide is to be used for educational planning/advising purposes only.

Requirements	Courses Required	CCC Courses Completed	Transferred Courses	Credits Earned	Courses Needed
<i>Writing</i> WR-121, 122, 123 or 227	2				
<i>Oral Communications/Rhetoric</i> SP-111 or 112	1				
<i>Mathematics</i> MTH-105, 111 or higher	1				
<i>Arts & Letters</i>	3				
<i>Social Science</i>	3				
<i>Science/Math/Computer Science</i> Select three courses including at least one lab course in the biological or physical sciences.	3				
<i>Elective Courses</i> Courses must be from the Introduction to Disciplines areas (Arts & Letters, Social Science, or Science/Math/Computer Science)	<i>will vary</i>				
	TOTALS				

(Total minimum of 45 credits required.)

Additional Requirements

- Complete a minimum of 45 credits
- Completion of at least 3 credits at CCC
- Establish cumulative GPA of 2.0 or above at the time the module is posted

Requests for official evaluation of transcripts, course equivalencies and completion of module requirements are to be submitted to the Registrar's Office.

Students are encouraged to work closely with an academic advisor if they are planning to transfer to a four-year institution upon completion of these programs. Call 503-657-6958, ext. 2794 or email: advising@clackamas.edu for more information.

*Note: All courses must be 100 level or higher. All courses must be at least three credits. All courses must be passed with a grade of "C-" or better. Courses numbered 199, 280, and 299 can only be used in the electives areas. No course may be used to satisfy more than one requirement or distribution area. **The OTM is not a certificate or degree, but is documentation that students have met a subset of common general education requirements.***

Transfer Planning Chart

The following pages contain a comprehensive chart that lists CCC transfer options for the Oregon University System (OUS) bachelor degrees. **CCC may not offer degrees or classes specific to every Bachelor Degree subject, but will provide foundation and general education coursework.** Degrees offered in the OUS system are listed by Subject Areas, which will help you see related degree possibilities.

The chart also shows Oregon Department of Education Career Learning Areas. These indicate the career pathways the degrees are designed to support. CCC advisor information and links to department homepages are located on the chart.

For transfer information regarding bachelor's degrees offered at private and out of state colleges that are not part of the Oregon University System, please contact the schools directly. For more information about bachelor's degrees offered at Oregon University System schools, start with the OUS Academic Program Database website at <http://www.ous.edu/aca/acadprog/>.

See an academic advisor for contact information and additional support. Degree planning sheets for the AAOT, ASOT in Business, and the AGS can be found on pages 16-20 of this catalog. Please contact your faculty advisor or an academic advisor for course recommendations to support your transfer planning. Faculty Advisor information is noted below. Academic advisors are located in the Community Center and can be reached at ext. 2794 or advising@clackamas.edu.

OUS Bachelor Degrees ^{1,2}	OUS ¹ Transfer Options							CCC Contact Information ³
	EOU	OIT	OSU	PSU	SOU	UO	WOU	
OUS¹ Subject Area: Agriculture, Forestry								
ODE Career Learning Area⁴: Agriculture, Food & Natural Resource Systems								
Agricultural Business Management								Horticulture Department http://depts.clackamas.edu/hort/ Elizabeth Howley, x2389 EHowley@clackamas.edu
Agriculture, General								
Animal Sciences								
Bioresource Management								
Civil Engineering/Forest Engineering								
Crop & Soil Science								
Environmental Econ., Policy, & Mgmt								
Forest Engineering								
Forest Management								
Forest Recreation Resources								
Horticulture								
Rangeland Resources								
Food Science & Technology								Human Services Department http://depts.clackamas.edu/fhs Fran Page, x5071 FranP@clackamas.edu
Fisheries & Wildlife Science								Science Department http://depts.clackamas.edu/science-bi/
Natural Resources								Wildland Firefighting http://depts.clackamas.edu/esh/wildland Tom Laugle, x2319 TomL@clackamas.edu
Wood Science & Technology								
OUS¹ Subject Area: Architecture								
ODE Career Learning Area⁴: Arts, Information & Communications; Industrial & Engineering Systems								
Architecture								Drafting Department http://depts.clackamas.edu/drafting Mike Jones, x2443 MikeJ@clackamas.edu
Interior Design								
Architectural Project Management								
Landscape Architecture								Horticulture Department http://depts.clackamas.edu/hort/ Elizabeth Howley, x2389 EHowley@clackamas.edu

¹ Oregon University System: www.ous.edu

² Many of these degrees at private colleges and universities will also be supported by transfer work at CCC.

³ To reach any college office, call 503-657-6958 and enter the extension.

⁴ Oregon Department of Education Career Learning Areas: www.ode.state.or.us
 + Co-major

OUS Bachelor Degrees ^{1,2}	OUS ¹ Transfer Options							CCC Contact Information ³
	EOU	OIT	OSU	PSU	SOU	UO	WOU	
OUS¹ Subject Area: Business								
ODE Career Learning Area⁴: Business & Management								
Accounting								Business Department http://depts.clackamas.edu/business Joan Ryan, x2363 JoanR@clackamas.edu
Advertising Management								
Business Administration								
Business Administration/Management								
Business-Chemistry +								
Business/Economics +								
Business, General								
Business-Mathematics +								
Business-Music +								
Business-Physics +								
Business Real Estate Finance								
Entrepreneurial Accounting								
Entrepreneurialship &/or Small Bus. Mgmt								
Finance								
Hotel, Restaurant, & Resort Mgmt								
Human Resource Management								
International Business								
Management								
Management Information Systems								
Marketing								
Operations Management								
Sports Marketing								
Supply & Logistics Management								
OUS¹ Subject Area: Computer Science, Mathematics								
ODE Career Learning Area⁴: Industrial & Engineering Systems; Arts, Information & Communications								
Computer & Information Science								Computer Science Department http://cs.clackamas.edu/cs/index.htm Debra Carino, x5198 DCarino@clackamas.edu
Computer Science								
Computer Science & Mathematics								
Computer Science/Multimedia Design								
Information Systems								
Information Technology								
Business-Mathematics +								Mathematics Department http://cs.clackamas.cc.or.us/math Stefan Baratto, x2943 SBaratto@clackamas.edu
Mathematical Sciences								
Mathematics								
OUS¹ Subject Area: Criminal Justice, Human Services, Public Administration								
ODE Career Learning Area⁴: Human Resources								
Fire Sciences Administration								Tom Laugle, x2319 TomL@clackamas.edu Wildland Firefighting http://depts.clackamas.edu/esh/wildland
Community Crime Prevention Studies								Criminal Justice Department http://depts.clackamas.edu/crimjust Dick Ashbaugh, x2237 DickA@clackamas.edu
Community Development								
Corrections								
Criminology/Criminal Justice								
Law Enforcement								
Planning, Public Policy, & Management								Advising & Counseling Department http://depts.clackamas.edu/advising Advising & Counseling, x2794 advising@clackamas.edu
Public Policy & Administration								

¹ Oregon University System: www.ous.edu

² Many of these degrees at private colleges and universities will also be supported by transfer work at CCC.

³ To reach any college office, call 503-657-6958 and enter the extension.

⁴ Oregon Department of Education Career Learning Areas: www.ode.state.or.us
+ Co-major

	OUS ¹ Transfer Options							
OUS Bachelor Degrees ^{1,2}	EOU	OIT	OSU	PSU	SOU	UO	WOU	CCC Contact Information ³
OUS¹ Subject Area: Education								
ODE Career Learning Area⁴: Human Resources								
Early Childhood Education								Education Program http://depts.clackamas.edu/fhs Paula Hamm, x2804 PaulaH@clackamas.edu
Educational Studies								
Elementary Ed. & Interdisciplinary Studies								
Secondary Ed. & Interdisciplinary Studies								
OUS¹ Subject Area: Engineering, Technologies								
ODE Career Learning Area: Industrial & Engineering Systems								
Bioengineering								Engineering Science Department John Lewis, x2206 JLewis@clackamas.edu
Chemical Engineering								
Civil Engineering								
Civil Engineering/Forest Engineering								
Construction Engineering Mgmt								
Electrical Engineering								
Electrical & Electronics Engineering								
Engineering Physics								
Environmental Engineering								
Forest Engineering								
Industrial Engineering								
Mechanical Engineering								
Nuclear Engineering								
Renewable Energy Systems								
Electronics Engineering Technology								Manufacturing Technology Department http://depts.clackamas.edu/mfg Mike Mattson, x2483 MattsonM@clackamas.edu
Manufacturing Engineering Technology								
Mechanical Engineering Technology								
Geomatics								Drafting Department http://depts.clackamas.edu/drafting Mike Jones, x2443 MikeJ@clackamas.edu
Computer Engineering								Computer Science Department http://cs.clackamas.edu/cs/index.htm Debra Carino, x5198 DCarino@clackamas.edu
Computer Engineering Technology								
Information Technology								
Software Engineering Technology								
OUS¹ Subject Area: Environmental								
ODE Career Learning Area⁴: Agriculture, Food & Natural Resource System; Industrial & Engineering Systems								
Environmental Engineering								Engineering Science Department John Lewis, x2206 JLewis@clackamas.edu
Renewable Energy Systems								
Environmental Health & Safety								Science Department http://depts.clackamas.edu/science-bi
Environmental Sciences								
Environmental Studies								Athletics Department http://depts.clackamas.edu/athletics Jim Jackson, x2295 JimJ@clackamas.edu
Outdoor Recreation Leadership & Tourism								

¹ Oregon University System: www.ous.edu

² Many of these degrees at private colleges and universities will also be supported by transfer work at CCC.

³ To reach any college office, call 503-657-6958 and enter the extension.

⁴ Oregon Department of Education Career Learning Areas: www.ode.state.or.us
+ Co-major

OUS Bachelor Degrees ^{1,2}	OUS ¹ Transfer Options							CCC Contact Information ³
	EOU	OIT	OSU	PSU	SOU	UO	WOU	
OUS¹ Subject Area: Fine Arts, Art								
ODE Career Learning Area⁴: Arts, Information & Communications								
Applied Visual Arts								<p style="text-align: center;">Art Department http://depts.clackamas.edu/art Rick True, x2541 RTrue@clackamas.edu</p>
Art								
Art History								
Ceramics								
Contemporary Music								
Visual Design								
Painting								
Photography								
Printmaking								
Sculpture								
The Arts								
Digital Arts								
Drawing								
Fibers								
Fine/Applied Arts								
Fine & Performing Arts								
Fine Arts & Art Studies								
Graphic Design								
Media Arts								
Metalsmithing & Jewelry								
Multimedia								
Dance								<p style="text-align: center;">Athletics Department http://depts.clackamas.edu/athletics Jim Jackson, x2295 JimJ@clackamas.edu</p>
Music								<p style="text-align: center;">Music Department http://depts.clackamas.edu/music Tom Wakeling, x2160 WakelingT@clackamas.edu</p>
Music: Composition								
Music Education								
Music: Jazz Studies								
Music: Performance								
Music Theory								
Theater Arts								<p style="text-align: center;">Theatre Department http://depts.clackamas.edu/theatre David Smith-English DavidSE@clackamas.edu</p>
Theater Arts/Drama								
Writing								<p style="text-align: center;">English Department http://depts.clackamas.edu/english Trista Cornelius, x2686 TristaC@clackamas.edu</p>
OUS¹ Subject Area: Health, Physical Education, Recreation								
ODE Career Learning Area⁴: Health Services; Human Resources								
Athletic Training								<p style="text-align: center;">Athletics Department http://depts.clackamas.edu/athletics Jim Jackson, x2295 JimJ@clackamas.edu</p>
Exercise & Sport Science								
Health Care Administration								
Health Education								
Health Promotion & Education								
Health Promotion/Fitness Mgmt								
Physical Education & Health								

¹ Oregon University System: www.ous.edu

² Many of these degrees at private colleges and universities will also be supported by transfer work at CCC.

³ To reach any college office, call 503-657-6958 and enter the extension.

⁴ Oregon Department of Education Career Learning Areas: www.ode.state.or.us
+ Co-major

	OUS ¹ Transfer Options							
OUS Bachelor Degrees ^{1,2}	EOU	OIT	OSU	PSU	SOU	UO	WOU	CCC Contact Information ³
OUS¹ Subject Area: Health Professions & Related Sciences								
ODE Career Learning Area⁴: Arts, Information, & Communications; Health Services								
Am. Sign Language/English Interpreting								Foreign Language Department http://depts.clackamas.edu/forlang Irma Bjerre, x2381 IrmaB@clackamas.edu
Clinical Lab Science								Advising & Counseling Center, x2794 http://depts.clackamas.edu/advising advising@clackamas.edu
Communication Disorders & Sciences								
Dental Hygiene								
Paramedic Education								
Environmental Health & Safety								
Health Sciences								
Human Physiology								
Medical Technology								
Nuclear Medicine Technology								
Nursing								
Radiologic Studies								
Respiratory Care								
Speech & Hearing Sciences								
Ultrasound/Diagnostic Sonography								
Ultrasound/Vascular Technology								
OUS¹ Subject Area: Home Economics, Family Studies								
ODE Career Learning Area⁴: Arts, Information & Communications, Human Resources								
Apparel Design								Art Department http://depts.clackamas.edu/art Rick True, x2541 RTrue@clackamas.edu
Interior Design								Education Program http://depts.clackamas.edu/fhs Terry Mackey, x2289 TerryM@clackamas.edu
Child & Family Studies								
Food Science & Technology								
Nutrition & Food Management								
Human Development & Family Sciences								
Housing Studies								
Merchandising Management								Business Department http://depts.clackamas.edu/business Joan Ryan, x2363 JoanR@clackamas.edu
OUS¹ Subject Area: Liberal Arts, Humanities								
ODE Career Learning Area⁴: Arts, Information & Communication								
Applied Linguistics								English Department http://depts.clackamas.edu/english Trista Cornelius, x2686 TristaC@clackamas.edu
Arts & Letters								
Classics								
Comparative Literature/Language								
English								
English Language & Literature								
English & Creative Writing								
Linguistics								
Journalism								
Communication Studies								
Communication								Communication & Theatre Arts Department http://depts.clackamas.edu/theatre Kelly Brennan, x2726 KellyB@clackamas.edu

¹ Oregon University System: www.ous.edu

² Many of these degrees at private colleges and universities will also be supported by transfer work at CCC.

³ To reach any college office, call 503-657-6958 and enter the extension.

⁴ Oregon Department of Education Career Learning Areas: www.ode.state.or.us
+ Co-major

OUS Bachelor Degrees ^{1,2}	OUS ¹ Transfer Options							CCC Contact Information ³
	EOU	OIT	OSU	PSU	SOU	UO	WOU	
OUS¹ Subject Area: Liberal Arts, Humanities (continued)								
ODE Career Learning Area⁴: Arts Information & Communication								
American Studies								Social Sciences Department http://depts.clackamas.edu/socsci Robert Keeler, x2339 RobertK@clackamas.edu
Asian Studies								
Classical Civilization								
Ethnic Studies								
Human Communication								
Humanities								
Mass Media Studies								
Philosophy								
Judaic Studies								
Latin American Affairs								
Peace Studies								
Philosophy, Economics & Political Science								
Religious Studies & Theology								
Russian & East European Studies								
Speech Communication								
Twentieth Century Studies								
Women's Studies								
International Studies								Foreign Language Department http://depts.clackamas.edu/forlang Irma Bjerre, x2381 IrmaB@clackamas.edu OR Social Sciences Department http://depts.clackamas.edu/socsci Robert Keeler, x2339 RobertK@clackamas.edu
General Studies								Advising & Counseling Center, x2794 http://depts.clackamas.edu/advising advising@clackamas.edu
Independent Study								
Interdisciplinary/Multidisciplinary Studies								
Liberal Studies								
OUS¹ Subject Area: Natural Sciences								
ODE Career Learning Area⁴: Health Services; Agriculture, Food & Natural Resource Systems; Industrial & Engineering Systems								
Biochemistry								Science Department http://depts.clackamas.edu/science-bi
Biochemistry & Biophysics								
Biology								
Bioresource Research								
Botany								
Chemistry								
Computational Physics								
Earth Science								
Entomology								
Environmental Sciences								
Environmental Studies								
General Science								
Geology								
Health Sciences								
Marine Biology								
Microbiology								
Natural Science								
Physics								
Zoology								

¹ Oregon University System: www.ous.edu

² Many of these degrees at private colleges and universities will also be supported by transfer work at CCC.

³ To reach any college office, call 503-657-6958 and enter the extension.

⁴ Oregon Department of Education Career Learning Areas: www.ode.state.or.us
+ Co-major

OUS Bachelor Degrees ^{1,2}	OUS ¹ Transfer Options							CCC Contact Information ³
	EOU	OIT	OSU	PSU	SOU	UO	WOU	
OUS¹ Subject Area: Second Languages								
ODE Career Learning Area⁴: Arts, Information & Communications								
Chinese								Foreign Language Department http://depts.clackamas.edu/forlang Irma Bjerre, x2381 IrmaB@clackamas.edu
Foreign Languages								
French								
German								
Greek								
Italian								
Japanese								
Latin								
Romance Languages								
Russian								
Spanish								
Language & Culture								English Department http://depts.clackamas.edu/english Trista Cornelius, x2686 TristaC@clackamas.edu
OUS¹ Subject Area: Social Sciences								
ODE Career Learning Area: Arts, Information, & Communications; Business & Management; Human Resources								
Anthropology								Social Sciences Department http://depts.clackamas.edu/socsci Robert Keeler, x2339 RobertK@clackamas.edu
Anthropology/Sociology								
Black Studies								
Community Development								
Economics								
General Social Science								
Geography								
History								
Political Science								
Psychology								
Psychology, Applied								
Social Sciences								
Social Sciences: Human Services								
Sociology								
Planning, Public Policy & Management								Advising & Counseling Center, x2794 http://depts.clackamas.edu/advising advising@clackamas.edu
Small City & Rural County Mgmt								Education Program http://depts.clackamas.edu/fhs Terry Mackey, x2289 TerryM@clackamas.edu
Child & Family Studies								
OUS¹ Subject Area: Military Science								
ODE Career Learning Area: Human Resources								
Army National Guard								Advising & Counseling Center, x2794 http://depts.clackamas.edu/advising advising@clackamas.edu
ROTC								
OUS¹ Subject Area: Preprofessional								
ODE Career Learning Area: Agriculture, Food & Natural Resource System; Industrial & Engineering Systems; Health Services								
Agriculture								Horticulture Department http://depts.clackamas.edu/hort/ Elizabeth Howley, x2389 EHowley@clackamas.edu
Forestry								

¹ Oregon University System: www.ous.edu

² Many of these degrees at private colleges and universities will also be supported by transfer work at CCC.

³ To reach any college office, call 503-657-6958 and enter the extension.

⁴ Oregon Department of Education Career Learning Areas: www.ode.state.or.us
 + Co-major

	OUS ¹ Transfer Options							
OUS Bachelor Degrees ^{1,2}	EOU	OIT	OSU	PSU	SOU	UO	WOU	CCC Contact Information ³
OUS¹ Subject Area: Preprofessional (continued)								
ODE Career Learning Area: Agriculture, Food & Natural Resource System; Industrial & Engineering Systems; Health Services								
Business Administration								Business Department http://depts.clackamas.edu/business Joan Ryan, x2363 JoanR@clackamas.edu
Civil Engineering								Engineering Science Department John Lewis, x2206 JLewis@clackamas.edu
Engineering								
Education								Education Program http://depts.clackamas.edu/fhs Terry Mackey, x2289 TerryM@clackamas.edu
Fish & Wildlife								Science Department http://depts.clackamas.edu/science-bi
Geology								
Veterinary Medicine								
Resource Management & Conservation								Wildland Firefighting http://depts.clackamas.edu/esh/wildland Tom Laugle, x2319 TomL@clackamas.edu
Social Work								Social Sciences Department http://depts.clackamas.edu/socsci Robert Keeler, x2339 RobertK@clackamas.edu
Theology								Advising & Counseling Center, x2794 http://depts.clackamas.edu/advising advising@clackamas.edu
Chiropractic Medicine								
Clinical Laboratory Science								
Cytotechnology								
Dental Hygiene								
Dentistry								
Forensic Science								
Health Sciences								
Home Economics								
Law								
Medical Imaging Technology								
Medical Technology								
Medicine								
Naturopathic Medicine								
Nuclear Medicine Technology								
Nursing								
Occupational Therapy								
Optometry								
Osteopathy								
Pharmacy								
Physical Therapy								
Physician Assistant								
Podiatry								
Radiation Therapy								
OUS¹ Subject Area: Teaching Authorizations								
ODE Career Learning Area: Human Resources								
Early Childhood (3 yrs-4 th grade)								Education Program http://depts.clackamas.edu/fhs Terry Mackey, x2289 TerryM@clackamas.edu
Elementary (grades 3-8)								
Middle Level (grades 5-10)								
High School (grades 7-12)								

¹ Oregon University System: www.ous.edu

² Many of these degrees at private colleges and universities will also be supported by transfer work at CCC.

³ To reach any college office, call 503-657-6958 and enter the extension.

⁴ Oregon Department of Education Career Learning Areas: www.ode.state.or.us
+ Co-major



Smart Choice

Course Descriptions

Course Descriptions

AB*	Collision Repair.....	91	GIS	Geographic Information Systems.....	134
ABE**	Adult Basic Education.....	91	GS	General Science.....	135
ABR*	Collision Repair/Refinishing.....	91	HD*	Human Development & Career Planning.....	135
AM	Automotive Service Technology.....	92	HDF*	Family Studies.....	137
ANT	Anthropology.....	93	HE/HPE	Health.....	137
ART	Art.....	94	HOR*	Horticulture/Landscape.....	138
ASC	Arts and Sciences.....	96	HPD*	Healthcare Professional Development.....	141
ASE**	Adult High School Diploma.....	96	HS*	Human Services/Gerontology.....	141
ASL	American Sign Language.....	99	HST*	History.....	142
BA	Business Administration.....	100	HUM	Humanities Inquiry.....	142
BC*	Building Construction Technology.....	103	J	Journalism.....	145
BI	Biology.....	103	LIB	Library.....	145
BOT	Botany.....	105	MA*	Medical Assistant.....	145
BT*	Business Technology.....	105	MET*	Mechanical Engineering Technology.....	146
CAD*	Computer-Aided Drafting.....	106	MFG*	Manufacturing Technology.....	146
CDT*	Drafting.....	107	MTH	Mathematics.....	148
CH	Chemistry.....	110	MUP	Music Performance.....	150
CIV**	Citizenship.....	111	MUS	Music.....	153
CJA	Criminal Justice.....	111	NRS	Nursing.....	157
CLA*	Clinical Laboratory Assistant.....	113	NUR*	Nursing.....	158
CS	Computer Science.....	113	OS**	Study Skills.....	158
CW**	Computer Science Workshops.....	116	OST*	Occupational Skills Training.....	158
CWE*	Cooperative Work Experience.....	117	PE	Physical Education.....	158
DA*	Dental Assistant.....	118	PH	Physics.....	159
EC	Economics.....	119	PHC	Pharmacology.....	159
ECE*	Early Childhood Education.....	119	PHL	Philosophy.....	160
ED	Education.....	120	PIE**	Program for Intensive English.....	160
EE	Electrical Engineering.....	121	PS	Political Science.....	162
EET*	Electronics Systems Technology.....	121	PSY	Psychology.....	162
EL	Study Skills.....	122	R	Religious Studies.....	163
EMT*	Emergency Medical Technology.....	122	RD	Reading.....	164
ENG	English.....	123	RE	Real Estate.....	164
ENL*	English as a Non-Native Language.....	125	RUS	Russian.....	164
ERM*	Energy & Resource Management.....	125	SBM**	Small Business Management.....	164
ESH*	Environmental Safety & Health.....	127	SM*	Microelectronics Systems Technology.....	165
ESL**	English as a Second Language.....	127	SOC	Sociology.....	165
ESR*	Environmental Science.....	129	SP	Speech.....	166
EST*	Employment Skills Training.....	129	SPN	Spanish.....	167
FN	Food & Nutrition.....	130	SSC	Social Science Inquiry.....	168
FR	French.....	130	TA	Theatre Arts.....	170
FRP*	Fire Science (Wildland).....	130	WLD*	Welding Technology.....	171
G	Geology.....	132	WQT*	Water & Environmental Technology.....	173
GE	General Engineering.....	132	WR	Writing.....	174
GED**	General Education Development.....	133	WS	Women's Studies.....	176
GEO	Geography.....	133	Z	Zoology.....	176
GER	German.....	133			

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

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

AB

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

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.

AB-111 Collision Repair/Chassis & Brakes

5 credits, Winter
Collision damage repair. Covers diagnosis, repair and replacement of brake, suspension and steering components.

AB-112 Collision Repair Welding I

1-2 credits, Fall/Winter/Spring
Focuses on auto collision damage repair. Emphasis is on MIG, GMAW (Gas Metal Arc Welding) welding on light gauge metals, oxygen-acetylene welding cutting and forming.

AB-113 Collision Repair I/Nonstructural

1-12 credits, Fall/Winter/Spring
Metal finishing with instruction in dent repair and plastic body filler. Includes shop safety, service of doors, door components, glass, bumpers, hoods, deck lids, and wind/water leaks. Required: Current enrollment in or successful completion of AB-112.

AB-123 Collision Repair Welding II

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

AB-133 Collision Repair II/Structural

1-12 credits
Fall/Winter/Spring/Summer
Major body damage repairs using modern and conventional frame repair equipment. Replacement of fixed glass, welded body panels and parts. Includes introduction to uni-body repair and estimating. Prerequisite: AB-123.

AB-149 Collision Repair Estimating I

2 credits, Fall
This course 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 Estimating II

2 credits, Winter/Spring
Provides detailed instruction in the use of modern computerized estimating systems in the collision repair field. Prerequisite: AB-149.

AB-211 Collision Repair/Electrical I

4 credits, Spring
Develops entry level skills in testing, diagnosing and repairing chassis-wiring systems relating to automotive collision damage. Corequisite: AB-231.

AB-222 Collision Repair III/Advanced Structural

1-12 credits
Fall/Winter/Spring/Summer
Major auto body repair: Dents, bolt-on parts replacement, replacement of welded body panels and parts, unibody and conventional frame repair, and flexible bumper repair. Prerequisites: AB-133 & AB-211.

AB-224 Advanced Collision Repair IV

1-12 credits
Fall/Winter/Spring/Summer
Advanced frame repair and advanced unibody repair. Advanced electronic frame measuring and aluminum welding. Prerequisite: AB-222.

AB-231 Collision Repair/Electrical II

3 credits, Spring
Advanced electrical diagnosis and repair, including passive and non-passive restraint systems, i.e., seat belt restraints, air bags and impact sensor units. Corequisite: AB-211.

AB-235 Collision Repair Welding III

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

AB-280 Collision Repair/CWE

2-6 credits, Fall/Winter/Spring
Cooperative work experience. On-the-job experience in an auto body repair shop. Required: Instructor consent & a CWE seminar.

ABE

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

Adult Basic Education

ABE-012 Adult Basic Education

0 credit, Fall/Winter/Spring
Instruction offered to improve reading, writing, and math skills, individual schedules are arranged. Students must be 16 years old. 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 professional technical credits for the AAOT or ASOT-Business.

Collision Repair/Refinishing

ABR-125 Collision Repair Refinishing I

1-12 credits, Fall/Winter/Spring
Includes shop safety, fire prevention, selection and use of paint products, abrasives, fillers, basic application of top coats, primers and sealers. Required: Current enrollment in or successful completion of AB-112.

ABR-127 Collision Repair/Refinishing II

1-12 credits
Fall/Winter/Spring/Summer
Application of urethane top coats includes complete refinishing, spot painting, color matching, and problem solving. Introduction to computer color information retrieval and mixing. Prerequisite: ABR-125.

ABR-129 Collision Repair/Refinishing III
1-12 credits
Fall/Winter/Spring/Summer

Application of urethane enamel, urethane base coat/clear coat, and tri-coat/pearl finishes. Includes complete refinishing, spot and panel painting, color matching and problem solving. Prerequisite: ABR-127.

ABR-142 Airbrush Art
2 credits, Fall/Winter

Includes original 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, decals, 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-180 Collision Refinishing/CWE
2-6 credits
Fall/Winter/Spring/Summer

Cooperative work experience. On-the-job experience in an auto refinishing shop. Required: Instructor consent & a CWE seminar.

ABR-225 Production Shop Techniques
1-10 credits
Fall/Winter/Spring/Summer

Designed for students who wish to gain additional hands-on experience in refinishing, using the most up-to-date methods and materials. Required: Instructor consent. Prerequisites: ABR-125, ABR-127, ABR-129.

ABR-227 Restoration Practices
1-10 credits
Fall/Winter/Spring/Summer

Designed for students who wish to broaden their skills base in the upper end refinishing market. Projects will be more challenging, with standards and expectations set higher. Prerequisites: ABR-125, ABR-127, ABR-129, ABR-225. Required: Instructor consent.

AM

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

Automotive Service Technology

AM-106 Fix Your Own Car
2 credits, not offered every term

A do-it-yourself course for non-automotive majors who want to work on their own cars. Includes: oil change, lubrication, fluid checks, brakes, cooling system, electrical system, safety, and other quick services.

AM-120 New Student College Success
1 credit, not offered every term

Workshop style course designed to introduce students to each other and the skills they will need to achieve college success. Recommended for all new students in the automotive field. No tuition charge for class.

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. Required: Current enrollment in or successful completion of: AM-129 or AM-130 or AM-131 or AM-133 or 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-123 General Auto Repair III
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 third term automotive students. Prerequisite: AM-122.

AM-129 Electrical Systems
7 credits, Winter/Summer

Includes basic electricity, introduction to semiconductors, electrical measurement, schematics, wiring repair, service of batteries, cranking, charging, lighting and distributor ignition systems.

AM-130 Brake Systems
7 credits, Winter

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.

AM-131 Chassis Systems
7 credits, Spring

Includes design, construction, and service of front and rear suspension systems. Also covers wheels and tires, steering, and wheel alignment.

AM-133 Engine Systems
7 credits, Fall/Summer

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

AM-141 ASE Test Preparation
3 credits, not offered every term

Prepares automotive technicians for the National Institute for Automotive Service Excellence tests as a Certified Master Automotive Technician.

AM-175 Advanced Mechanic Studies
3 credits, Fall/Winter/Spring

Lab course for currently enrolled automotive students wishing to specialize in specific areas of automotive repair. Required: Instructor consent.

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. Required: Instructor consent.

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. Required: Instructor consent.

AM-224 Comfort Systems**4 credits, Winter/Spring**

Covers design, construction, testing, maintenance, and repair of automotive heating and air conditioning systems.

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. Evenings only.

AM-235 Power Transmission Systems**7 credits, Fall**

Covers construction, operation, service and repair of clutches, manual transmissions, 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. Current enrollment in or successful completion of: AM-129.

AM-244 Advanced Electrical & Fuel Systems**7 credits, not offered every term**

Continuation of AM-129 & AM-243. Includes in-depth study of systems that affect engine performance and computerized diagnostic equipment. Covers diagnosis/repair of accessory systems, supplemental restraint systems and advanced diagnosis of electrical/electronic systems. Prerequisites: AM-129 & AM-243, or instructor consent.

AM-245 Automatic Transmission Systems**7 credits, Fall**

A course in automatic transmission repair. Includes diagnosis and testing, service and rebuilding of automatic transmissions and transaxles. Prerequisite: AM-129.

AM-250 High Performance Engines I**3 credits, not offered every term**

First in series designed to develop a solid foundation in the history and operation of internal combustion engines. Includes performance requirements for engines designed to operate in specific environments - street, high performance and racing.

AM-251 High Performance Engines II**3 credits, not offered every term**

Second in the series that will introduce the building and performance requirements for engines designed to operate in specific environments - street, high performance and racing. Prerequisite: AM-250.

AM-258 Advanced Brake & Chassis Systems**4 credits, not offered every term**

A continuation of AM-130 & AM-131. Includes in-depth study of alignment, ABS, suspension problems, and special tools and equipment used in brake and suspension service. Prerequisites: AM-130 & AM-131.

AM-280 Auto Mechanics/CWE**2-6 credits****Fall/Winter/Spring/Summer**

Cooperative work experience. On-the-job experience in an auto repair shop or auto dealership. Required: Instructor consent & a CWE seminar.

ANT**Anthropology****ANT-101 Physical Anthropology****4 credits, Fall**

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

ANT-102 Archaeology & Prehistory**4 credits, 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: Pass RD-090 or placement in RD-115.

ANT-103 Cultural Anthropology**4 credits, Fall/Winter/Spring**

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: Pass RD-090 or placement in RD-115.

ANT-230 Indians of Oregon**4 credits, not offered every year**

Survey of Native American cultures of Oregon based on archaeological, ethno-historical, and ethnographic evidence. Begins with arrival of humans in this region more than 12,000 years ago and concludes with contemporary Native American issues. Recommended: Pass RD-090 or placement in RD-115.

ANT-231 Indians of the Pacific N.W.**4 credits, not offered every year**

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

ANT-232 Indians of North America**4 credits, not offered every year**

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: Pass RD-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. Required: Instructor consent & a CWE seminar.

ART*Art***ART-100 Art Workshops**
1-2 credits

Fall/Winter/Spring/Summer

A studio course offered in various forms for students desiring more experience in specific disciplines.

ART-101 Art Appreciation
3 credits, Fall

Discover the fundamentals of thinking about and creating art through class discussions, gallery/museum tours. This course will examine history, culture, ideas and issues associated with American Art from 1600-1945.

ART-102 Art Appreciation
3 credits, Winter

Discover the fundamentals of thinking about and creating art through class discussions, gallery/museum tours. This course will examine history, culture, ideas and issues associated with European Art from 1600-1945.

ART-103 Art Appreciation
3 credits, Spring

Discover the fundamentals of thinking about and creating art through class discussions, gallery/museum tours. This course will examine history, culture, ideas and issues associated with Contemporary Art from 1945 - the present day.

ART-115 Basic Design: Two Dimensional Design
4 credits, Fall/Winter/Spring

Acquaints students with the vocabulary of composition, builds creative and analytical skills, and examines historical and contemporary issues related to visual composition.

ART-116 Basic Design: Color Theory & Composition
4 credits, Fall/Winter/Spring

Explores color and its relationship to visual composition and examines historical and contemporary issues of color and composition in the arts.

ART-117 Basic Design: Three Dimensional Composition

4 credits, Fall/Winter/Spring

Examines the elements of form and space, the principles of structure, and processes involving form. Historical and contemporary issues relating to sculpture, architecture and design are considered.

ART-131 Drawing
4 credits, Fall

Introduces drawing tools, materials, techniques, elements of composition; line, gesture, color and value. Assignments involve direct observation and its relationship to volume and form on a two-dimensional plane. Assignments include drawings, readings and critique of projects.

ART-132 Drawing
4 credits, Winter

Introduces drawing tools, materials, techniques, elements of composition; line, gesture, color and value. Assignments involve direct observation and its relationship to volume and form on a two-dimensional plane. Assignments include drawings, readings and critique of projects.

ART-133 Drawing
4 credits, Spring

Introduces drawing tools, materials, techniques, elements of composition; line, gesture, color and value. Assignments involve direct observation and its relationship to volume and form on a two-dimensional plane. Assignments include drawings, readings and critique of projects.

ART-161 Photography I
3 credits, Fall/Winter/Spring

Introduction to basic camera operation and darkroom processes in developing and printing film. Elements of composition, content, and historical reference will be explored. Course requires access to a 35mm camera with adjustable exposure controls.

ART-162 Photography II
3 credits, Winter/Spring

Continuation of the exploration of camera operation and darkroom processes in developing and printing film. Elements of composition, content, and historical reference will be explored. Course requires access to a 35mm camera with adjustable exposure controls. Recommended: Pass ART-161 or instructor consent.

ART-163 Photography III
3 credits, Spring

Continuation of the exploration of camera operation and darkroom processes in developing and printing film. Elements of composition, content, and historical reference will be explored. Course requires access to a 35mm camera with adjustable exposure controls. Recommended: Pass ART-162 or instructor consent.

ART-204 History of Western Art
3 credits, Fall

Art, culture and history from the Paleolithic era through the Byzantine style. A broad overview of art history. Encourages an appreciation and understanding of art and its history through readings, lectures, papers and exams. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ART-205 History of Western Art
3 credits, Winter

Examines art, culture and history from the Medieval Era through the Renaissance. A broad overview of art history. Encourages an appreciation and understanding of art and its history through readings, lectures, papers and exams. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ART-206 History of Western Art
3 credits, Spring

Examines art, culture and history from the Baroque period through the 20th century. A broad overview of art history. Encourages an appreciation and understanding of art and its history through readings, lectures, papers and exams. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ART-211 Survey of Modern Art
3 credits, Fall

Historical survey of "modern" art from its origins in the mid-19th century in Europe to World War I. Emphasis is on the major styles, monuments and artists, and their social and political implications.

ART-212 Survey of Modern Art
3 credits, Winter

Historical survey of “modern” art from World War I to early 1960s. Emphasis is on the major monuments and artists, their social and political implications, and on the significance of the shift of major art centers from Europe to the United States in the 20th century.

ART-213 Survey of Modern Art
3 credits, Spring

Historical survey of “modern” and “contemporary” art from the early 1960s to present day. Emphasis on major contemporary art in relation to cultural and political issues at the end of the 20th century.

ART 221 Flash Animation: Design & Techniques
3 credits, Spring

Introduces the principles of animation using Macromedia's 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 or instructor consent.

ART-225 Computer Graphics I
3 credits, Fall/Winter/Spring

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: Pass ART-115.

ART-226 Computer Graphics II
3 credits, Fall/Winter/Spring

Continuation of the processes of digital graphics programs. More advanced aspects of image compositing, bit mapping, layering, and using channels in Photoshop. Creative problem solving, design applications and contemporary issues will be explored. Recommended: Pass ART-225.

ART-227 Computer Graphics III
3 credits, Spring

Use of multi-formats to create images, compositions and documents. Design principles, creative problem solving, historical and contemporary issues in graphics and aesthetics will be considered. Recommended: Pass ART-225 & pass ART-226.

ART-250 Ceramics/Beginning
3 credits, Fall

Broad general background in ceramics. Explore methods of working with clay: coiling, slab construction and throwing on the wheel. Introduction to glazing and firing. Research contemporary and historical ceramics. Develop fundamental skills to foster artistic growth.

ART-251 Ceramics/Beginning
3 credits, Winter

Broad general background in ceramics. Explore methods of working with clay: coiling, slab construction and throwing on the wheel. Introduction to glazing and firing. Research contemporary and historical ceramics. Develop fundamental skills to foster artistic growth.

ART-252 Ceramics/Beginning
3 credits, Spring

Broad general background in ceramics. Explore methods of working with clay: coiling, slab construction and throwing on the wheel. Introduction to glazing and firing. Research contemporary and historical ceramics. Develop fundamental skills to foster artistic growth.

ART 253 Ceramics/Intermediate
3 credits, Fall

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 contemporary and historical ceramics. Prerequisites: Pass ART-250, ART-251 and ART-252, or instructor consent.

ART 254 Ceramics/Intermediate
3 credits, Winter

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 contemporary and historical ceramics. Prerequisites: Pass ART-250, ART-251 and ART-252, or instructor consent.

ART 255 Ceramics/Intermediate
3 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 contemporary and historical ceramics. Prerequisites: Pass ART-250, ART-251 and ART-252, or instructor consent.

ART 257 Jewelry and Metals
3 credits, Fall

Basic techniques of silver and non-precious metals, fabrication, forming and surface treatments. Includes sawing, filing, etching, roller printing and chain making. Design and execute jewelry and small sculpture. No experience necessary.

ART 258 Jewelry and Metals
3 credits, Winter

Basic techniques of stonemasonry. Includes round, triangular and square bezels for cabochons, tube setting and commercial and irregular prong setting for faceted stones. Design and execute finished pieces of jewelry. No experience necessary.

ART 259 Jewelry and Metals
3 credits, Spring

Basic techniques of casting in silver and bronze. Includes cuttlefish, centrifugal, sand casting, clay impression, tumbling and patination. Design and execute jewelry, small sculpture and flatware. No experience necessary.

ART 262 Digital Photography and 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 Elements software. Prerequisite: Pass CS-090 or placement in CS-121 or instructor consent

ART 277 Welding: Metal Sculpture
2 credits, Fall/ Winter/Spring

Examines basic issues of historical and contemporary visual art while providing practical hands-on experience in the craft and process of welding, metal fabricating and casting. Emphasis will be placed on the development and completion of individual student projects which utilize the tools and processes of manipulating metal.

ART-280 Art/CWE
2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of art. Required: Instructor consent & a CWE seminar.

ART 281 Painting/Beginning
4 credits, Fall

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. Assignments include paintings, readings and critique of 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. Assignments include paintings, 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. Direct observation of reality in relation to volume and form on a two-dimensional plane. Assignments include paintings, readings and critique of projects.

ART-284 Painting/Intermediate
4 credits, Fall

Utilizes advanced painting concepts, materials and techniques with emphasis on composition, color, gesture and value. Problems deal with observation of reality in relation 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. Problems deal with observation of reality in relation 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. Problems deal with observation of reality in relation to volume and form on a two-dimensional plane. Assignments include paintings, readings and critique of projects.

ART-289 Bronze Casting
3 credits, not offered every term

Self-directed, advanced level sculpture course for students with a sculpture background. Focus on the lost wax process of metal casting in bronze and aluminum. Students will have opportunities to explore personal expression of form and content.

ART-290 Advanced Painting
4 credits, not offered every term

Concentrates on individualized student projects and options. Projects will emphasize traditional elements of composition, color, gesture and value while integrating personal conceptual nature. Project oriented research and critical analysis of completed 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, human form, 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 armatures, combining media, and flexible molds will be introduced. Concepts of aesthetics in formal composition will be explored through projects, lectures, and critiques. Historical reference will be examined.

ART-293 Sculpture
4 credits, Spring

Introduces metal fabricating, welding, and metal casting. Focus on mixed media and visual communication. Concepts of aesthetics in formal composition will be explored through projects, lectures, and critiques. Historical reference will be examined.

ASC**Arts and Sciences**

See also General Science (GS).

ASC-200 Natural Science Inquiry
4 credits, Fall

Introductory lab science course for liberal arts majors. Interdisciplinary perspective on science. Collaborative scientific investigations and critical thinking. Topics include scientific methodology, history, and research techniques. Recommended: Pass WR-095 or placement in WR-121.

ASC-201 Integrated Science Concepts
4 credits, Winter

Lecture and laboratory activities integrate topics from current events, history, and/or literature with modern science. Emphasis on critical thinking and collaborative scientific investigation. Topics vary. Recommended: Pass WR-095 or placement in WR-121.

ASC-202 Integrated Science Concepts
4 credits, Spring

Continued integration of science concepts. Provides interdisciplinary perspective on science and engages students in collaborative scientific investigation and critical thinking. Topics include plant identification, evolution, and ecology. Prerequisite: Pass ASC-200 or instructor consent.

ASE

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

Adult High School Diploma**ASE-010 Basic Math**
.5 high school 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. Required: Instructor consent.

ASE-011 Applied Math I

.5 high school credit
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. Required: Instructor consent.

ASE - 012 Applied Math II

.5 high school credit
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. Scientific calculator required. Required: Instructor consent.

ASE-015 Basic English

.5 high school credits
Fall/Winter/Spring/Summer

Review of English fundamentals of grammar, spelling, capitalization, and punctuation. Elective credit only. Required: Instructor consent.

ASE-016 Intermediate English

.5 high school credit
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. Required: Instructor consent.

ASE-017 Advanced English

.5 high school credit
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. Required: Instructor consent.

ASE-020 Literature I

.5 high school credit
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. Required: Instructor consent.

ASE-021 Effective Study Skills

.5 high school credit
Fall/Winter/Spring/Summer

Emphasizes learning skills for college success and targets students with pre-college level skills. Includes time management, listening/ notetaking, study/reading textbooks, concentration, test preparation/anxiety, effective use of college library resources. Required: Instructor consent.

ASE-022 Developmental English

.5 high school credit
Fall/Winter/Spring/Summer

Remedial review of grammar, spelling, capitalization, and punctuation. Elective credit only. Required: Instructor consent.

ASE-026 Health I

.5 high school credit
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. Required: Instructor consent.

ASE-028 Global Studies I

.5 high school credit
Fall/Winter/Spring/Summer

Focuses on geographic tools (maps, globes, charts, graphs) to explain and analyze geographical relationships and area. Identifies areas and physical features that have impacted historical and modern issues and events. Required: Instructor consent.

ASE-029 Global Studies II

.5 high school credit
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. Required: Instructor consent.

ASE-032 US History I

.5 high school credit
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. Required: Instructor consent.

ASE-033 US History II

.5 high school credit
Fall/Winter/Spring/Summer

Focuses on the settlement of America from 1890 to the present, 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. Required: Instructor consent.

ASE-034 Government I

.5 high school credit
Fall/Winter/Spring/Summer

Introduction to the basic principles of American government, including the branches of federal, state, and local government and how they interact. Required: Instructor consent.

ASE 035-Careers I

.5 high school credit
Fall/Winter/Spring/Summer

Students explore skills, interests, and related careers. Presents job search, acquisition, and retention strategies; defines appropriate workplace behaviors, and analyzes workplace problems in context. Required: Instructor consent.

ASE-036 Personal Finance I

.5 high school credit
Fall/Winter/Spring/Summer

Presents skills to promote realistic financial patterns, use techniques for personal income planning, record keeping, use of credit, purchase goods/services, and rights and responsibilities in the marketplace. Students acquire basic technology skills. Required: Instructor consent.

ASE-037 Basic Developmental Reading

.5 high school credit
Fall/Winter/Spring/Summer

Develops basic reading skills, including phonics, pronunciation, spelling, word attack skills, basic vocabulary, and comprehension skills. Elective credit only. Required: Instructor consent.

ASE-038 Intermediate Reading

.5 high school credit
Fall/Winter/Spring/Summer

Word attack, vocabulary, spelling, and reading comprehension skills to improve basic reading abilities and textbook reading strategies. Required: Instructor consent.

ASE-039 Advanced Reading

.5 high school credit
Fall/Winter/Spring/Summer

Develops advanced vocabulary, reading comprehension skills, critical reading, and study skills. Required: Instructor consent.

ASE-041 AHSD Life Experience Assessment

.5 high school credit
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. Required: Instructor consent.

ASE-043 Cooperative Work Experience

.5-1.5 high school credits
Fall/Winter/Spring/Summer

Cooperative Work Experience. Provides field experience for developmental education students. Students are placed in non-paying or paid positions both on and off campus and meet weekly in a seminar. Required: Instructor consent.

ASE-045 Individualized Education for Adults

0 credit, Fall/Winter/Spring/Summer
Individualized basic skills education for adults prepares students for upgrading basic skills and General Educational Development (GED). Required: Instructor consent.

ASE-046 Human Development

.5 high school credit
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. Course can be repeated up to 2 credits.

ASE-047 Physical Education I

.5 high school credit
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. Required: Instructor consent.

ASE-051 Intro: Food Preparation/Nutrition

.5 credit high school credit
Fall/Winter/Spring

Introduces students to food budgeting, shopping, nutrition, sanitation of food, and cooking techniques through classroom discussions, demonstrations, specific assignments and hands-on cooking and shopping experiences. Course can be repeated up to 2 credits. Required: Instructor consent.

ASE-054 American Civics II

.5 high school credit
Fall/Winter/Spring/Summer

Presents basic principles and ideals embedded in American democracy. Examines documents and law in relation to American ideals and the roles, rights, and responsibilities of citizens. Explores interactions between the U.S. and other countries in a global community. Required: Instructor consent.

ASE-055 Individualized Education for Adults

0 credit, Fall/Winter/Spring/Summer
Individualized basic skills education for adults prepares students for upgrading basic skills and General Educational Development (GED). Required: Instructor consent.

ASE-056 Personal Finance II

.5 high school credit
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-057. Required: Instructor consent.

ASE-057 Careers II

.5 high school credit
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. Required: Instructor consent.

ASE-058 Physical Education II

.5 high school credit
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. Required: Instructor consent.

ASE-059 Health II

.5 high school credit
Fall/Winter/Spring/Summer

Builds on concepts of Health I. Provides a more in-depth examination of the behaviors that pose a threat to a healthy living. Further practice of effective communication skills needed at work and in the community. Required: Instructor consent.

ASE-061 General Science/Life Science

.5 high school credit, Fall
Presents principles of habitat, habitat management, and wildlife science in a hands-on environment. Explores concepts of endangered species and extinction, adaptations and natural selection, life cycles, food webs, habitat, and wildlife laws. Field trip involves river rafting the Clackamas River. Required: Instructor consent.

ASE-062 Physical Science/Winter Ecology

.5 high school credit, Winter
Presents principles of winter ecology. Students explore animal, insect, human, and plant adaptations to life in cold wintry environments. A field trip involves snowshoeing on Mt. Hood where students hike, observe animal tracks, dig and analyze snow pits, and construct a quinzhee snow hut. Required: Instructor consent.

ASE-063 General Science/Wildlife

.5 high school credit, Spring
Presents principles of the plant kingdom in a hands-on outdoor setting. Explores plant growth, function, adaptations, and processes, ecosystem with a partially developed urban watershed. Required: Instructor consent.

ASE-064 Earth/Space Science
 .5 high school credit, Summer

Explores the natural history of the Mt. Jefferson Wilderness in the Oregon Cascades. Students conduct field surveys of native wildlife and plants in various habitats. Prerequisites: ASE-061 (General/Life Science) or ASE-062 (Physical Science/Winter Ecology) or ASE-063 (General Science/Wildlife). Students need to be healthy and able to walk up to eight miles per day at elevations up to 7,000 feet. Required: Instructor consent.

ASE-066 Word Processing/Spreadsheet Applications

.5 high school credit
 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. Required: Instructor consent.

ASE-067 E-mail/Internet/Personal Applications

.5 high school credit
 Fall/Winter/Spring/Summer

Focuses on the use of technology in an education setting, in the workplace, and in everyday life. Skills needed to operate and utilize a computer hard drive and various software applications, electronic communication and use of the World Wide Web. Discusses issues and debates concerning technology in a global society. Required: Instructor consent.

ASE-068 Literature II
 .5 high school credit

Fall/Winter/Spring/Summer

Focuses on literature from 1850-present. Methods of identifying, understanding, interpreting, analyzing, synthesizing, and critically evaluating elements and devices of literature are presented. Utilizes a variety of literary forms and genres. Required: Instructor consent.

ASE-071 Algebra I - 1st Semester
 .5 high school credit

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. Instructor consent required.

ASE-072 Algebra I - 2nd Semester
 .5 high school credit

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. Instructor consent required.

ASE-086 General Science/Birds
 .05 high school credit

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. Required: Instructor consent.

ASE-087 Physical Science: Exploring The Nardoo

.05 high school credit
 Fall/Winter/Spring/Summer

Using simulated river ecology, students investigate the chemical and physical changes the river has undergone as development of the river resources takes place. Interdependence in an ecosystem; collection and interpretation of data; and development are primary themes and issues. Required: Instructor consent.

ASL

American Sign Language

ASL-101 American Sign Language
 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: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ASL-102 American Sign Language
 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. Prerequisite: Pass ASL-101 or instructor consent.

ASL-103 American Sign Language
 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. Prerequisite: Pass ASL-102 or instructor consent.

ASL-201 American Sign Language
 3 credits, Fall

Continues work of American Sign Language by reviewing, expanding, and perfecting expressive skill, structure, and vocabulary for the purpose of active communication. Emphasizes active communication in sign language. Prerequisite: Pass ASL-103 or instructor consent.

ASL-202 American Sign Language
 3 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. Prerequisite: Pass ASL-201 or instructor consent.

ASL-203 American Sign Language
 3 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. Prerequisite: Pass ASL-202 or instructor consent.

ASL-211 Conversational American Sign Language**3 credits, not offered every term**

An immersion course in the concepts of ASL. Emphasizes the development of receptive signing skills and expands communicative abilities. To apply to a university interpreter program, further studies are needed. Prerequisite: Current enrollment in or successful completion of ASL-103 or instructor consent.

BA**Business Administration****BA-101 Introduction to Business****4 credits, Fall/Winter/Spring**

Introduction to the American business system including business organization, accounting, finance, marketing, and management. Also offered as an online course. Recommended: Pass RD-090 or placement in RD-115.

BA-103 Business Strategies for Computer Consultants**3 credits, not offered every term**

Class introduces the procedures for establishing and developing a successful consulting business in computer-related services including web development, network support, and computer support. Coverage includes defining business goals and mission, identifying local markets, creating a business plan for a consulting business, understanding proprietorship and partnership tax implications, accounting practices of consulting businesses, licensing issues, pricing services, promotion of the consulting business, creating consulting contracts, and consulting client management.

BA-104 Business Math**3 credits, Fall/Winter**

Math skills applicable to the business environment. Mark-up, mark-down, simple interest, present value, stocks, bonds, mutuals, and credit cards. Introduces accounting topics such as depreciation, financial statements, and ratios. Also offered as an online course. Prerequisite: Pass MTH-050 or place into higher level math class.

BA-111 General Accounting I**4 credits, Fall/Winter/Spring**

Bookkeeping and accounting systems with procedures emphasized. Accounting cycle, general and special journals, subsidiary ledgers, accounting for cash, and end-of-period operations. Also offered as an online course. Recommended: Pass RD-090 or placement in RD-115.

BA-112 General Accounting II**4 credits, not offered every year**

Continues studies from General Accounting I. Includes reporting standards; accounts receivables and uncollectibles; notes payable/receivables, merchandise inventory adjustments; and property, plant and equipment. Partnership entries/procedures, corporate formation, stocks, earnings, and long-term bonds. Prerequisite: Pass BA-111.

BA-120 Project Team Tools**3 credits, Fall**

Use project management tools to perform needs analysis, negotiating/contracting for goals and resources, work/task breakdown, project flowchart and schedule, resource allocation, time estimates, critical path, budgeting, contingency planning, project monitoring and reporting.

BA-122 Teamwork: Project Management**3 credits, Fall**

Focuses on teamwork dynamics and skills for working with others; group behavior and communication skills are learned and practiced. Students study personalities, learning styles, diversity, appreciating differences and values, ethics, and achieving goals.

BA-123 Leadership and Motivation: Project Management**3 credits, Winter**

Focuses on the basic principles of leadership as applied to teamwork. Basic component of organizational design and management theory, leadership is a learned skill focusing on achieving objectives utilizing human, financial, material, and organizational resources.

BA-124 Negotiation: Project Management**3 credits, Spring**

Focuses on the basic principles of negotiation. Techniques and elements of negotiation are stressed. Students work alone and in groups to practice and demonstrate negotiation skills.

BA-125 Risk Management: Project Management**3 credits, Winter**

Basic principles of risk, systematic risk assessment, and management of risk in project management. Identifying/exploring basic principles of risk, including types, seriousness, and methods of dealing with risk; systematic risk techniques and assessment.

BA-126 Project Management: Workshop**3 credits, Spring**

A hands-on, interactive project management simulation. Student teams will address weekly topics in the progression of managing the project and submit a report summarizing the project experience included in the student portfolio. Prerequisite: Pass BA-120, BA-122, BA-123 and BA-125.

BA-131 Introduction to Business Computing**4 credits, Fall/Winter/Spring**

Use and application of Microsoft Office. Use Word, Excel, Access, and Powerpoint to create business documents. Internet features, multitasking, and file management. Designed for business majors. Also offered as an online course. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass BT-120 or instructor consent.

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. Also offered as an online course. Recommended: Pass RD-090 or placement in RD-115.

BA-160 Purchasing I**3 credits, Winter**

Distance Learning: Online. 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, Spring

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. Prerequisite: Pass BA-160 or instructor consent.

BA-162 Procurement for Managers
3 credits, Spring

Addresses the manager's role in procurement including selection of contract types, corporate team agreements, proposal solicitation, source selection, contract awards, contract administration, and close-out of project procurements.

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. Prerequisite: Pass BA-211 or pass BA-111.

BA-205 Solving Communication Problems with Technology
4 credits, Winter/Spring

Skills and technology needed to communicate effectively. Organize and present business information electronically, including data collection, correspondence, business reporting, business presentations, and corporate communications. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass BA-131 & pass WR-121.

BA-206 Management Fundamentals
4 credits, Fall/Winter/Spring

Concepts and theories of management with focus on planning, organizing, staffing, directing, and controlling. Organizational structures, planning principles, and international management techniques. Also offered as an online course. Recommended: Pass RD-090 or placement in RD-115.

BA-208 Employee Labor Relations
4 credits, Spring

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

BA-211 Financial Accounting I
4 credits, Fall/Winter/Spring

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. Also offered as an online course. Recommended: Pass RD-090 or placement in RD-115.

BA-212 Financial Accounting II
4 credits, Fall/Winter/Spring

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

BA-213 Decision Making with Accounting Information
4 credits, Fall/Winter/Spring

Accounting for manufacturing operations, cost systems, capital budgeting, variances and budget performance reports, job order, and process, flow, and standard costing. Presentation and interpretation of accounting data to aid decisions. Also offered as an online course. Prerequisite: Pass BA-212.

BA-214 Business Communication
3 credits, not offered every term

This course 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.

BA-216 Cost Accounting
3 credits, Winter

Statement analysis, budgeting, pricing concepts, production reports, cost estimation, by-products and joint products, spoilage and scrap materials, standard cost, job order, and process flow systems. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass BA-213.

BA-217 Budgeting for Managers
3 credits, Spring

Budgeting vocabulary, finance, record keeping, cash management, cash budgeting, and capital budgeting. Recommended that students have prior course work and/or experience in accounting or work-related budgeting. Recommended: Pass RD-090 or placement in RD-115.

BA-218 Personal Finance
3 credits, Spring

Distance Learning: Online. Goal setting, budgeting, use of credit, personal financial statements, consumer spending and saving, investment options, risk management, and estate and tax planning. Financial planning tools and practical self-assessment. Recommended: Pass RD-090 or placement in RD-115.

BA-222 Financial Management
3 credits, Winter

Concepts, techniques, and decision process to manage a firm's sources and uses of funds. Working capital, ratio analysis, leverage, operating budgets, working capital management, cost of capital, capital budgeting, and evaluation of financial alternatives. Prerequisite: Pass BA-212.

BA-223 Principles of Marketing
4 credits, Fall/Winter

Survey and application of marketing principles and vocabulary in profit and non-profit organizations. Product planning, distribution, promotion, price, and customer service are analyzed and applied. Also offered as an online course. Not offered as a lecture course every term. Recommended: Pass RD-090 or placement in RD-115.

BA-224 Human Resource Management
4 credits, Fall/Spring

Traditional, current, and emerging personnel practices. Practical and realistic approach to human resource management, employee welfare, working conditions, selection and placement, personnel functions, and the responsibilities of the personnel director. Recommended: Pass RD-090 or placement in RD-115.

BA-225 Business Report Writing
3 credits, Spring

Focuses on the skills and techniques required to write and produce professional business reports, including research, writing, formatting, and presentation. Also offered as an online course. Prerequisites: Pass WR-121 & pass BA-205 or instructor consent.

BA-226 Business Law I
4 credits, Fall/Winter/Spring

Concepts, principles, and rules of law applicable to business transactions. Emphasis on constitution, courts, business crimes, torts, and consumer contract law. Also offered as an online course. Recommended: Pass RD-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. Also offered as an online course. Prerequisite: Pass BA-226.

BA-229 Employment Law
4 credits, Spring

Offers comprehensive treatment of personnel law and seeks to bridge the gap between law and human relations management. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass BA-224.

BA-238 Sales
3 credits, Spring

Focus on professional selling principles and techniques as applied both in business and interpersonal settings. Recommended: Pass RD-090 or placement in RD-115.

BA-239 Advertising
4 credits, Fall

Relationship to marketing, including how advertising helps accomplish marketing objectives. Advertising planning and strategy and examination of various communication vehicles carrying the advertising message. Recommended: Pass RD-090 or placement in RD-115.

BA-240 Governmental Accounting
4 credits, Fall

Accounting procedures, records, and statements to summarize and disclose the results of non-profit and governmental activities. Budgetary accounting, general, special revenue, capital projects, debt service, enterprise, and proprietary funds, general fixed asset accounts, etc. Prerequisite: Pass BA-212.

BA-242 Intro to Investments
3 credits, not offered every year

Studies securities, investment concepts, and economic trends for the private investor. Discusses investment objectives, portfolios, corporate securities, and securities market. Also offered as an online course. Recommended: Pass RD-090 or placement in RD-115.

BA-248 Auditing
3 credits, Spring

Auditing standards and procedures by the CPAs in the examination and issuance of audit reports. Generally accepted auditing standards and conceptual framework necessary for collection of evidence and assessment of risk. Prerequisite: Pass BA-213.

BA-249 Retailing
3 credits, not offered every term

Distance Learning: Online. Provides an understanding of the types of businesses, strategies, operations, formats and environments through which retailing is carried out. Takes a multi-disciplinary approach to consider the process and structure of retailing. Recommended: Pass RD-090 or placement in RD-115.

BA-250 Small Business Management
3 credits, not offered every year

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

BA-251 Supervisory Management
3 credits, Winter

Role and responsibilities of the first-line supervisor or manager. Analyzing business, dealing with change, staffing and scheduling, leadership, decision-making and motivational skills, and managing teams. Also offered as an online course. Recommended: Pass RD-090 or placement in RD-115.

BA-254 Basic Compensation and Benefits
4 credits, Winter

Focuses on the importance of employees as a key element of strategic compensation/benefit programs and emphasizes general compensation topics, terminology, and practical applications to the workplace.

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: Pass RD-090 or placement in RD-115.

BA-261 Consumer Behavior
4 credits, Spring

Consumer behavior and its application to marketing strategies. Concepts and models of the consumer decision-making process, personal and interpersonal factors and their impact on consumer decisions. Prerequisite: Pass BA-101.

BA-267 Organizational Development and Behavior
4 credits, Winter

Concepts of organizational design, development and behavior wherein students study, analyze, and learn to develop systems for specific management objectives. Focus is on individual, group, and organizational leadership strategies and effective self-assessment leading to improved goal convergence and productivity.

BA-268 Applied Project Demonstration
6 credits, Spring

This course emphasizes the demonstration of practical project management skills, including the scope, control and analysis of professional field applications with an organization, vendor or service provider. Students will prepare and submit evidence of skill application in a planned and monitored project environment.

BA-280 Business/CWE
3-6 credits

Fall/Winter/Spring

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. Required: Instructor consent & a CWE seminar.

BA-281 Business/CWE
3 credits

Fall/Winter/Spring

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. Required: Instructor consent & a CWE seminar.

BA-285 Human Relations in Business
4 credits, Fall/Winter/Spring

Basic psychology and human relations techniques in building better employer/employee relationships. Interpersonal relations both on the job and in everyday life. Recommended: Pass RD-090 or placement in RD-115.

BC

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

**Building
Construction
Technology****BC-100 Construction Orientation**
2 credits, Fall/Winter/Spring

Research the materials, methods, and terminology and safety requirements of the Building Construction Trade. The course will include proper and safe use of hand and power tools.

BC-101 Building Trades Print Reading And Math
2 credits, Fall/Winter/Spring

Read and interpret building construction drawings; identify construction terms and information useful for estimating and scheduling e.g. building trade mathematics and practical lab exercises.

BC-102 Introduction To Applied Building Construction

2 credits, Fall/Winter/Spring

Utilize Tools and Equipment to accomplish projects emphasizing basic safety. Lab projects will include concrete foundation forming as well as framing walls, floors, joist, and roofs as well as sheeting, siding, thermal and moisture protection.

BC-103 Basic Carpentry
2 credits, Fall/Winter/Spring

Research the materials, techniques and safety requirements for basic carpentry and framing applications. Hand and power tools used to complete lab projects, e.g. scale building assemblies.

BC-114 Basic Estimating
4 credits, Fall/Winter/Spring

Analyzes working drawings and specifications for accurate quantities and cost estimation of products and services in the building construction industry with the use of manual and computer applications.

BC-115 Basic Scheduling
4 credits, Fall/Winter/Spring

Analyzes working drawings and specifications for efficient and cost-effective purchasing, delivery and application of products and services in the building trades industry construction projects.

BC-180 Building Construction Technology/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Practical experience in the construction trades with a contractor, supplier or construction trades service provider. Required: Instructor consent.

BC-204 Residential Construction Codes
4 credits, Fall/Winter/Spring

Examines and interprets codes and regulations that govern residential one- and two-family dwellings. Course work includes structural, plumbing, electrical and mechanical codes of the International Residential Code (IRC).

BC-205 Commercial & Residential Codes
4 credits, Fall/Winter/Spring

Introduces regulations concerning the commercial and industrial construction industry and utilizes International Building Code (IBC), International Mechanical Code (IMC), Plumbing Code (IPC), the National Electrical Code (NEC).

BC-280 Construction Projects/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Practical experience in construction project management, estimating, scheduling, site inspection or other construction professional field applications. Required: Instructor consent.

BI**Biology****BI-055 Introduction to Human Biology**
3 credits, Fall

Structure and function of the human body beginning with the cell; organization of tissues, organs, systems, and structure and functions of body systems. Restricted to students in the Medical Office Administrative Assistant, Clinical Assistant or Medical Assistant programs.

BI-090 Preparation for Biology
3 credits, not offered every term

A developmental laboratory based biology course designed to prepare students to take college level biology. Restricted to students in the Gateway program. Required: Instructor consent.

BI-101 General Biology
4 credits, Fall/Winter/Spring/Summer

A laboratory course for non-science majors. Studies the cellular aspects of biology including genetics. Also offered as an online course Fall/Winter/Spring/Summer. Recommended: Pass MTH-060 or placement in MTH-065; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

BI-102 General Biology
4 credits, Fall/Winter/Spring/Summer

A laboratory course for non-science majors emphasizing an evolutionary approach to animal systems. Also offered as an online course. Prerequisite: Pass BI-101 or BI-112.

BI-103 General Biology
4 credits, Fall/Spring/Summer

A laboratory course for non-science majors emphasizing an evolutionary approach to plants and ecosystems. Also offered as an online course Fall/Spring/Summer. Prerequisite: Pass BI-102.

BI-112 Biology for the Health Sciences
4 credits, Fall/Winter/Spring/Summer

One term preparatory biology course for students who want to take Anatomy and Physiology and/or Microbiology. Cellular aspects of biology including genetics and organ systems. Corequisite: CH-112 strongly recommended.

BI-130 Mushroom ID & Taxonomy
4 credits, not offered every term

A lab science course exploring the complexity and diversity of mushrooms in the Pacific Northwest forest ecosystem. Introduction to identification, basic biological principles, life cycles, and toxicology. Field trips and collection required.

BI-160 Bird ID & Taxonomy
3 credits, Spring

Bird identification, classification, behavior. Identification techniques applied to birds through lectures, slide presentations, and field trips to Malheur, Klamath Marsh, Oregon Cascades, Sauvie Island, and Oregon Coast wildlife refuges.

BI-160L Bird ID & Taxonomy Lab
1 credit, Spring

A lab to accompany the BI-160 lecture. Focuses on field identification of common Oregon birds by sight, sound, and habitat.

BI-163 Malheur Field Trip
1 credit, Spring

Study of plants, animals, geology, and history of High Desert Country at Malheur Environmental Field Station in southeast Oregon. Required: Instructor consent.

BI-165D Natural History of SW Deserts
4 credits, Spring

Plants, animals, geology, and environmental issues of the Great Basin Region and Death Valley National Park. On-site study. A nine-day trip through Southwestern United States desert regions. Required: Instructor consent.

BI-165C Natural History/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/Oregon Coast Lab**1 credit, not offered every term**

A lab to accompany the BI-165C lecture. Field trips and exercises focus on the plants, animals, geology, and environmental issues of Oregon Coast.

BI-204 Elementary Microbiology
4 credits, Winter

A lab course with environmental focus. Explores microscopic life, its importance in the environment, industry and infectious disease. Labs provide practice with aseptic technique and introduces tools and methods used in the study of microorganisms.

BI-211 Biology (Science Majors)
5 credits, Fall

A lab course for biology majors and pre-professional students. An evolutionary approach to cell structure, organization and metabolism, genetics and evolution. Recommended : Pass MTH-105 or pass MTH-111 with a "C" or better or placement in MTH-112; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Corequisite: CH-104 or CH-221.

BI-212 Biology (Science Majors)
5 credits, Winter

A lab course for biology majors and pre-professional students. An evolutionary approach to animal structure, systems and metabolism. Prerequisite: Pass BI-211. Corequisite: CH-105 or CH-222.

BI-213 Biology (Science Majors)
5 credits, Spring

A lab course for biology majors and pre-professional students. An evolutionary and ecological approach to kingdoms, plant structure, systems and metabolism; ecosystems. Prerequisite: Pass BI-212. Corequisite: CH-106 or CH-223.

BI-231 Human Anatomy/Physiology I
4 credits, Fall/Winter/Spring/Summer

A lab course designed for students entering physical education or medically related fields. Includes body organization, terminology, tissues, and a study of the integumentary, skeletal, and nervous systems. Recommended: Pass MTH-095 with a "C" or better or placement in MTH-105 or MTH-111; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121 or. Prerequisites: Pass BI-112 (recommended), or pass BI-101 & BI-102, or pass BI-211 & BI-212. Pass CH-112 (recommended), or pass CH-104 & CH-105, or pass CH-221 & CH-222.

BI-232 Human Anatomy/Physiology II
4 credits, Winter/Spring/Summer

A lab course covering structure and function of the muscular, cardiovascular, lymphatic, and respiratory systems. Prerequisite: Pass 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. Prerequisite: Pass BI-232 with a "C" or better.

BI-234 Introductory Microbiology
4 credits, Fall/Winter/Spring

A lab course for health science and science majors. Includes characteristics, physiology and growth requirements of microorganisms, interactions between humans and microorganisms, immunology, infection, and principles of microbial control. Also offered as an online course Fall/Winter/Spring. Prerequisites: Pass BI-BI-101, BI-112 or BI-211 and pass CH-104, CH-112, or CH-221.

BI-280 Biology/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with on-the-job work experience in the field of biology. Required: Instructor consent & a CWE seminar.

BOT**Botany****BOT-156 Plant Identification & Uses**
4 credits, Spring

A lab science course for liberal arts majors introducing botanical identification and emphasizing general uses of various plants commonly found in the Pacific Northwest. Basic biological principles, life cycles, floral formulas, ecology and taxonomy. Field trips and lab participation required.

BOT-201 Botany
4 credits, Fall, not offered every year

A lab course with an evolutionary approach to biochemistry, plant cell structure, genetics and evolution. Recommended: Pass MTH-095 with a "C" or better or placement in MTH-105 or MTH-111; Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

BOT-202 Botany
4 credits
Winter, not offered every year

A lab course with an evolutionary approach to plant tissues, organs, structure, metabolism, nutrition, reproduction development and morphogenesis. Recommended: Pass MTH-095 with a "C" or better or placement in MTH-105 or MTH-111; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

BOT-203 Botany
4 credits
Spring, not offered every year

A lab course with an evolutionary approach to plant classification, taxonomy and ecosystems. Recommend: Pass MTH-095 with a "C" or better or placement in MTH-105 or MTH-111; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

BT

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

Business Technology**BT-101 Introduction to Online Learning**
1 credit, Fall/Winter/Spring

This is an introductory course for students who are new to web-based courses. The course will include online course fundamentals, internet fundamentals, technique requirements, e-mail techniques, and tips for success in online courses.

BT-105 Computerized Accounting
3 credits, Spring

Hands-on experience using integrated accounting software. Currently using QuickBooks. Emphasis on performing general ledger, accounts receivable, and accounts payable functions. Also offered as an online course. Prerequisite: Pass BA-211 or pass BA-111.

BT-110 Income Tax Preparation
8 credits, Fall

Assists potential or established income tax preparers in becoming more proficient in preparing personal income tax returns. Approved by Oregon State Board of Tax Service Examiners to fulfill ORS 673.605 to 673.735. Prerequisite: BA-211 and BA-212 or BA-111 and BA-112.

BT-112 Administrative Medical Assisting: Introduction
3 credits, Fall

Fundamental information required for employment for a front desk type clerical position in a medical office. Examines medical law and bioethics and introduces business students who plan to work at the front desk or other clerical area of a medical office to the administrative and transdisciplinary skills/competencies of the medical field.

BT-113 Administrative Medical Assisting: Coding
3 credits, Spring

This course prepares the student for work in the physician's office in the areas of accurate medical coding and claims processing. Coding rules and applications as well as specific insurance carrier details will be presented. Prerequisite: Pass BT-145.

BT-114 Administrative Medical Assisting: Ethical Issues
3 credits, Spring

Intro to the field of medical ethics, where core ethical issues in health care, medical research and public policy will be explored.

BT-120 Personal Keyboarding
2 credits, Fall/Winter/Spring

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

BT-122 Keyboarding Skillbuilding
2 credits, Fall

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

BT-124 Business Editing I
3 credits, Fall/Winter

Course builds communication skills through the study of correct usage of grammar, spelling, vocabulary usages, effective writing, and editing principles. Also offered as an online course. Recommended: Pass RD-090 or placement in RD-115.

BT-125 Business Editing II
3 credits, Winter

Course follows BT-124 and will continue to build communication skills by studying correct grammar, spelling, punctuation, vocabulary usage, and writing principles. Also offered as an online course. Prerequisite: Pass BT-124, "C" or better.

BT-145 Administrative Medical Assisting: Insurance & Billing
3 credits, Winter

Computer-based record keeping activities in a medical office including scheduling patients and preparing the daily patient list, making entries for patient accounts (receipts and statements), processing accounts payable (check writing, preparing bank deposits, and accounting for daily cash balances), and handling health insurance forms. Note: This course does not meet the requirement for the Medical Assistant certificate.

BT-160 Word I**3 credits, Fall/Winter/Spring**

Create and print a variety of business documents. Formatting skills include changing margins, indenting text, manipulating tabs, super/subscript text, and creating section/page breaks. Enhance documents using special features. Introduction to Internet. Recommended: 35 words per minute typing skill. Also offered as an online course. Prerequisite: Pass BT-120 or instructor consent.

BT-161 Word II**3 credits, Fall/Winter/Spring**

Create, customize, and print a variety of business documents, such as merging letters and mailing labels, and creating forms and advanced tables. Formatting and special features. Internet usage includes downloading text and clip art. Recommended: 40 words per minute typing skill. Also offered as an online course. Prerequisite: Pass BT-160.

BT-170 Access**3 credits, Spring**

Study and application of Microsoft Access involving database creation, queries, forms, and reports. Business applications include performing calculations on databases, adding graphics, creating multiple forms enhanced with Internet hyperlink, and composing text. Prerequisite: Pass BT-120 or instructor consent.

BT-172 Introduction to Microsoft Outlook**2 credits, Winter**

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

BT-173 Introduction to Microsoft PowerPoint**2 credits, Spring**

Fundamentals in learning and using Microsoft's presentation graphics program to present data and information.

BT-176 Excel**3 credits, Winter**

Study and application of Microsoft Excel involving spreadsheets and graphics. Business applications include working with templates, formulas and functions, and creating multiple worksheets. Also offered as an online course. Prerequisite: Pass BT-120.

BT-177 Microsoft Project**3 credits, Winter**

Class covers the basics of planning a project using Microsoft Project including creating a project schedule, communicating project information, assigning resources and costs, tracing progress and closing a project. This course will conclude with students sharing project information with other people and applications using Microsoft Project.

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, work environment, travel, mail, and career planning. Prerequisite: Pass BT-160.

BT-220I Desktop Publishing I: InDesign**3 credits, Spring**

Introduction to electronic page layout and production using Adobe InDesign. Covers fundamental program functions and techniques for working with text and graphics to create professional-looking business publications. Also offered as an online course. Prerequisite: Pass BA-131 or pass CS-121, or instructor consent.

BT-262 Integrated Projects**4 credits, Spring**

Advanced level Microsoft Word uses desktop publishing attributes in creating business forms, such as letterhead, fill-in forms, templates, brochures and flyers. Advanced formatting features and functions. File management. Introduction to voice recognition and working with Acrobat forms and documents. Recommended: 45 words per minute typing skill. Prerequisite: Pass BT-161.

CAD

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

Computer-Aided Drafting

See also Drafting (CDT).

CAD-141 AutoCAD LT Level I**3 credits, Fall/Winter/Spring/Summer**

Distance Learning course. AutoCAD LT user interface, drawing setup parameters, coordinate entry, 2D geometric entities, line types, object snaps, selection sets, display control functions, text creation, 2D editing commands, inquiry commands, layers and basic dimensioning.

CAD-142 AutoCAD LT Level II**3 credits, Fall/Winter/Spring/Summer**

Distance Learning course. Advanced features of AutoCAD LT. Dimensioning techniques/styles. Creating/managing symbols, externally referenced files and block attributes. Multi-view paper space layout, 3D drafting options, customized menus, and Internet utilities. Recommended: CAD-141.

CAD-149 Special Projects/CAD**1-6 credits, not offered every term**

Content varies based on student objectives.

CAD-151 AutoCAD Level I**3 credits Fall/Winter/Spring/Summer**

Introduction to AutoCAD basics including drawing setup, coordinate entry methods, 2D drawing and editing, object snaps, polar tracking, text management, display control, utilizing layers and basic plotting techniques. Recommended: Working knowledge of Windows.

CAD-152 AutoCAD Level II**3 credits Fall/Winter/Spring/Summer**

Advanced AutoCAD features including drawing and editing complex lines, dimensioning techniques, hatching, creating blocks and symbol libraries, managing block attributes, working with external references (xrefs). Recommended: CAD-151.

CAD-155 AutoCAD Customization
3 credits, not offered every term

Covers the techniques for customizing the AutoCAD interface and support files. Topics include: adding command aliases, customizing menus and tool palettes, creating command macros, custom linetypes and hatch patterns, writing script files, VisualLisp programs and VBA macros. Recommended: CAD-152.

CAD-156 AutoLISP I
3 credits, not offered every term

Introduction to AutoLISP to create custom command functions. Recommended: CAD-155.

CAD-157 AutoLISP II
3 credits, not offered every term

Advanced AutoLISP functions to create custom commands. Recommended: CAD-156 or equivalent competency.

CAD-160 Revit Building Essentials
3 credits, not offered every term

Introduction to the basic principals in Revit Building. Students create floor plans using walls, doors, and windows; add furniture fixtures, curtain walls, floors, ceiling grids, and generate elevations, sections, details and schedules directly from the model.

CAD-170 Intro to VBA Programming
1 credit, not offered every term

Introduction to Visual Basics for Applications (VBA) programming language for AutoCAD. Basics of VBA are explained so that students can create VBA macros that create and modify AutoCAD entities, interact with the user, select drawing objects and manage AutoCAD's symbol tables.

CAD-171 Advanced VBA Programming
1 credit, not offered every term

Advanced VBA programming techniques including how to manage blocks and attributes, work with xrefs, and plot drawings. Other topics include how to create programs using VBA forms and share data with other Microsoft applications using ActiveX/Automation. Recommended: CAD-170.

CAD-220 Microstation for Autocad User
1 credit, not offered every term

Presents a quick summary of specific features in AutoCAD, followed by the related features in MicroStation. Designed for those who work with both products, or will transition from AutoCAD to MicroStation software.

CAD-251 Autodesk Land Desktop
2 credits, not offered every term

Use LDT to plan and edit sites, as well as create and label survey points, create and edit surfaces and contours, define and label roadway alignments, size and label parcels. Recommended: CAD-152 or AutoCAD experience.

CAD-252 Autodesk Land Desktop - Civil Design
2 credits, not offered every term

Analyze project data, create existing and finished ground profiles, use roadway templates for transportation engineering, site development and grading, perform volumetric calculations, define pipe runs, hydrological site analysis, automate sheet creation. Recommended: CAD-251.

CAD-255 Autodesk Map
1 credit, not offered every term

Digitize maps; import ESRI® and Microstation® files; clean-up maps; share maps across network; manage attribute data; attach databases to maps; build and query topologies; create thematic maps and legends; integrate georeferenced images; and plot map sets. Recommended: CAD-251.

CAD-275 Autodesk Civil 3D Fundamentals
2 credits, not offered every term

Provides instruction in Autodesk Civil 3D to support civil engineering design projects. Includes civil design tasks such as creating site boundaries, surfaces, road alignments, profiles and sections, and volume calculations.

CAD-293 SolidWorks
4 credits, not offered every term

Introduction to parametric solid modeling. Create sketches and build solid models. Create fillets, cuts, chamfers, holes, shells, lofts, and sweeps. Extract 2D documentation from 3D models, and detail the drawings. Build a mechanical assembly.

CAD-295 Autodesk Inventor
3 credits, not offered every term

Fundamentals of Autodesk Inventor. Covers features necessary to create and edit parts, assemblies, and drawings in 3D solid modeling design format. Covers basic modeling techniques and introduces Inventor's Design Support System. Recommended: Windows and Excel knowledge.

CDT

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

Drafting

See also Computer-Aided Drafting (CAD).

CDT-101 Drafting Technology Survey
1-3 credits, Fall/Winter/Spring

Course provides a detailed look at the field of Drafting Technology. It includes an examination of the different drafting disciplines and the companies, both locally and worldwide, that hire drafters.

CDT-102 Sketching and Problem Solving
1-3 credits

Fall/Winter/Spring/Summer

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

CDT-103 Computer-Aided Drafting I
1-4 credits

Fall/Winter/Spring/Summer

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

CDT-104 Professional Computing Basics
1-3 credits

Fall/Winter/Spring/Summer

Professional computing techniques, knowledge, skills, fundamentals of computing equipment, specifications, terminology, and CAD software, Windows functions and environment. Create and manage network file systems. Internet, E-mail, Web Browsers. Create professional technical documents.

CDT-105 Computer-Aided Drafting II

1-4 credits

Fall/Winter/Spring/Summer

Create, modify, and manage dimension styles for multiple industry disciplines. Dimensioning with tolerances. Scaled drawing output to plotting device using paper space layouts and viewports. Mechanical drawings, multi-view projection, auxiliary views. Recommended: CDT-103.

CDT-106 Applied Descriptive Geometry

1-3 credits, Fall/Winter/Spring

Graphical solutions to imaginary and visualization problems. Applies concepts of true length, true shape, and point location, to simplify complex design problems. Recommended: CDT-103 & MTH-050.

CDT-107 Computer-Aided Drafting III

1-4 credits

Fall/Winter/Spring/Summer

Create and manage symbols, and utilize externally referenced drawings. Attribute definition, editing, and management. Drawing thread representations, fasteners, springs, surface finishes, section views, and welding symbols. Total drawing environment management and editing. Recommended: CDT-105.

CDT-108 CAD 3D

1-3 credits

Fall/Winter/Spring/Summer

Construct 3D surface and solid models using 3D coordinates, user coordinate systems, and standard editing commands. Create a rendered scene of the 3D model with lighting and shading. Recommended: CDT-103, CDT-104 & CDT-105.

CDT-108A Introduction to Solid Modeling

1-3 credits, Fall/Spring

Parametric solid modeling. Design 3D parts and assemblies. Implement 2D documentation of 3D parts to industry standards. Build a mechanical assembly. Develop sheet metal flat patterns. Create working kinematic sketches.

CDT-109 Project Drafting I

1-5 credits

Fall/Winter/Spring/Summer

Course is designed to incorporate the necessary detail and assembly drawings required to describe industrial products. Special emphasis is placed on use of Machinery's Handbook, ASME standards, vendor information, and other general references. Recommended: CDT-105 & MTH-080

CDT-109A Project Drafting I – CAD/CAM

1-2 credits

Fall/Winter/Spring/Summer

Course is designed to incorporate the necessary detail and assembly drawings required to describe industrial products. Special emphasis is placed on use of Machinery's Handbook, ASME standards, vendor information, and other general references. Recommended: CDT-105

CDT-110 Kinematics Drafting

1-3 credits, Fall/Spring

Course introduces students to techniques required of drafters who work with machine designers. Students learn symbols common to kinematics drafting. CAM design, gears and belt/chain drives presented. Emphasis placed on using parts catalogs and Machinery's Handbook. Recommended: CDT-105, CDT-106, MTH-080

CDT-111 Geometric Dimensioning & Tolerancing

1-3 credits

Fall/Winter/Spring/Summer

ASME Y14.5M application. Three-plane theory, interpret terms and symbols of geometric tolerancing: apply form, profile and location tolerances on drawings. Includes print reading. Also offered as Distance Learning course. Recommended: CDT-101, CDT-105, MTH-050.

CDT-111A Refresher Course/Geometric Dimensioning & Tolerancing Exam

2 credits, not offered every term

Principles of Geometric Dimensioning and Tolerancing as interpreted in ASME Y 14.5M-1994. Reference to practices as well as modifications to the ANSI Y 14.5-1982. For inspectors, machinists, drafters, and engineers preparing for the certification exam.

CDT-201 AutoCAD Customization

1-3 credits, Winter/Spring/Summer

Covers techniques for customizing the AutoCAD interface and support files. Includes adding command aliases, customizing menus and tool palettes, creating command macros, custom linetypes and hatch patterns, writing script files, VisualLisp programs and VBA macros. Recommended: CDT-103, CDT-105.

CDT-202 Architectural Drafting I

1-4 credits

Fall/Winter/Spring/Summer

Drawings required to get a building permit. Creating drawing blocks typically used in compiling a set of plans as well as the drawings of a floor, roof, electrical and foundation plans, elevations, and wall sections. Recommended: CDT-105, MTH-050.

CDT-203 Sheet Metal Drafting

1-3 credits, Winter/Spring/Summer

Introduction to drawing HVAC plans, and the basics of pattern development, material bending, seams, and intersection of geometric shapes used in the sheet metal fabrication industry. Recommended: CDT-105, CDT-106, MTH-050.

CDT-204 Civil Drafting

1-3 credits, not offered every term

Course covers leveling, longitude and latitude, map scales, symbols, legal descriptions, plot plans, contours, profiles, and cut and fill (earthworks). The course explores many aspects of civil drafting. Prerequisite: CDT-105 or equivalent experience.

CDT-206 CAD/CAM Integration

1-2 credits, Fall/Spring

Convert CAD drawings to computer numerical control (CNC) machine code. Create tool paths and write code for machining mechanical parts. Includes machining projects developed using a variety of industry-standard software. Recommended: CDT-105.

CDT-207 Introduction to AutoLISP

1-3 credits

Fall/Winter/Spring/Summer

Introduction to AutoLISP programming language. Basics of AutoLISP are explained so students can create AutoLISP functions and program files that automate repetitive or redundant tasks, define new AutoCAD commands and increase drafting productivity. Recommended: CDT-201

CDT-208 Schematic Drafting

1-3 credits, not offered every term

Course introduces students to drafting documents encountered in electrical and electronic drafting. Student is not required to know electrical or electronics, but will be introduced to component layout and basic understanding of circuits. Recommended: CDT-105.

CDT-209 Structural Drafting I

1-3 credits

Fall/Winter/Spring/Summer

Methods and drawings of commercial drafting. Includes creating drawing details typically associated with timber, steel, concrete block, and cast in place concrete construction. Using engineering sketches, making revisions and specifying materials using standard reference materials. Recommended: CDT-105, CDT-202.

CDT-210 Industrial Pipe Drafting

1-3 credits, not offered every term

Course explores types of drawings related to industrial pipe drafting: flow diagrams, general arrangements, plans, elevations, isometrics, and spool drawings. Emphasizes proper layout techniques, line weights, pipe fitting symbols, dimensioning, labeling standards, and vendor catalogs. Prerequisite: CDT-105. Recommended: MTH-080.

CDT-211 CAD Technical Communication

1-3 credits, Fall/Spring

Explores isometric drawing in AutoCAD. Creation of reports with graphics utilizing a variety of software. Covers operation manuals, use of graphics, tables, and imported images in constructing a formal report. Construct a resume and portfolio. Prerequisites: CDT-107, CDT-108, WR-101.

CDT-212A Architectural Drafting II

1-3 credits

Fall/Winter/Spring/Summer

Create architectural drawings of single-level residence. Visit homes, observe common design practices, and assemble photos. Create a floor plan, site plan, roof plan, front elevation, sections, cabinet drawings, and working drawings fully explaining design. Prerequisite: CDT-202. Corequisite: CDT-212B. Recommended: CDT-214.

CDT-212B Architectural Materials

1-2 credits

Fall/Winter/Spring/Summer

Create structural drawings for residence drawn in CDT-212A using western platform construction and engineered lumber. Explore methods of sizing required structural materials for plan using varied methods, complete roof framing, wall framing and foundation plan. Co-requisite: CDT-212A. Recommended: MTH-050.

CDT-213 Architectural Drafting III

1-4 credits

Fall/Winter/Spring/Summer

Design and complete a set of plans for a one story structure with a daylight basement constructed using western platform construction methods. Students design all structural members and are introduced to methods used to resist lateral forces. Prerequisite: CDT-212A, CDT-212B.

CDT-214 Building Codes

1-2 credits, not offered every term

Introduces building codes that govern residential and light commercial construction in the Portland Metropolitan tri-county area. Explore codes as they relate to access, egress, construction methods and ADA requirements.

CDT-215 Structural Drafting II

1-4 credits

Fall/Winter/Spring/Summer

Complete a partial set of architectural and structural drawings for a concrete block structure. Projects include some design as well as working from engineering sketches and calculations. Prerequisite: CDT-209.

CDT-216 Structural Drafting III

1-4 credits

Fall/Winter/Spring/Summer

Complete a partial set of architectural and structural drawings for a tilt-up concrete structure. Project includes some design as well as working from engineering sketches and calculations. Prerequisite: CDT-215.

CDT 217 Introduction to Remodeling

1-4 credits, Fall/Winter/Spring

Create residential project consisting of design and drafting of an addition to an existing single-family residence. A commercial project involves the drafting of tenant improvements for the warehouse completed in CDT-215. Prerequisite: CDT-212A, CDT-212B, CDT-215.

CDT-219 Architectural Detailing

1-3 credits, Fall/Winter/Spring

Create common details associated with wood frame construction including common single and multi-level framing connections using lumber and engineered materials, lateral connections, and a fireplace section. Prerequisite: CDT-202. Corequisite: CDT-213.

CDT-223 Inventor Fundamentals

1-3 credits, not offered every term

Introduces AutoCAD Inventor as a feature-based, parametric 3D design tool. Develops fundamental knowledge in part and assembly modeling, using adaptive features and parts, utilizing work groups, surfacing basics, managing data and the Engineer's Notebook. Recommended: Basic working knowledge of Windows operating system and Microsoft Excel.

CDT-224 Professional Web Design

1-3 credits, not offered every term

Introduction to the design, creation and management of professional web pages. Basic and intermediate HTML document creation, introduction to JAVASCRIPT, use and manipulation of graphic image files, animating web page graphics, HTML forms. Recommended: CDT-104.

CDT-225 Advanced Solid Modeling

1-3 credits, not offered every term

Advanced features of Solid Works will be discussed and problems will be worked that exemplify them. Subjects include equations, configurations, design tables and dynamics. Prerequisites: CDT-108A or CAD-293 or instructor consent.

CDT-226 VBA for Autocad

1-3 credits, not offered every term

An introduction to Object Oriented Programming using the Visual Basic for application (VBA) programming language for AutoCAD. The basics of Visual Basic programming are explained to demonstrate how to create useful VBA macros. Prerequisite: CDT-207.

CDT-280 Drafting Technology/CWE

2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Students keep a bi-weekly employment log and prepare a portfolio including a resume, sample drawings, and recommendations. Required: Instructor consent & a CWE seminar.

CDT-281 Drafting Technology/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Combines work experience in drafting and design with preparation of an updated resumé and an information interview. Corequisite: CWE-281 for Drafting Technology students. Required: Instructor consent.

CDT-282 Drafting Technology/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Combines work experience in drafting and design with company research and networking, and time management. Corequisite: CWE-282 for Drafting Technology students. Required: Instructor consent.

CDT-283 Drafting Technology/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Combines work experience in drafting and design with dealing with angry people, diversity in the work place, and sexual harassment. Corequisite: CWE-283 for Drafting Technology students. Required: Instructor consent.

CDT-284 Drafting Technology/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Combines work experience in drafting and design with vertical and horizontal working relationships, the mutual reward theory, ethics in the work environment, age difference, irritation threshold, and leadership goals. Corequisite: CWE-284 for Drafting Technology students. Required: Instructor consent.

CDT-295 Tool Design

1-3 credits, not offered every term

Introduces techniques and resources required to design industrial tools. Covers design of jigs and fixtures, and print reading for tool designers, CAD techniques, purchased components, and clamping work pieces. Recommended: CDT-105 or equivalent experience.

CDT-296 Tool Design II

1-3 credits, not offered every term

Advanced tool design techniques emphasizing the design of tools and fixtures, complex fixturing problems and correct detailing techniques. Complete tool design projects using AutoCAD. Recommended: CDT-295.

CH**Chemistry****CH-104 Introductory Chemistry**
5 credits, Fall/Winter/Spring/Summer

Transfer sequence for students in nursing, allied health fields, and liberal arts. Observation, measurement, composition, stoichiometry, atomic structure, periodic table, bonding, and nomenclature. Also offered as an online + lab course. Prerequisite: Pass MTH-065 with a "C" or better or placement in MTH-095.

CH-105 Introductory Chemistry
5 credits, Winter/Spring/Summer

Heat; molecular and ionic interactions in solids, liquids, gases, and solutions; chemical reactions including acid-base, electron transfer, and equilibrium. Also offered as an online + lab course. Prerequisite: Pass CH-104.

CH-106 Introductory Chemistry
5 credits, Fall/Spring/Summer

Organic and biochemistry. Also offered as an online + lab course. Prerequisite: Pass CH-105.

CH-112 Chemistry for the Health Sciences
4 credits, Fall/Winter/Spring/Summer

One-term preparatory chemistry course for students who want to take Anatomy and Physiology and/or 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: Pass MTH-065 with a "C" or better or placement in MTH-095. Corequisite: BI-112 strongly recommended.

CH-150 Preparation for 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: Pass MTH-095.

CH-221 General Chemistry
5 credits, Fall/Winter

Transfer 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 pass CH-150 or pass CH-104 & CH-105; & pass MTH-095 with a "C" or better or placement in MTH-105 or MTH-111.

CH-222 General Chemistry
5 credits, Winter/Spring

Reactions, stoichiometry, thermodynamics, organic compounds and polymers, kinetics, and equilibrium. Topics involving organic chemistry and biochemistry are introduced. Prerequisite: Pass CH-221.

CH-223 General Chemistry
5 credits, Spring/Summer

States of matter, solutions, acids and bases, electrochemistry, nuclear chemistry, and spectroscopy. Topics involving organic chemistry and biochemistry are introduced. Prerequisite: Pass CH-222.

CH-241 Organic Chemistry
4 credits, Fall

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

CH-242 Organic Chemistry
4 credits, Winter

Second term of a transfer sequence meeting organic chemistry requirement for premedical, dental, veterinary, pharmacy, chiropractic medicine, chemical engineering, and biology majors. Prerequisite: Pass CH-241.

CH-243 Organic Chemistry
4 credits, Spring

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

CIV

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

Citizenship**CIV-007 Citizenship Preparation**
0 credit, not offered every term

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 or in small groups, taking quizzes after completing separate modules. Required: Instructor consent.

CJA**Criminal Justice****CJA-101 Criminology**
3 credits, Spring

Discusses the nature and control of crime and delinquency. Examines criminal behaviors, legal aspects of crime control and treatment processes. Socio-psychological study of crime from the criminal point of view. May be offered online.

CJA-110 Introduction to Law Enforcement
3 credits, Fall

Explores theories, philosophies, and concepts of U.S. criminal justice administration. Examines past, present and future operations of criminal justice including unique vocabulary used within the system. Studies interrelated components of the U.S. criminal justice system. May be offered online.

CJA-112 Patrol Procedures
3 credits, Fall

Describes the nature and purpose of patrol activities for the law enforcement officer. Includes routine and emergency procedures and types of patrols.

CJA-120 Judicial Process
3 credits, Winter

Studies the judicial and social processes from arrest through appeal including jurisdiction of state and federal courts. May be offered online.

CJA-122 Criminal Law
3 credits, Fall

Examines the elements, purpose and functions of criminal, traffic, juvenile and liquor laws. May be offered online. (formerly Oregon Law)

CJA-130 Introduction to Corrections
3 credits, Fall/Winter

Examines the history, organization, and development of correctional institutions. Includes detention facilities and treatment processes such as sentencing, incarceration, probation and parole. May be offered online.

CJA-134 Correctional Institutions
3 credits, Winter

Analyzes prisons, jail and other correctional institutions. Discusses punishment history/rationale. Identifies functions of custodial staff and describes institutional procedures: reception, classification, program assignment, release. Studies prisons management system and examines juvenile facilities. May be offered online.

CJA-137 Mass Murders/Serial Killers
3 credits, not offered every term

Exploration into mass murders and serial killings, and the impact each has on society and individual victims. Examines issues of causation and the social environmental linkage of recent and notorious cases including the mind set of offenders.

CJA-138 Terrorism/Impact/Strategies
3 credits, not offered every term

Examines domestic/ international threat of terrorism and basic security issues facing law enforcement today including information and discussion on historical social causes of terrorism.

CJA-140 Introduction to Crime Analysis (CA)
1 credit, Fall/Winter/Spring/Summer

Examines history and development of Crime Analysis in the field of criminal justice. Identifies three categories of Crime Analysis; four functions within each category; the tasks and products associated with each category. Only offered online.

CJA-141 Introduction to Crime Mapping
1 credit, Fall/Winter/Spring/Summer

Examines evolution of crime mapping in law enforcement. Describes basic uses: tactical, strategic, and administrative crime analysis. Includes: pin map, grid mapping, GIS for crime analysis, geo-coding for Law Enforcement. Only offered online. Prerequisite: CJA 140

CJA-142 Statistics for Crime Analysis
1 credit, Fall/Winter/Spring/Summer

Introduces mathematical/statistical tools needed for simple crime analysis through statistics. Only offered online. Prerequisite: CJA-140

CJA-143 Crime Analysis (CA) and Statistical Analysis
1 credit, Fall/Winter/Spring/Summer

Explores statistical tools application in CA and demonstrates use in: Tactical, Strategic, and Administrative CA. using case-study method. Only offered online. Prerequisite: CJA-140, CJA-142.

CJA-144 Crime Analysis(CA) via Modus Operandi (MO)
1 credit, Fall/Winter/Spring/Summer

Examines tactical CA through MO analysis, characteristics to identify factors for crime types/classifications to provide solvability factors and suspect identification. Only offered online. Prerequisite: CJA-140.

CJA-145 Crime Analysis (CA) Capstone
1 credit, Fall/Winter/Spring/Summer

Final course of basic CA series. Case-study methodology used to formulate real decisions, use of proper application of statistical and mapping tools, including modus operandi analysis. Only offered online. Prerequisite: CJA-140, CJA-142, CJA-144.

CJA-146 Crime Analysis (CA)/Link Analysis
1 credit, Fall/Winter/Spring/Summer

Examines tactical CA through LA and other forms of graphic analysis. Presents development of the graphic analytical techniques of link analysis, flow chart analysis, and telephone toll analysis. Only offered online. Prerequisite: CJA-140.

CJA-147 Profiling Violent Crimes
1 credit, Fall/Winter/Spring/Summer

Examines: psychological profiling history: arson, murder, rape, pedophilia, terrorism. and misuses, such as racial profiling. Only offered online. Prerequisite: CJA-140.

CJA-148 Crime Scene Analysis Profiling
1 credit, Fall/Winter/Spring/Summer

Provides case-study methodology using rape and serial murder psychological profiling examples. Only offered online. Prerequisite: CJA-140, CJA-147.

CJA-149 Research Methods/Crime Analysis
1 credit, Fall/Winter/Spring/Summer

Examines statistical information needed for research of administrative crime analysis. Demonstrates survey methodology for measuring crime and its impact. Only offered online. Prerequisite: CJA-140.

CJA-150 Introduction to Police Intelligence
1 credit, Fall/Winter/Spring/Summer

Examines the basic police intelligence mission. Demonstrates five-step intelligence process, illustrates differences between tactical (investigative unit) intelligence, strategic intelligence, and operational intelligence. Discusses legal limitations to intelligence information gathering. Only offered online. Prerequisite: CJA-140.

CJA-151 Crime Intelligence Analysis (CIA)
1 credit, Fall/Winter/Spring/Summer

Discusses legal limitations to intelligence information gathering; basic police intelligence mission, five-step intelligence process, illustrates differences between tactical (investigative unit) intelligence, strategic intelligence, and operational intelligence. Only offered online. Prerequisite: CJA-140, CJA-150.

CJA-152 Crime Scene Analysis (CSA) Capstone
1 credit, Fall/Winter/Spring/Summer

Final course of CSA series uses case-study methodology to examine a crime scene and formulate real decisions using proper application of analytical tools. Only offered online. Prerequisite: CJA-140, CJA-147, CJA-148, CJA-149.

CJA-153 Crime Intelligence Analysis (CIA) Capstone
1 credit, Fall/Winter/Spring/Summer

Final part of CIA series. Students demonstrate: threat assessments, threat summaries, threat estimates, CIA reports, recommendations, and supporting documentation, such as link analysis tools. Only offered online. Prerequisite: CJA-140, CJA-146, CJA-150, CJA-151.

CJA-200 Community Relations & Policing
3 credits, Fall

Examines the interrelationships and role expectations of agencies and public policy. Explores racial community tension, minority group crime, social forces, community policing and police image. May be offered online.

CJA-201 Juvenile Delinquency
3 credits, Winter/Spring

Surveys the nature and extent of delinquent behavior. Explores causes, legal apprehension, controls and treatment. May be offered online.

CJA-203 Crisis Intervention
3 credits, Spring

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

CJA-210 Criminal Investigation I
3 credits, Fall

Introduces the history, theory, and principles of criminal investigation in the justice system. Describes crime scene investigation and courtroom aspects of crime scenes including interviews, evidence, surveillance, follow-up, case preparation, and techniques for specific crimes. May be offered online.

CJA-211 Criminal Investigation II
3 credits, Winter

Continues the study and application of investigative techniques for specific offenses. Identifies similarities, differences, and elements of proof needed under state statutes. Prerequisite: CJA-210. May be offered online.

CJA-212 Criminal Investigation III
3 credits, Spring

As the third and final part of the Criminal Investigation series, this course allows for practical application of techniques described in CJA-210 & CJA-211 Criminal Investigation I & II. Course will include investigative techniques from a practical aspect, with some "hands-on" experimentation, including fingerprinting, photography, diagramming, and reconstruction. Prerequisite: CJA-211.

CJA-213 Interview & Interrogation
3 credits, Winter

Examines the dynamics of psychology in criminal interrogation and legal limitations. Includes behavior observation and interpretation, and the use of structured questions to acquire truthful responses.

CJA-220 Substantive Law
3 credits, Winter

Studies historical development, philosophy of law, and constitutional provisions. Examines the definition and classification of crime, application to administration of justice, legal research, study of case law, methodology, and concepts of law as a social force. May be offered online.

CJA-222 Procedural Law
3 credits, Spring

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. May be offered online.

CJA-223 Criminal Justice Ethics
3 credits, Fall

Introduces ethical issues, questions/challenges facing policing/corrections professionals. Emphasizes recognition of ethical issues and personal/professional skills in decision making and consequences of unethical conduct, and the Law Enforcement code of Ethics. May be offered online.

CJA-230 Juvenile Corrections
3 credits, Spring

Studies historical and contemporary perspectives on juvenile offenders, juvenile code, juvenile court and procedures. Describes treatment programs and the differences between adult and juvenile court laws and procedures. May be offered online.

CJA-232 Corrections Casework
3 credits, Fall

Describes interviewing and counseling techniques used by corrections officers in one-on-one contacts with clients. Stresses positive relationships and behavior modification related to the reintegration process.

CJA-240 Cultural Diversity/Law Enforcement**3 credits, Spring**

Provides information and guidelines on how law enforcement professionals can work effectively with diverse cultural groups, both inside their organizations as well as in the community. Explores racial profiling, hate crimes, community based policing, undocumented immigrants, and alternative lifestyles in law enforcement. May be offered online.

CJA-243 Narcotics & Dangerous Drugs**3 credits, Winter**

Introduces the societal problems of drug abuse (alcohol, drugs, narcotics). Includes identification of drugs and causes of addiction. Examines investigative techniques, i.e. undercover, sting, and use of informants. May be offered online.

CJA-280 Criminal Justice/Corrections/CWE**2-6 credits****Fall/Winter/Spring/Summer**

Identifies employment opportunities in the criminal justice or corrections systems. Students must be enrolled full-time in the criminal justice or corrections program. Inclusive CWE seminar. Required: Course-associated practicum.

CJA-281 Criminal Justice/Corrections/CWE**2-6 credits****Fall/Winter/Spring/Summer**

Identifies employment opportunities in the criminal justice or corrections systems. Students must be enrolled full-time in the criminal justice or corrections program. Inclusive CWE seminar. Required: Course-associated practicum.

CLA

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

Clinical Laboratory Assistant**CLA-100 Introduction to Health Care****2 credits, Fall**

Introduction to healthcare systems and trends, ethical and legal responsibilities, personal and workplace safety, infection control, professionalism, life-long learning, and communication.

CLA-101 Clinical Laboratory Assistant Skills I**4 credits, Fall**

Includes state and federal regulations, quality assurance practices, laboratory terminology, staffing, and a basic understanding of quality laboratory testing in the clinical laboratory. Required: Instructor consent. Corequisite: BI-055.

CLA-102 Clinical Laboratory Assistant Skills II**4 credits, Winter**

Addresses hematology and urinalysis. Students will be required to perform various waived tests and demonstrate an understanding of the necessity of accuracy and attention to detail. Required: Instructor consent. Prerequisite: Pass CLA-101.

CLA-103 Clinical Laboratory Assistant Skills III**4 credits, Spring**

Continuation of CLA-102. Focuses on clinical chemistry, immunology, and microbiology. Required: Instructor consent. Prerequisite: Pass CLA-102.

CLA-115 Laboratory Administrative Skills**2 credits, Winter**

Designed for the Clinical Laboratory Assistant students employed in the ambulatory care setting. Laboratory billing, administrative duties, vital signs, and EKG techniques will be discussed. Required: Instructor consent.

CLA-119 Phlebotomy/Laboratory/Practicum I**3 credits, Winter**

Supervised assignment to area medical center laboratories to gain practical experience. May not be challenged. Required: Instructor consent.

CLA-120 Phlebotomy/Laboratory/Practicum II**4 credits, Spring**

Supervised assignment to the ambulatory care centers to gain practical experience. May not be challenged. Required: Instructor consent. Prerequisite: Pass CLA-119.

CLA-125 Introduction to Clinical Research**2 credits, not offered every term**

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

CS**Computer Science****CS-090 Computers for New Users****2 credits, Fall/Winter/Spring/Summer**

For those with no computer experience. Includes using a keyboard and mouse, making commands in Windows programs, using applications to accomplish tasks using a word processor, e-mail, and Internet. Takes place in the computer lab, one student per computer.

CS-091 Computers for New Users II**2 credits, Fall/Winter/Spring/Summer**

Follow-up of CS-090. More work with applications, including word processing, and spreadsheet. Windows file management. Takes place in the computer lab, one student to a computer. Prerequisite: Pass CS-090 or placement in CS-091.

CS-092S Computers for New Users, Spanish**3 credits, Fall/Winter/Spring**

Este es un curso en Español. Para aquellas personas sin experiencia alguna en computación. Incluye el uso del ratón, la administración de archivos en programas de Windows, la creación de una hoja de trabajo, cómo enviar y recibir e-mail, y cómo navegar en el Internet. Taught in Spanish. 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, Fall/Winter/Spring**

Clase en Español para aquellas que ya tomaron la clase CS-092S. Usted estará disponible para crear, modificar, dar formato e imprimir una hoja de cálculo sencilla utilizando el programa Microsoft Excel y una presentación en PowerPoint. For those who have taken CS-092S. Create, modify, format, and print simple worksheets in Excel, tables, queries, and reports in Access, and presentations in PowerPoint. Prerequisite: Pass CS-092S.

CS-094S Database & Web Design, Spanish
3 credits, Fall/Winter/Spring

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 utilizando Microsoft FrontPage como editor. El curso incluye la creación, actualización y mantenimiento de sitios en la red internacional de datos (Internet) o en una red interna (Intranet). Interactive class introducing basic concepts about a relational database using Microsoft Access and basic elements of beginning web page design to create, update and maintain web pages in Internet or intranet web sites using Microsoft FrontPage. Prerequisite: Pass CS-093S or equivalent class.

CS-120 Survey of Computing
4 credits, Fall/Winter/Spring/Summer

Survey course to familiarize students with computer concepts, software applications and living online leading towards computer literacy. Introduces students to Windows file management, word processing, spreadsheet, and presentation graphics skills in a hands-on seminar setting. Also offered online. Prerequisites: Pass CS-090 or placement in CS-120; pass WR-095 or placement in WR-121.

CS-121 Computer Applications
3 credits, Fall/Winter/Spring

Continuation of CS-120. Hands-on approach to word processing, database management, electronic spreadsheets and graphics. Uses Word, Excel, and Access. Also offered online. Prerequisites: Pass CS-120 or placement in CS-121 & pass MTH-060 or placement in MTH-065.

CS-121E Computer Applications for Educators
3 credits, Winter/Spring

Hands-on approach to learning the concepts of word-processing, database management, and electronic spreadsheets using Word, Excel, and Access. Provides a balance between learning specific skills in software with the general concept of when and how to implement those skills. Assignments and projects will be those typically used by professional educators (PK-14). Prerequisites: Pass CS-120 or placement in CS-121; pass MTH-060 or placement in MTH-065.

CS-125H HTML & Web Site Design
3 credits, Fall/Winter/Spring

Hands-on approach to planning, design, and development of published web sites using HTML tags in text editors. Includes page structure, hyperlinks, images, tables, frames, styles, and limited scripting. Brief introduction to page editors. Also offered as an online course. Recommended: Pass CS-121 or equivalent experience.

CS-125P Computer Publishing
3 credits, Winter

Desktop publishing using Publisher: modifying and publishing professional documents. Presentation software using PowerPoint: creating, modifying, and publishing slide shows. Multimedia presentation using Producer. Web page creation using FrontPage: creating, modifying, and publishing of HTML documents.

CS-125R PODCASTING
3 credits, not offered every term

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

CS-133S Web Application Development I
3 credits, Fall

Design, programming, testing of scripted web pages using JavaScript, ASP, PHP. Introduction to server-side programming and fundamental concepts of interactive web pages, program control statements, variables, database access, and functions. Also offered online. Prerequisites: Pass CS-125H; pass MTH-065 or placement in MTH-095.

CS-133VA Visual Basic for Applications
3 credits, Spring

Distance Learning: Online. Using Visual Basic for Applications to develop advanced application features for MS Word, Excel, Access, and PowerPoint. Topics will cover VB editor, objects, properties, variables, repeating statements, debugging codes, and integrating applications. Prerequisite: Pass CS-121 or pass BA-131.

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, using menus. Prerequisites: Pass BA-131 or pass CS-121; pass MTH-065 or placement in MTH-095.

CS-135DB Advanced Database
3 credits, Fall

Using MS Access for design, construction, and documentation of a database management systems. Designing reports, forms, advanced form techniques, OLE fields, customizing tables, creating and using an application system and macros. Also offered online. Recommended: Pass CS-121; pass MTH-065 or placement in MTH-095.

CS-135I Advanced Web Design
3 credits, Fall/Spring

Plan and publish standards-based, accessible web sites via a variety of software tools, including Dreamweaver and Fireworks. Utilize CSS, scripts, audio, video, and other emerging technologies. Emphasizes professional design techniques. Also offered as an online course. Prerequisite: Pass CS-125H.

CS-135S Advanced Spreadsheet
3 credits, Spring

Using MS Excel for design, construction, and documentation of advanced spreadsheets. Templates, multiple worksheets, complex formulas, advanced chart features, Visual Basic macros, sorting, database capabilities. Also offered as an online course. Recommended: Pass CS-121; pass MTH-065 or placement in MTH-095.

CS-135W Advanced Word Processing
3 credits, Winter

Using MS Word for advanced word processing features: tables, merging form letters and data, desktop publishing, large document capabilities (including master documents, indexes), linking and embedding objects in a document. Also offered as an online course. Recommended: Pass CS-121.

CS-140 Operating Systems I
4 credits, Fall

Introduction to the theory behind operating systems as well as basic functions of Windows, Linux/UNIX, and Macintosh operating systems. Discussion of operating system interface with input, output, and storage devices and basic network theory. Prerequisites: Pass CS-120 or placement in CS-121; pass MTH-060 or placement in MTH-065; pass WR-095 or placement in WR-121.

CS-140U Operating Systems I: Linux/UNIX
3 credits, Fall

Computer operating systems concepts using Linux/UNIX. General operating system concepts, file management, network utilities, text editing, shell environment configuration, Linux installation. Also offered as an online course. Prerequisite: Pass CS-140.

CS-150 Computer Technician Orientation
2 credits, Fall

Introduction to computing topics such as computer architecture, data representation, problem solving, programming, and networking. Also covers careers and certifications in Information Technology. Prerequisites: Pass CS-120 or placement in CS-121; pass WR-095 or placement in WR-121; pass MTH-065 or placement in MTH-095.

CS-161 Computer Science I
4 credits, Fall

Disciplined approach to algorithm development, problem-solving methods, program design, data types, control structures, subprograms. Uses C++. Prerequisites: Pass CS-120 or placement in CS-121; pass 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, testing. Requires a substantial project. Prerequisite: Pass CS-161.

**CS-178 Introduction to the Internet/
World Wide Web**

3 credits, Fall/Winter/Spring/Summer
Distance Learning: Online. Introductory course on the use and history of the Internet. Explore the philosophy of the Internet, use tools for research, communication, and entertainment. Develop and publish a simple web page. Recommended: Pass CS-091 or placement in CS-120.

CS-179 Data Communications Concepts
3 credits, Winter

Overview of basic concepts in computer telecommunications. Hardware, software, connectivity, and protocols including local area networks, wide area networks, Internet, and the convergence of computer, telephone, TV (wired and wireless), technologies. Also offered online. Prerequisites: Pass CS-120 or placement in CS-121; pass MTH-065 or placement in MTH-095; pass WR-095 or placement in WR-121.

CS-195 Multimedia for the Web
3 credits, Winter

Working with and exploring emerging multimedia technologies on the web today. Emphasizes interactive multimedia created with Adobe Flash. Includes capturing multimedia through scanning, stylus and tablet, digital photography, digital video recording. Also offered online. Prerequisite: Pass CS-125H.

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, troubleshooting, help desk operation; product needs analysis, evaluation, purchases and installation; technical documentation and training skills. Also offered as an online course. Prerequisites: Pass CS-120 or placement in CS-121; pass WR-095 or placement in WR-121.

CS-226 Applications Support
3 credits, Spring

Troubleshooting Microsoft Office applications to enhance student understanding of typical problems and problem solving processes. Functions and features of installing, configuring, and maintaining Microsoft Office 2003 on the Windows XP operating system. Prerequisite: Pass CS-121 and pass CS-140.

CS-227 PC Hardware & Repair I
4 credits, Winter

Basic operational concepts, identification, installation, and configuration of microprocessors, memory, mother-boards, power supplies, floppy and hard disks, video monitors, graphics cards, and printers. System teardown and inspection, hardware and software service documentation. Prerequisites: Pass CS-140; pass MTH-065 or placement in MTH-095.

CS-228 PC Hardware & Repair II
4 credits, Spring

Continuation of CS-227. Emphasizes using diagnostic software tools and troubleshooting advanced problems. Technical topics on sound cards, CD-ROM, hard drives, data recovery, networks, and other topics. Includes building, maintaining, and upgrading a PC. Prerequisite: Pass CS-227.

**CS-229 Network System Repair &
Troubleshooting**
4 credits, Fall

Continuation of CS-228. Hands-on training in building and servicing PC LANs. Includes network servers, hubs, routers, wiring closets, cabling, and other topics for peer-to-peer and client-server LANs, WANs, and the Internet. Prerequisite: Pass CS-228.

CS-233S Web Application Development II
3 credits, Winter

Exploration of server-side programming emphasizing database-driven web site design. Uses ASP.NET to revisit general object-oriented programming constructs, create database connectivity and highly interactive web sites. XML concepts and database techniques are discussed. Prerequisites: Pass CS-133S; or pass CS-125H & pass CS-133VB; or pass CS-125H & pass CS-161.

CS-233VB Visual Basic.NET II
3 credits, not offered every year

Continuation of CS-133VB. Creating object-oriented programs. List boxes, combo boxes, printing, saving data and objects in files, arrays, accessing database files. Prerequisite: Pass CS-133VB.

CS-234S Web Application Development III
3 credits, Spring

Use PHP and MySQL to develop dynamic Web sites for use on the Internet or Intranet. Develop web sites from simple online order forms to complex e-commerce sites. Web database building, connectivity, maintenance, and security. Prerequisites: Pass CS-133S; or pass CS-125H & pass CS-133VB; or pass CS-125H & pass CS-161.

CS-240U Operating Systems II: Linux/UNIX
3 credits, Winter

Hands-on system administration of Linux/UNIX. Installation, system configuration, user and group account management, disk formatting and partitioning, local file systems, system startup and shutdown, run levels, backup and restore, printing, basic local area networking, memory management. Prerequisite: Pass CS-140U.

CS-240W Operating Systems II: Windows
3 credits, Winter

An introduction to the current Windows client operating system. Includes installation, disks and file systems, profiles and policies, security, internetworking, remote access, printing and troubleshooting. Prerequisite: Pass CS-140 and CS-150.

CS-260 Data Structures
4 credits, Spring

Continuation of CS-162. Includes linear, linked lists, trees, abstract data types, searching and sorting algorithms, and their analysis. Prerequisite: Pass CS-162.

CS-275 Database Design
3 credits, Winter

Focuses on design of a relational database management system (RDMS). Database theory, entity-relationships, referential integrity, use of SQL for data manipulation, and database security. Uses MS Access, MS SQL Server, MySQL and Oracle. Prerequisite: Pass CS-135DB.

CS-279N LAN I: Novell Administration
4 credits, Winter

Hands-on, in-depth look at Novell networks with an emphasis on system administration. Design, configuration, security issues, performance issues, troubleshooting of the Novell network operating system. Prerequisites: Pass CS-140 & pass CS-179.

CS-279W LAN I: 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: Pass CS-179 & pass CS-240W.

CS-280 Computer Science/CWE
3-6 credits

Fall/Winter/Spring/Summer
Cooperative work experience. Provides supervised work experience to supplement the school experience from the academic classroom environment. User support, work with computer applications or programming languages, install or manage PC computer systems, and website development. Required: Instructor consent & a CWE seminar. Prerequisites: Pass CS-121, pass CS-140 & pass CS-160.

CS-284 Network Security
3 credits, Spring

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

CS-287X Microsoft Exchange Server
3 credits, Winter

Introduction to installation, administration, and troubleshooting Exchange Server. Topics include Internet mail protocols, Exchange Server architecture, installation, management, and security. Prerequisite: Pass CS-279W or network administration experience.

CS-288W LAN II: TCP/IP
4 credits, Fall

Issues with forming an internet by connecting multiple Windows LANs. Emphasizes TCP/IP protocols including DHCP, DNS, ARP, IPsec and routing protocols. Also covers connections to the Internet, web servers, and security issues. Hands-on experience with hardware and software. Prerequisite: Pass CS-279W.

CS-289A Web Server Administration: Apache Web Server
3 credits, Spring

Introduction to Apache Web Server. Covers installing, administering, securing, and troubleshooting Apache Web Server running on Linux. Additional topics include http, https, ftp protocols, and FrontPage extensions. Prerequisite: Pass CS-240U.

CS-289I Web Server Administration: Internet Information Server
3 credits, Winter

An introduction to Microsoft Internet Information Server (IIS) running on Windows Server. Covers installation, administration, security, and troubleshooting IIS. Additional topics include http, https, ftp protocols, and FrontPage extensions. Prerequisite: Pass CS-240W or network administration experience.

CS-297N Network Capstone
4 credits, Fall/Winter/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

Continuation of CS-195, culminating in a portfolio. Students submit a project proposal to be admitted. Project involves web design, client-side, and/or server-side applications, demonstration of digital imaging, streaming media, multimedia concepts. Prerequisite: Pass CS-195 and CS-133S; or pass CS-195 and CS-135I.

CW

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

Computer Science Workshops**CW-050 Introduction to Windows**
0 credit, Fall/Winter/Spring/Summer

A nuts-and-bolts workshop for those who have little or no experience with computers. It (or equivalent experience) serves as a prerequisite for most other workshops.

CW-052 Electronic Spreadsheets
 0 credit, Fall/Winter/Spring/Summer
 Includes Levels I, II and III of Microsoft Excel 2003.

CW-053 Web Design
 0 credit, Fall/Winter/Spring/Summer
 Workshops offered include Levels I & II of FrontPage 2003.

CW-054 Word Processing
 0 credit, Fall/Winter/Spring/Summer
 Workshops include Levels I, II, and III of Microsoft Word 2003.

CW-055 Software Applications
 0 credit, Fall/Winter/Spring/Summer
 Workshops include Levels I and II of Microsoft Powerpoint 2003.

CW-056 Database Applications
 0 credit, Fall/Winter/Spring/Summer
 Workshops offered include Levels I, II, and III of Microsoft Access 2003.

CWE

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

Cooperative Work Experience

CWE-010 Pre-Cooperative Work Experience
 2-6 credits
 Fall/Winter/Spring/Summer
 For students who are undecided on a major. Opportunity for career exploration.

CWE-281 Cooperative Work Experience Seminar I
 0 credit, Fall/Winter/Spring/Summer
 Prepares students for career success. Uses on-the-job learning experience and case studies to stimulate decision making and discussion. Corequisite for program specific CWE courses.

CWE-282 Cooperative Work Experience Seminar II
 0 credit, Fall/Winter/Spring/Summer
 Emphasis on job-related situations and experiences. Case problems introduced to stimulate decision making and discussion. Special projects. Prerequisite: CWE-281. Corequisite for program specific CWE courses.

CWE-283 Cooperative Work Experience Seminar III
 0 credit, Fall/Winter/Spring/Summer
 Includes organizing and presenting a career related project to the seminar group. Prerequisite: CWE-282. Corequisite for program specific CWE courses.

CWE-284 Cooperative Work Experience Seminar IV
 0 credit, Fall/Winter/Spring/Summer
 Applicable in a limited number of programs. Corequisite for program specific CWE courses.

Professional/Technical Cooperative Work Experience Classes:

- Accounting..... BA-280
- Administrative Office Assistant..... BA-280
- Administrative Medical Office Assistant..... BA-280
- Administrative Office Professional... BA-280
- Auto Body Refinishing..... ABR-180
- Auto Collision Repair/Refinish..... AB-280
- Auto Mechanics..... AM-280
- Building Construction..... BC-280
- Business Management..... BA-280
- Business/Accounting & Accounting Clerk..... BA-280
- Business/Marketing..... BA-280
- Business/Medical Assistant..... BA-280
- Business/Medical Receptionist..... BA-280
- Business/Administrative Office Assistant..... BA-280
- Computer Science.....CS-280
- Corrections.....CJA-280
- Crime Analysis.....CJA-280
- Criminal Justice.....CJA-280
- Drafting..... CDT-280
- Early Childhood Education..... ECE-280
- Electronic Publishing..... BA-280
- Electronics Systems Tech..... SM-280
- Employment Skills Training..... EST-180
- Energy & Resource Management.. ERM-180
- Fire Science.....FRP-180/280
- Gerontology.....HS-280G
- GIS (Geographic Information Systems)..... GIS-280/281
- Health.....HE-280
- Horticulture.....HOR-280/281/282
- Human Resource Mgt..... BA-280
- Human Services-Generalist HS-280/281/282
- Juvenile Corrections.....CJA-280
- Landscape.....HOR-281
- Manufacturing.....MFG-280
- Marketing..... BA-280
- Microelectronics Systems Tech..... SM-280
- Music Technology..... MUS-280

- Network & Microcomputer Specialist.....CS-280
- Occupational Skills Training..... OST-180
- Paraeducator..... ED-280
- Project Management..... BA-280
- Retail Management..... BA-280
- Tutoring CWE..... HD-280
- Water & Environmental Tech.....WQT-180
- Web Design.....CS-280
- Welding Technology.....WLD-280

Transfer Program Cooperative Work Experience Classes:

- Anthropology.....ANT-280
- Art.....ART-280
- Business Administration..... BA-280
- Biology.....BI-280
- Criminal Justice /Corrections...CJA-280/281
- Education..... ED-280
- English..... ENG-280
- Geology..... G-280
- Geography.....GEO-280
- Health.....HE-280
- History.....HST-280
- Journalism/Public Relations.....J-280
- Mathematics.....MTH-280
- Music.....MUS-280
- Physical Education.....PE-280
- Physics.....PH-280
- Political Science.....PS-280
- Psychology.....PSY-280
- Religion.....R-280
- Sociology.....SOC-280
- Speech.....SP-280
- Spanish.....SPN-280
- Theatre Arts.....TA-280

DA

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

Dental Assistant

DA-101 Dental Radiology I 3 credits, Fall

Introduction to history and principles of dental radiology, terminology, basic physics associated with x-rays, biological effects of x-rays, anatomical landmarks and infection control. Includes practical instruction in radiation health and safety, types of film and holders, darkroom processing, film mounting, use of x-ray equipment, infection control techniques, disposal of hazardous waste, and exposure techniques on x-ray manikins. Required: Instructor consent.

DA -102 Dental Radiology II 1 credit, Winter

Advanced principles of radiology techniques emphasizing extra-oral radiography, techniques for children, patients with special needs, occlusal examinations, identification of radiographic abnormalities, medical health history and infection control. DANB clinical proficiency criteria will be followed to prepare for Oregon Clinical Radiologic Proficiency Exam. Students meeting radiographic competency on x-ray manikin will begin preparation for radiologic proficiency exam. Required: Instructor consent. Prerequisite: Pass DA-101 with a "C" or better.

DA-104 Clinical Procedures I 3 credits, Fall

Introduction and practice of basic chair-side assisting and general procedures which are taught in a dental lab setting. Includes lectures and discussion of the dental professional, dental law, ethics and patient records. Required: Instructor consent.

DA-105 Clinical Procedures II 3 credits, Winter

Further knowledge of chair-side skills. Covers expanded function procedures. Introduces patient health education, oral hygiene instruction, fluoride treatment and plaque-related diseases, sealants and coronal polishing. Required: Instructor consent. Prerequisite: Pass DA-104 with a "C" or better.

DA-106 Clinical Procedures III 2 credit, Spring

Introduction to basic procedures, tray set-up and dental materials of dental specialties: pedodontic, orthodontic, periodontics, oral surgery and endodontics. Continue to perfect EFDA skills. Preclinical instruction in amalgam and composite polishing will be taught. Required: Instructor consent. Prerequisite: Pass DA-105 with a "C" or better.

DA-107 Dental Materials I 3 credits, Fall

Introduction to physical and chemical properties of dental restorative materials. Includes manipulation, storage and disposal of hazardous dental materials and dental cements. Amalgam and composite procedures are taught and practiced in a laboratory setting. Required: Instructor consent.

DA-108 Dental Materials II 2 credits, Winter

Introduction to properties, uses and manipulation of impression materials, gypsum products and waxes. Includes instrumentation and procedures for fixed and removable prosthodontics, and provisional restorations. Fabrication of custom trays, bleaching trays and provisional restoration will also be covered. Required: Instructor consent. Prerequisite: Pass DA-107 with a "C" or better.

DA-110 Clinical Practicum I 1 credit, Fall

Clinical practicum begins in the seventh week of class. Apply basic dental assisting procedures taught in weeks one through six. All protocols are followed to allow for student and patient safety and protection. A minimum of 8 supervised unpaid hours per week is required for term one practicum. Participate in two seminars held during the term. Required: Instructor consent.

DA-115 Dental Science 1 credit, Fall

Introduction to anatomy and physiology including major body systems, head and neck anatomy, oral embryology and histology, tooth morphology, oral pathology and dental charting. Required: Instructor consent.

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 EFDA skills. Implement infection control protocols. Introduce basic business office procedures. Ten hours of community service will be required. Participate in three seminars during the term: orientation seminar, mid-term seminar, and concluding seminar. May not be challenged. Required: Instructor consent. Prerequisite: Pass DA 110 with a "C" or better.

DA-125 Dental Infection Control 1 credit, Fall

Introduction to microbiology, infection control, cross-contamination, instrument processing, methods of sterilization, and instrument storage. Covers OSHA standards of Hazard Communication and Bloodborne Pathogens. Implement management of Material Safety Data Sheets and labeling of hazardous materials. Required: Instructor consent.

DA-130 Clinical Practicum III 8 credits, Spring

Supervised unpaid practice and improvement of advanced clinical skills in all areas of chairside dental assisting, laboratory procedures, specialties, radiology and EFDA procedures. A minimum of forty-four hours performing business office procedures will be required. Responsible to meet ten hours of community service. Participate in three seminars during the term: orientation seminar, mid-term seminar, and concluding seminar. Required: Instructor consent. Prerequisite: Pass DA-120 with a "C" or better.

DA-135 Pharmacology/Medical Emergencies**1 credit, Winter**

Introduction to pharmacology, uses, types, purpose and composition of drugs used in dentistry. Medical emergency signs/symptoms, vital signs, emergency equipment and protocol will also be covered. Required: Instructor consent.

DA-145 Dental Office Procedures**2 credits, Spring**

A specialized study of dental business office procedures associated with desk and dental office management responsibilities. Includes employment strategies. Required: Instructor consent. Prerequisite: Pass CS-120 with a "C" or better.

EC***Economics*****EC-115 Introduction to Basic Economics**
4 credits, not offered every year

Surveys principles of economics, government and institutional economics and related policies, and international issues. Includes economic history, the concepts of supply and demand and opportunity costs. Recommended: Pass RD-090 or placement in RD-115.

EC-200 Introduction to Economics
4 credits, not offered every term

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. Recommended: Pass RD-090 or placement in RD-115.

EC-201 Principles of Economics: MICRO
4 credits, Fall/Winter/Spring

Focuses on micro-economic theory dealing with the behavior of individuals and individual firms within different market structures. Covers concepts of competition, consumer decisions, the use price of economic resources, and international trade. Recommended: Pass RD-090 or placement in RD-115.

EC-202 Principles of Economics: MACRO
4 credits, Fall/Winter/Spring

Introduction to economic theory, policy, and institutions. Focuses on macro-economic theory, scarcity, production, money, unemployment, inflation, and international finance. Recommended: Pass RD-090 or placement in RD-115.

EC-215 American Economic History
4 credits, not offered every year

Studies the historical development of economic institutions in the United States. Includes industry, agriculture, transportation, labor and financial institutions. Recommended: Pass RD-090 or placement in RD-115.

EC-216 Introduction to Labor Economics
4 credits, not offered every year

Introduces the theory and policy of labor power economics. Explores the history of workers in America as they have been affected by political transitions, labor organizations and conflict with management. Recommended: Pass RD-090 or placement in RD-115.

EC-230 International Economics
4 credits, not offered every year

An exploration of international trade and finance from the era of mercantilism to contemporary times. Global issues using historic events, theoretical explanations and the methodology of economics. Recommended: Pass RD-090 or placement in RD-115.

ECE

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

Early Childhood Education**ECE-150 Introduction & Observation in Early Childhood Education**
3 credits, Fall

Focuses on the history of early childhood education, the value and use of objective observations as a teaching tool, how to plan and adapt your program's goals/objectives for each individual child/family. Includes systematic, weekly observations of children.

ECE-154 Language & Literacy Development**3 credits, Winter**

An overview of children's literature including availability, purpose, ways to improve its use, and appropriateness in school situations. Children's books will be read and evaluated in story groups.

ECE-175 Infant/Toddler Caregiving
1 credit, Summer

Presents skills and knowledge to manage quality care in group settings. Four modules: 1. Learning & Development; 2. Group Care; 3. Social Emotional Growth; 4. Family & Provider Relationships. May be repeated up to 3 credits.

ECE-209 Theory & Practicum
3 credits, Winter

Develops leadership potential through classroom discussion/field experience at the CCC on-site child care center. Students will gain experience and become oriented to various roles and responsibilities of the early childhood care and education practitioner; work with young children in an organized setting; assist with supervision of observation/assessment and guidance techniques.

ECE-239 Helping Children & Families Cope with Stress
3 credits, Spring

Explore stressors in society that can affect children and families; the effects of stress on children and families and ways to help them cope.

ECE-240 Lesson & Curriculum Planning
3 credits, Winter

Plan daily/weekly activities for early childhood care and education programs. Includes methodologies and materials to be used in planning programs which encompass the whole child's creative learning needs: emotional, social, cognitive, and physical.

ECE-280 Early Childhood Education/CWE
3 credits, Spring

Provides students with on-the-job experience in the field of early childhood education. Gain experience in various roles and responsibilities of early childhood educator/caregiver while working with young children in an organized setting, observation/assessment and curriculum development. Must have completed a minimum of 9-12 credits in ECE and Family Studies.

ED**Education**

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

ED-100 Introduction to Education

3 credits, Fall/Winter/Spring/Summer

Examines teaching as a profession. Provides opportunities for direct experience with, and analysis of, educational settings. Explores current issues in education and characteristics of effective schools.

ED-113 Instructional Strategies in Reading and Language Arts

3 credits, Winter

Introduces the nature of the reading process and presents a systematic approach to language arts instruction. Students learn to link literacy instruction and assessment to state content standards.

ED-114 Instructional Strategies in Math and Science

3 credits, Spring

Introduces the development of math and science concepts and presents a systematic approach to math and science instruction. Students learn to link math and science instruction and assessment to state content standards.

ED-120 Leadership Development I

3 credits, Fall, not offered every year

First of a three term sequence designed to develop leadership skills. Explores classical and modern theories with practical applications. Develop a personal leadership philosophy; conceive and articulate a vision, lead with goals; use logic and creativity in decision making. May be taken in any sequence. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ED-121 Leadership Development II

3 credits, Winter, not offered every year

Second of a three term sequence designed to develop leadership skills. Explores classical and modern theories with practical applications. Continuing development of a personal leadership philosophy; time management; conducting effective meetings; empowering and delegating. May be taken in any sequence. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ED-122 Leadership Development III

3 credits, Spring, not offered every year

Third of a three-term sequence designed to develop leadership skills. Explores classical and modern theories with practical applications. Finalizing a personal leadership philosophy; initiating change; managing conflict; leadership ethics; servant leadership. May be taken in any sequence. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ED-130 Comprehensive Classroom Management

3 credits, Spring

Distance Learning: Online. Provides current theory and methodology for managing small and large groups of students so that students choose to be productively involved in instructional activities. Covers the four major factors or skill areas of effective classroom management: 1) understanding students' personal/psychological and learning needs, 2) establishing positive adult-student and student-student relationships, 3) implementing instructional methods that facilitate optimal learning, and 4) using organizational and group management methods that maximize positive student behavior and learning.

ED-131 Instructional Strategies

3 credits, Fall

Distance Learning: Online. This introductory course for educators focuses on the components of effective instruction. Students will design standards based activities that integrate multiple content areas, address the instructional needs of diverse learners and include appropriate strategies for assessment.

ED-150 Creative Activities for Children

3 credits, Fall/Winter/Spring/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

An introduction to the disabling conditions of students with special needs and their implications in school settings. Defines and identifies intervention strategies for disabilities covered under federal law.

ED-200 Foundations of Education

3 credits, Winter

This course provides an overview of the American Educational System, including historical, legal and philosophical foundations. Students will explore the governance of local schools and districts and will consider the roles and ethical obligations of professional educators.

ED-210 Electronic Portfolio

1 credit, not offered every term

Focuses on professional portfolio development to document educational experience and expertise. Opportunity to develop a professional portfolio. Includes portfolio demonstrations.

ED-229 Learning and Development

3 credits, Fall/Winter/Spring/Summer

This course addresses current theory regarding human development, intelligence, motivation, and the learning process. Students learn to apply strategies and techniques derived from these theories. (formerly Psychology of Learning)

ED-235 Educational Technology

3 credits, Summer

This course trains students in the preparation and use of media and technology in school settings. Students will develop an understanding of the role of media in learning and methods for incorporating media in instruction.

**ED-246 Family & Community Relations/
ECE****4 credits, Spring**

Provides the knowledge and skills required to work effectively with schools, families and communities in early childhood PK-3 settings via use of conferences, meetings and other resources (including internet research.)

**ED-254 Instructional Strategies for English
Language Learners****3 credits, Spring**

This course examines pedagogical and cultural approaches which lead to successful acquisition of English language skills and content knowledge.

ED-258 Multicultural Education**3 credits, Fall/Winter/Spring/Summer**

This course covers the philosophy, activities, and techniques appropriate to a culturally sensitive classroom. Students will develop an understanding of the impact of culture on individual perception and learning and group dynamics.

ED-268 Educating Mild/Severely Disabled**3 credits, not offered every term**

Introduces theory and technique for working with handicapped students. Addresses services and funding provided for mildly and severely handicapped students. Required: Program coordinator consent.

ED-270 Practicum I**4 credits, Fall**

Focuses on field experience in a variety of classroom activities directly related to assisting and supervising children in school settings. Allows students to apply knowledge, methods, and skills gained from education courses. Seminars cover classroom experience, problem solving techniques, and materials. Prerequisites: ECE-280 or ED-280.

ED-271 Practicum II**4 credits, Winter**

Focuses on field experience for students in a variety of classroom activities paralleling duties regularly assigned to educators supervising children in school settings. This course allows students to apply knowledge, methods, and skills gained from education courses. Seminars cover classroom experience, best practices and assessment techniques. Prerequisites: ECE-280 or ED-280, and ED-270.

ED-272 Practicum III**4 credits, Spring**

This course provides an educational field experience in a classroom setting for students pursuing careers in education. Prerequisites: ECE-280 or ED-280, and ED-270, ED-271.

ED-280 Practicum/CWE**2-6V credits****Fall/Winter/Spring/Summer**

Supervised practicum in a school setting. Students will utilize and develop knowledge, skills and attitudes relevant to working in a school and with children. Prerequisite or co-requisite: ED-100.

EE**Electrical
Engineering****EE-221 Electrical Circuit Analysis****5 credits, Spring**

Experimental laws, network theorems, and useful computer analysis techniques of electrical circuit analysis. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-252.

EET

Courses with this prefix may not transfer with credit to a four-year institution unless applied as part of the 12 allowable professional 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 Systems Technology program. Many of these classes can be customized to meet the needs of the industry. For additional information on a customized class for your company, contact the Customized Training Department at ext. 3523.

**EET-112 Electronic Test Equipment &
Soldering****1 credit, 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 principals 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, Fall**

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, MTH-050.

EET-215 Principles and Applications of Manufacturing Equipment Technology
2 credits, Fall

This course emphasizes applied electro-mechanical principles and motors. Covers theory, operation and application of force, work, rate, resistance, energy power and force transformers. AC and DC motors also covered. Prerequisite or co-requisite: EET-137.

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.

EET-230 Lasers and Fiber Optics
3 credits, Spring

This course focuses on basic theory and practice of laser and fiber optics. Students study optical fiber, optical components, testing and instrumentation, optical networks, etc. as well as general characteristics of lasers, laser excitation, semiconductor lasers, etc.

EET-239 Principles of Troubleshooting II
2 credits, Fall

Covers advanced applications of diagnosis, service, maintenance and repair of systems. Also includes preventative maintenance, applied statistical process control and RF power generation. Recommended: EET-139.

EET-250 Linear Circuits
3 credits, Winter

Introduction to the operation and functions of operational amplifiers and linear devices. Design and circuit analysis of op-amps, comparators, converters and special purpose linear devices. Industry standard devices will be used. Prerequisite: EET-137. Recommended: EET-127.

EET-252 Control Systems
3 credits, Winter

Covers basic control system and sub-systems used in the electronics industry covering programmable controllers, sensors, transducers, motion and motor control systems. Recommended: EET-157, EET-127.

EET-254 Introduction to Microcontrollers
4 credits, Winter

Introduction to processor architecture and microcontrollers. Internal structure, registers, busses, control unit. Clock, machine and instruction cycling timing, interrupts and DMA. Instruction set, mnemonics, functions, and assembly language programming. Interfacing to external memory and I/O on-chip peripherals. Prerequisite: EET-157; Recommended: EET-257.

EET-257 Digital Logic II
4 credits, Spring

Bus systems and computer peripherals and systems using latches, registers, counters, and memory circuits are developed and analyzed. Prerequisite: EET-157.

EL**Study Skills**

See also Reading (RD)

EL-103 Taking Effective Notes
1 credit, not offered every term

Designed to help students develop effective note taking skills. Several note taking systems are introduced and practiced.

EL-111 College Study Skills
3 credits, Fall/Winter/Spring

Emphasizes time management, listening/notetaking, testing skills/anxiety, library resources, learning styles, study/reading textbooks, concentration. Prerequisite: Placement in RD-090.

EMT

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

Emergency Medical Technology**EMT-101 EMT Basic Part I**
5 credits, Fall/Winter/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: introduction to EMS, airway management, and patient assessment. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121, and placement in MTH-065. Prerequisite: AHA CPR Health Care Provider or equivalent.

EMT-102 EMT Basic Part II
5 credits, 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: Pass EMT-101.

EMT-105 Introduction to Emergency Medical Services
3 credits, Fall/Spring

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-106 Emergency Communication & Patient Transportation
3 credits, Spring

Covers EMS operational areas including: Emergency communications and radio use techniques, ambulance operation, maintenance, laws and safety, emergency response and driving techniques, route planning, communications systems, and more. Prerequisite: Pass EMT-101.

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: Pass EMT-101.

EMT-114 NREMT – Basic Recertification
5 credits, Winter

Designed for the EMT student who needs to re-register with the NREMT, may have allowed certification to lapse, or needs additional instruction in order to pass the certification test. Prerequisite: Current certification as an EMT or pass EMT-101.

EMT-116 Oregon EMT Intermediate Part I
5 credits, Fall

Theory and practice of the EMT Intermediate in the state of Oregon. Focus on: airway management, IV therapy, pharmacology, drug calculations. Successful completion required to sit for state certification examination. Prerequisites: Current State of Oregon EMT-Basic certification in good standing, AHA Healthcare Provider CPR or equivalent, and EMS agency affiliation with medical director letter of recommendation.

EMT-117 Oregon EMT Intermediate Part II
5 credits, Winter

Continuation of EMT-116. Focus on: cardiac and other medical emergencies, and trauma management. Prerequisite: Pass EMT-116.

EMT-214 NREMT – Paramedic Recertification
3 credits, not offered every year

Provides recertification requirements for EMT-Paramedics registered with NREMT. This course also fulfills the requirements for Oregon paramedic recertification. Prerequisite: Current or expired EMT-P certification, or successfully completed a Paramedic course.

EMT-230 EMT Advanced Skills Integration
3 credits, Spring/Summer

Enhances the knowledge of all basic level pre-hospital care providers and improves understanding of ALS procedures. Designed for the EMT who assists advanced providers in pre-hospital care, is interested in working for an EMS agency, or wants a prep class before beginning an EMT-I or EMT-P program. Additional clinical hours with EMS agency required. Prerequisite: Current certification as an EMT or pass EMT-102.

ENG**English****ENG-104 Introduction to Literature: Fiction**
4 credits, Fall/Winter/Spring/Summer

Introduction to American and international short fiction. Note: Certain sections of ENG-104 are offered online. Recommended: Placement in RD-115; pass WR-095 or placement in WR-121.

ENG-105 Introduction to Literature: Drama
4 credits, Fall/Winter/Spring/Summer

Introduction to American and international drama. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-106 Introduction to Literature: Poetry
4 credits, Fall/Winter/Spring/Summer

Introduction to American and international poetry. Note: Certain sections of ENG-106 are offered online. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-107 World Literature
4 credits, Fall

The Ancient World: epic, lyric, and dramatic literature with emphasis on Greek, Roman, Egyptian, Hindu, and Hebrew works. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-108 World Literature
4 credits, Winter

The Dark Ages through the Enlightenment, emphasizing Cervantes, Dante, and Voltaire. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-109 World Literature
4 credits, Spring

The Romantics through modern times, ranging from Russia to Nigeria and Colombia. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-121 Mystery Fiction
4 credits, not offered every year

Detective fiction: mystery novels and short stories. Analysis of the different styles and fictional techniques of such writers as Poe, Doyle, Christie, Stout, Marsh, Lathen, Sayers, and Chandler. Recommended: Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-125 Oregon Literature
4 credits, not offered every year

Representative study of Oregon writers in fiction, poetry, creative nonfiction, and other styles. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-195 American Film
4 credits, not offered every term

Focus on the history and theory of American film making from 1895 to the present. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-201 Shakespeare
4 credits, Fall

Study of significant plays and sonnets. Selected comedies, histories and tragedies covered each term. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-202 Shakespeare
4 credits, Winter

Study of significant plays and sonnets. Selected comedies, histories, and tragedies covered each term. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-203 Shakespeare
4 credits, Spring

Study of significant plays and sonnets. Selected comedies, histories, and tragedies covered each term. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-204 Survey of English Literature
4 credits, Spring

Seventh to 17th century. Representative readings from the Anglo-Saxon (beginning with Beowulf), Middle English, Renaissance, Earlier Seventeenth Century, and Restoration periods (through Pope, Swift, Johnson). Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-205 Survey of English Literature
4 credits, Fall

Late 18th century to modern. Representative readings from the Romantic (beginning with Blake), Victorian, and modern periods (through Eliot, Auden, and Thomas). Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-206 Survey of English Literature
4 credits, Winter

Thematic study of representative works of British literature. Theme changes yearly. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-210 Modern American Indian Literature
4 credits, not offered every year

Emphasizes contemporary fiction and poetry, including works of James Welch, Leslie Silko, and Scott Momaday. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-213 U.S. Latino Literature
4 credits, Spring

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. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-215 Literature of the Beat Generation
4 credits, not offered every year

Introduction to the Literature of the Beat Generation, from 1956 to present. Examines representative works and biographical profiles of the primary figures of the movement. Explores historical and cultural roots and legacies of these writers. Note: Certain sections of ENG-215 are offered online. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-216 Comics and Literature
4 credits, not offered every term

Examines the intrinsic literary and artistic qualities of the comics, as well as the literature and other art they have inspired. Note: Certain sections of ENG-216 are offered online. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-218 Arthurian Legends
4 credits, Winter

Origins and mystique of Arthurian legend from medieval to modern times. Examines issues of idealism, individualism, and spiritual renewal through discussion of knighthood, chivalry and the Holy Grail quest. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-225 Creative Nonfiction Literature
4 credits, not offered every term

Discussion and analysis of various types of creative nonfiction such as literary journalism, memoirs, nature or science writing, literary travel writing, and personal essays. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-240 Native American Mythology
4 credits, not offered every term

The mythic narratives of Native America. Provides historical, environmental, social, and psychological contexts. Explores both universals and uniqueness in human experience through critical theory. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-250 Greco-Roman Mythology
4 credits, Fall

Analysis of the themes and structures of the myths of the ancient Greek and Roman cultures; study of the influence on the cultures that followed. Insight into the social, psychological, and aesthetic nature of mythology. Introduction to theoretical approaches to myth interpretation. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-251 Celtic Mythology
4 credits, Winter

Analysis of the themes and structures of the myths of the ancient Irish and Welsh cultures; study of the Celtic legacy. Insight into the social, psychological, and aesthetic nature of mythology. Introduction to theoretical approaches to myth interpretation. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-252 Hindu Mythology
4 credits, Spring

Analysis of the themes and structures of the myths of ancient India and their contribution to culture, history, and literature. Insight into the social, psychological, and aesthetic nature of mythology. Introduction to theoretical approaches to myth interpretation. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-253 American Literature
4 credits, Fall

Pre-Colonial to 19th century. Surveys the development of American fiction, nonfiction, poetry, and drama through the study of the works of both major and lesser known writers. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-254 American Literature
4 credits, Winter

Mid-19th century to 20th century. Surveys the development of American fiction, nonfiction, poetry, and drama through the study of the works of both major and lesser known writers. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-255 American Literature
4 credits, Spring

Focus on selected authors and works of modern American fiction, poetry, nonfiction, and drama. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-260 Introduction to Women Writers
4 credits, not offered every year

Study of women writers and women's roles in plays, poems, and fiction. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-266 The Literature of War
4 credits, not offered every year

Fiction, poetry, nonfiction, and popular song lyrics dealing with the experience of war. Writers such as Crane, Remarque, Trumbo, Heller, Vonnegut, Owen, Sassoon, and writers of the Vietnam War will be examined and discussed. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-275 The Bible As Literature
4 credits, not offered every year

Historical and literary approach to the Hebrew Bible, Apocrypha, and New Testament. Note: Certain sections of ENG-275 are offered online. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-279 Focused Drama Study
1 credit, not offered every year

Study of a professionally produced play on the page and on the stage. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-280 English/CWE
2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job experience in the field of English studies. Required: Instructor consent & a CWE seminar.

ENL

Courses with this prefix may transfer with credit to a four-year institution. Courses are intended for PIE students.

English as a Non-Native Language**ENL-117 Advanced Grammar A**
3 credits, not offered every term

Part A of a 2 part series. Presentation and practice of adverbial clauses, discourse connectors, direct and indirect speech, noun clauses and "it" in subject position in written and spoken English. Required: Instructor consent. Corequisite: PIE-070.

ENL-118 Advanced Grammar B
3 credits, not offered every term

Part B of a 2-part series. Presentation and practice of count/noncount nouns, definite/indefinite articles, modals, and conditional sentences in written and spoken English. Required: Instructor consent. Corequisite: PIE-070.

ENL-119 Advanced Reading/Writing
6 credits, Fall/Winter/Spring/Summer

Advanced level ESL students will practice academic reading, writing, and editing skills. Students generally take this course for more than one term to satisfy all requirements. Required: Instructor consent.

ENL-120 Advanced Communication Skills
3 credits, not offered every term

Develops fluency in speaking and listening in the contexts of school, work, family and community. Prepares students for success in discussions, interviews, conferences, presentations, and academic note-taking. Required: Instructor consent.

ERM

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

Energy & Resource Management**ERM-100 Orientation to Energy & Resource Management**

3 credits, Fall/Winter/Spring/Summer
Overview of the energy, utility, and resource industries' career options. Through field trips, guest speakers, and research, students will discover and report on career options in the energy and resource industries.

ERM-101 Energy & Resource Technology I: Intro

3 credits, Fall/Winter/Spring/Summer
Examine the history, development and segmentation of the energy industry in the Northwest. Research and report on the effects of regional energy policies and how they affect specific segments of the energy industry.

ERM-102 Energy & Resource Technology II: Electricity

3 credits, Winter
Focus on generation sources of electricity, transmission and final delivery to the consumer. Examine basic principles of alternating and direct current as it affects electrical flow. Research and report on strategies/components of the electrical industry.

ERM-103 Energy & Resource Technology III: Fossil Fuels

3 credits, Spring
Examine the origin and characteristics of fossil fuel and industry fundamentals in the Northwest. Research and report on strategies and components for utilizing fossil fuel.

ERM-107 Career Portfolio

3 credits, Fall/Winter/Spring/Summer
Develop and organize a portfolio to record knowledge and learning related to the energy and utility resource industries. Portfolio consists of resume, reference letters, work and learning samples, and network contacts.

ERM-108 Career Marketing Strategies

3 credits, Fall/Winter/Spring/Summer
Expand and perfect portfolio as a job-marketing tool to demonstrate knowledge, skills and abilities in the areas of: energy and resource management, computer literacy, and leadership. Plan internship and practice interviewing techniques.

ERM-170 Energy Industry Performance, Health & Safety I

1-12 credits
Fall/Winter/Spring/Summer

Discover and develop industry-approved general behavior regarding the conduct and application of health, safety and performance issues. Course and fieldwork include acquiring and applying industry knowledge, skills, and practices to current and future work conditions.

ERM-172 Energy Industry Performance Development

1-12 credits
Fall/Winter/Spring/Summer

Discover principles & concepts that govern performance development in the utility industry. Create systems for change specific performance outcomes. Focus performance development & team efficiency.

ERM-180 Energy & Resource Management/CWE

3-6 credits
Fall/Winter/Spring/Summer

Practical work experience in, and exploration of, an energy or resource company under the supervision of the instructor and employer. Required: instructor consent & CWE seminar or completion of ERM-107.

ERM-201 Energy Applications I: Renewable Energy Resources

6 credits, Fall
Access and interpret building performance, conversion technologies and the applications of renewable energy resources.

ERM-202 Energy Applications II: Leadership

6 credits, Winter
Observe the concepts of leadership and management for energy generation and distribution. Develop strategies to expand application and resources.

ERM-203 Energy Applications III: Seminar

6 credits, Spring
Energy seminar. Research and report on current developments of energy applications.

ERM-211 Energy Industry Organizational Development

1-12 credits
Fall/Winter/Spring/Summer
Discover principles and concepts that govern organizational development in the utility industry. Focus on organizational development and team concepts.

ERM-212 Energy Industry Leadership Development

1-12 credits
Fall/Winter/Spring/Summer
Discover principles and concepts that govern leadership development in energy and resource management industries. Focus on leadership and personal development.

ERM-214 Energy Industry Communication Management

1-12 credits
Fall/Winter/Spring/Summer
Discover principles and concepts to advance personal communication methods in the energy and resource management industries. Focus is on communication and personal development.

ERM-270 Energy Industry Performance, Health & Safety II

1-12 credits
Fall/Winter/Spring/Summer
In a leadership role, participate in industry-approved behavior regarding the conduct and application of specific health, safety and performance issues. Course and field work include applying and advancing industry knowledge, skills, and practices.

ERM-272 Energy Industry Performance Management

1-12 credits
Fall/Winter/Spring/Summer
Implement specific strategies that address performance in workplace utility industry. Initiate & monitor systems designed to change specific behaviors to workplace performance. Focus on management work execution and effectiveness.

ERM-280 Focused Energy & Resource Management/CWE

3-6 credits
Fall/Winter/Spring/Summer
Targeted on-the-job field experience in an energy or utility company related to the student's focused area of study. Supervised by the instructor and employer. Required: Instructor consent & CWE seminar or ERM-108.

ERM-284 Intro to Energy & Resource Management Applications

1-12 credits
Fall/Winter/Spring/Summer
Introduction to areas of interest within the energy and utility industry: electric, gas, telecommunications, water, or other alternative energy. Explore and/or experience several industry applications, document experience, and complete an agreed-upon research project.

ERM-285 Intermediate Energy & Resource Management Applications

1-12 credits
Fall/Winter/Spring/Summer
Identify, select, and explore an area of interest within the energy and utility industry: electric, gas, telecommunications, water, or other alternative energy. Complete an agreed-upon research project and document experience.

ERM-286 Advanced Energy & Resource Management Applications

1-12 credits
Fall/Winter/Spring/Summer
Focused application in the student's area of interest within the energy and resource industry: electric, gas, telecommunications, water or other alternative energy. Students work with an industry mentor to research/complete an agreed-upon project.

ESH

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

Environmental Safety & Health

ESH-100 Environmental Regulations 1-3 credits

Fall/Winter/Spring/Summer

Distance Learning: Online. This course is 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. For more info visit <http://depts.clackamas.cc.or.us/esh/>

ESH-101 Hazardous Waste Management 2 credits, Fall/Winter/Spring/Summer

Distance Learning: Online. DEQ authorized class. This class offers ways to reduce, identify, store, and dispose of hazardous waste in Oregon. Certificate of completion from CCC/DEQ. For more information visit <http://depts.clackamas.cc.or.us/esh/>

ESL

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

English as a Second Language

ESL-010 ESL Tutoring (Literacy) 0 credit, Fall/Winter/Spring/Summer

Adult students meet one-on-one or in a small group with a tutor to focus on specific learning needs. Sessions are held in various public places throughout Clackamas County, such as libraries, schools, churches, and the college campus. Tutors help to set student goals and a plan of learning. Required: Instructor consent.

ESL-018 Assess/Evaluate for New Students 0 credit, Fall/Winter/Spring/Summer

New students in the adult 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 language levels and class placement. Required: Instructor consent.

ESL-019 Educational Planning for Returning Students 0 credit, Fall/Winter/Spring/Summer

For returning students in the adult ESL program at CCC. Students meet with their instructors to review progress, re-visit goals, register for classes, and learn how to transition to other educational and training opportunities. Required: Instructor consent.

ESL-020 Life Skills 1 0 credit, not offered every year

Introduces the language necessary to function in day-to-day American society at the beginning level; listening, speaking, grammar, reading, and writing in the contexts of work, family, and community. Required: Instructor consent.

ESL-021 Life Skills 2 0 credit, not offered every year

Introduces the language necessary to function in day-to-day American society at the upper beginning level; listening, speaking, grammar, reading, and writing in the contexts of work, family, and community. Required: Instructor consent.

ESL-022 Life Skills 1 & 2 0 credit, Fall/Winter/Spring/Summer

Introduces the language necessary to function in day-to-day American society at the beginning levels; listening, speaking, grammar, reading, and writing in the contexts of work, family, and community. Required: Instructor consent.

ESL-032 Low Intermediate Conversation 0 credit, not offered every year

Low intermediate level students learn and practice speaking and listening to improve their fluency in English for living and working situations. Required: Instructor consent.

ESL-033 Intermediate Conversation 0 credit, Fall/Winter/Spring/Summer

Intermediate level students learn and practice speaking and listening to improve their fluency in English for living and working situations. Required: Instructor consent.

ESL-034 Upper Intermediate Conversation 0 credit, not offered every term

High-intermediate level students learn and practice speaking and listening to improve their fluency in English for living and working situations. Required: Instructor consent.

ESL-035 Advanced Communication Skills 0 credit, not offered every term

Advanced level students develop fluency in speaking and listening in the contexts of school, work, family and community. Prepares students for success in discussions, interviews, conferences, presentations, and academic notetaking. Required: Instructor consent.

ESL-036 Communicating with Customers 0 credit, not offered every term

For upper-intermediate and advanced level non-native speakers of English who desire employment in retail and/or customer service. Teaches the basics of customer service. Students practice customer service skills. Required: Instructor consent.

ESL-037 Conversation Skill Building 0 credit, Fall/Winter/Spring

Students practice speaking and listening to improve their fluency in English for living and working situations. Students will work with proficient English speakers in conversational settings. Required: Instructor consent.

ESL-040 Beginning Grammar 0 credit, Fall/Winter/Spring/Summer

Presentation and practice of the verb "to be," simple present verb tense, nouns, descriptive/possessive adjectives, prepositions of place and time, and simple sentence structures in written and spoken English. Required: Instructor consent.

ESL-041 Upper Beginning Grammar 0 credit, Fall/Winter/Spring/Summer

Presentation and practice of simple present and simple past, present and past continuous, adverbs of frequency, and nouns in written and spoken English. Required: Instructor consent.

ESL-042 Intermediate Grammar A
0 credit, Fall/Spring

Part A of a 2-part series. Presentation and practice of past tense, used to, future/be going to, comparative and superlative adjectives, and question forms in written and spoken English. Required: Instructor consent.

ESL-043 Intermediate Grammar B
0 credit, Winter/Summer

Part B of a 2-part series. Presentation and practice of past continuous tense and present perfect tense with time expressions and adverbs of frequency, modals of possibility, necessity and advice in written and spoken English. Review of present continuous tense. Required: Instructor consent.

ESL-044 Upper Intermediate Grammar A
0 credit, Fall/Spring

Part A of a two part series of classes designed to help upper intermediate ESL students gain knowledge and proficiency in the use of verb forms that frequently occur together, gerunds, and infinitives. Required: Instructor consent.

ESL-045 Advanced Grammar A
0 credit, not offered every term

Part A of a 2-part series. Presentation and practice of adverbial clauses, discourse connectors, direct and indirect speech, "it" in subject position, and noun clauses in written and spoken English. Required: Instructor consent. Corequisite: ESL-070.

ESL-046 Advanced Grammar B
0 credit, not offered every term

Part B of a 2-part series. Presentation and practice of count/noncount nouns, definite/indefinite articles, modals, and conditional sentences in written and spoken English. Required: Instructor consent. Corequisite: ESL-070.

ESL-047 Upper Intermediate Grammar B
0 credit, Winter/Summer

Part B of a 2-part series. Presentation and practice of adjective clauses, phrasal verbs, and passive voice in written and spoken English. Required: Instructor consent.

ESL-049 Upper Beginning Reading and Writing
0 credit, Fall/Winter/Spring/Summer

For upper beginning level ESL students who read and write at the sentence level. Students read short texts in order to improve reading skills, write a variety of sentences and put related sentences in paragraph form. Required: Instructor consent.

ESL-050 Beginning Reading/Writing
0 credit, Fall/Winter/Spring/Summer

Students who have limited knowledge of written English will practice alphabet recognition, read and write short sentences, read short paragraphs, and gain reading and scanning skills to use in everyday life and in the workplace. Required: Instructor consent.

ESL-051 Upper Beginning Reading
0 credit, Fall/Winter/Spring/Summer

For upper beginning level ESL students who read at the sentence level. Students read short texts in order to improve reading skills. Required: Instructor consent.

ESL-052 Upper Beginning Writing
0 credit, Fall/Winter/Spring/Summer

This course is designed for upper beginning level ESL students who write at the sentence level. Students will write a variety of sentences and put related sentences in paragraph form. Required: Instructor consent.

ESL-053 Intermediate Reading/Writing
0 credit, Fall/Winter/Spring/Summer

Intermediate level students focus on paragraph level writing with emphasis on reading and writing skills as needed for college courses, the workplace, and everyday life. Required: Instructor consent.

ESL-054 Upper Intermediate Reading/Writing
0 credit, Fall/Winter/Spring/Summer

Upper intermediate students will practice reading and writing skills needed to succeed in college, the workplace, and everyday life. Introduction to multiple paragraph essays. Required: Instructor consent.

ESL-055 Advanced Reading/Writing
0 credit, Fall/Winter/Spring/Summer

Advanced level students will practice academic reading, writing, and editing skills. Students generally take this course for more than one term in order to satisfy all requirements. Required: Instructor consent.

ESL-056 Intermediate Reading
0 credit, Fall/Winter/Spring/Summer

For intermediate level ESL students who read at the paragraph level. Introduction to strategies for improving reading skills as needed for more advanced ESL and college courses, in the workplace, and in everyday life. Required: Instructor consent.

ESL-057 Intermediate Writing
0 credit, Fall/Winter/Spring/Summer

For intermediate level ESL students who are ready to begin writing at the paragraph level. Strategies for improving writing skills as needed for more advanced ESL and college courses, in the workplace, and in everyday life. Required: Instructor consent.

ESL-058 Upper Intermediate Reading
0 credit, not offered every term

For upper intermediate level ESL students who read beyond the paragraph level. Development of the reading skills needed to succeed in college and in everyday life. Required: Instructor consent.

ESL-059 Upper Intermediate Writing
0 credit, not offered every term

For the upper intermediate level ESL student to develop the writing skills needed to succeed in college and in everyday life. Introduction to multiple paragraph essays. Required: Instructor consent.

ESL-060 Pronunciation
0 credit, not offered every term

For ESL students who want to sound more natural when speaking English. Focuses on increasing awareness of the sounds of American English, improving intelligibility, and producing speech more fluently. Required: Instructor consent.

ESL-061 Introduction to Pronunciation
0 credit, not offered every year

For ESL students who want to sound more natural when speaking English. Focuses on increasing student awareness of the sounds of American English, improving intelligibility, and producing speech more fluently. Required: Instructor consent.

ESL-062 Introduction to Idioms
0 credit, not offered every year

Introduction to common American idioms and slang in the context of conversation skills. For upper intermediate ESL students. Required: Instructor consent.

ESL-063 American Idioms/Slang A
0 credit, not offered every term

Part A of a 2-part series of classes. Introduces common American idioms and slang while practicing conversation skills at the upper intermediate level. Required: Instructor consent.

ESL-064 American Idioms/Slang B
0 credit, not offered every term

Part B of a 2-part series of classes. Introduces common American idioms and slang while practicing conversation skills at the upper intermediate level. Required: Instructor consent.

ESL-067 Video and Conversation
0 credit, not offered every year

Intensifies intermediate/advanced ESL language skills in listening/speaking. Outside of class, students view Crossroads Café video series, complete workbook exercises. In class, practice listening for specific information, participate in pair, small group, and whole class discussions and activities. Required: Instructor consent.

ESL-070 Computer Lab
0 credit, Fall/Winter/Spring/Summer

Provides opportunities to improve English language skills by using language learning software. Required: Instructor consent.

ESL-071 ESL Skills Lab
0 credit, Fall/Winter/Spring/Summer

Provides opportunities to improve English language skills by using language learning software. Required: Instructor consent.

ESL-073 Writing Workshop
0 credit, not offered every year

For ESL students who want to improve writing skills for everyday life, the workplace and college courses. Students work individually with instructor guidance. Required: Instructor consent.

ESL-081 Upper Intermediate Reading Skills
0 credit, not offered every year

Upper intermediate level students will practice the reading skills needed to succeed in college and in everyday life. Required: Instructor consent.

ESL-082 Spelling
0 credit, not offered every term

Presents and provides opportunities to practice English spelling patterns and rules. Individualized instruction to address spelling challenges. Required: Instructor consent.

ESL-084 Vocabulary Building
0 credit, not offered every term.

Develops upper intermediate to advanced level students' vocabulary range and vocabulary acquisition skills. Required: Instructor consent.

ESL-088 Skills for College Success
0 credit, not offered every year

For upper intermediate/advanced level ESL students who plan to attend a U.S. college or university. Increase knowledge of the culture/norms of the American classroom, college schedules/catalogs, analyze course materials, improve study/test-taking skills. Required: Instructor consent.

ESR***Environmental Science*****ESR-171 Environmental Science**
4 credits, Fall/Winter

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: Pass MTH-060 with a "C" or better or placement in MTH-065; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ESR-172 Environmental Science
4 credits, Winter/Spring

Introduction to conservation issues, environmental toxicology, energy principles, environmental effects of fossil fuels and nuclear power, alternative energy sources, water conservation and management, water pollution and treatment, global warming, air pollution and control. Recommended: Pass MTH-060 with a "C" or better or placement in MTH-065; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ESR-173 Environmental Science
4 credits, Spring

Introduction to indoor air pollution, ozone depletion, environmental economics, urban environments, waste management, environmental effects of mineral development, introduced species, biological diversity, ecological succession and restoration, and environmental sustainability. Recommended: Pass MTH-060 with a "C" or better or placement in MTH-065; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

EST

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

Employment Skills Training**EST-081 Employment Skills Training Seminar**
0-3 credits

Fall/ Winter/Spring/Summer

Develop an individualized program of study to provide workplace skills and address work issues related to his/her career goal. Coursework is aimed at enhancing student employability through individualized projects and applications tailored to particular student needs.

EST-180 Employment Skills Training
2-6 credits

Fall/Winter/Spring/Summer

Provide students with a training experience related to his/her career goal. Major emphasis will be given to workplace and job specific skills. Coursework will focus on marketable skills through job site training tailored to particular student needs.

FN***Food & Nutrition*****FN-110 Personal Nutrition****3 credits, Fall/Winter/Spring/Summer**

How nutrition affects health and fitness for the individual and the family. Analysis of present diet and methods to improve food preparation and habits. Basic nutrition course for student with little or no science background. Also offered online.

FN-225 Nutrition**4 credits, Fall/Winter/Spring/Summer**

The role of nutrients in the development and maintenance of a healthy body. Students utilize computer aided analysis of own diet for nutritional adequacy. Examines current nutrition controversies. Strong background in life sciences recommended. Also offered as telecourse and telecourse online combination.

FR***French*****FR-101 First-Year French****4 credits, Fall**

The first year of academic French is 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. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

FR-102 First-Year French**4 credits, Winter**

The first year of academic French is 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. Prerequisite: Pass FR-101 or instructor consent.

FR-103 First-Year French**4 credits, Spring**

The first year of academic French is 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. Prerequisite: Pass FR-102 or instructor consent.

FR-111 French Conversation**3 credits, not offered every year**

Designed to offer students a review of first year structures in the context of situations encountered while traveling, i.e. ordering in a restaurant, finding lodging, giving and asking directions, etc. Emphasis is on oral proficiency and preparing for second-year French. Pass FR-103 or instructor consent.

FR-201 Second-Year French**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. Prerequisite: Pass FR-103 or instructor consent.

FR-202 Second-Year French**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. Prerequisite: Pass FR-201 or instructor consent.

FR-203 Second-Year French**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. Prerequisite: Pass FR-202 or instructor consent.

FRP

Courses with this prefix may not transfer with credit to a four-year institution unless applied as part of the 12 allowable professional 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-006 Q & A Wildland Firefighting**0 credits, Fall/Winter**

Provides an overview of wildland firefighting and the requirements to become a wildland Firefighter 2 and includes a look at life on the fire line.

FRP-107 Wildland Fire Career Portfolio**3 credits, not offered every term**

Create a job-marketing tool that integrates knowledge and skills related to the wildland fire industry. Portfolio consists of resume, reference letters, work samples and other content that can be updated according to need and opportunity.

FRP-110 Basic Wildland Fire Investigation (FI-110)**1 credit, not offered every term**

NWCG FI-110 certified. Wildland Fire Observations and Origin Scene Protection for First Responders. Introductory course for personnel first arriving at a wildland fire scene on the basics of wildland fire cause determination.

FRP-130 Intro to Wildland Firefighting**(S-130/S-190)****3 credits, Fall/Winter/Spring**

NWCG S-130 & S-190 certified. Introduces students to wildland fire behavior and the skills necessary to fight wildland fires under close supervision. No prerequisites or firefighting experience required.

FRP-131 Advanced Firefighter Training (S-131)**1 credit, not offered every term**

NWCG S-131 certified. For firefighters who wish to become qualified in the first level of supervision, Advanced Firefighter/Squad Boss, being a first responder to initial fire attack. Prerequisite: Pass FRP 130 (S-130).

FRP-180 Wildland Fire/CWE

2-6 credits

Fall/Winter/Spring/Summer

On-the-job experience in a wildland fire-fighting capacity meeting requirements as set forth in the wildland firefighting task book. Prerequisite: FRP-130. Required: Instructor consent.

FRP-200 Basic Incident Command System (I-200)

1 credit, not offered every term

NWCG I-200 certified. Introduces the student to principles associated with the Incident Command System (ICS) covering organization, facilities, resource terminology and common responsibilities associated with incident assignments. No prerequisites.

FRP-211 Portable Pumps and Water Use (S-211)

1 credit, not offered every term

NWCG S-211 certified. Practical use of portable pumps and accessories. No prerequisites.

FRP-212 Wildfire Power Saws (S-212)

2 credits, not offered every term

NWCG S-212 certified. Learn techniques and mechanics of power saws that meet the functional requirements of a power saw operator on a wildland fire incident. No prerequisites.

FRP-215 Fire Operations in the Urban Interface (S-215)

3 credits, not offered every term

NWCG S-215 certified. Meets the training needs for initial attack incident commanders and company officers confronting wildland fire that threatens life, property and improvements. Prerequisites: Pass FRP-131 (S-131)

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. No prerequisites.

FRP-217 Interagency Helicopter Training (S-217)

3 credits, not offered every term

NWCG S-217 certified. Provides basic knowledge and skills required by individuals who will be working with helicopters relative to fire and non-fire: safety, protective equipment, load calculations, landing areas, fueling, Helibase and Helispot Operations. No prerequisites.

FRP-220 Initial Attack Incident**Commander (S-200)**

1 credit, not offered every term

NWCG S-200 certified (ITC4). Provides the individual in charge of the initial attack of small, non-complex fires the training needed for readiness and mobilization, size-up the fire; and the administration requirements that must be completed by the incident commander.

FRP-230 Crew Boss (Single Resource) (S-230)

2 credits, not offered every term

NWCG S-230 certified. Meets the training needs of a crew boss on a wildland fire incident. Prerequisite: Pass FRP-131 (S-131).

FRP-231 Engine Boss (Single Resource) (S-231)

1 credit, not offered every term

NWCG S-231 certified. Develop proficiency in the performance of all duties associated with the single resource engine boss. Prerequisite: Pass FRP 131 (S-131) and FRP 230 (S-230)

FRP-232 Dozer Boss (Single Resource) (S-232)

1 credit, not offered every term

NWCG S-232 certified. Dozer safety, inspection and qualification requirements. Prerequisite: Pass FRP-131 (S-131).

FRP-236 Tactical Decision Making in Wildland Fire (S-336)

2 credits, not offered every term

NWCG S-336 certified. Provides knowledge and practice in decision making necessary to effectively apply tactical decision making in wildland fire.

FRP-239 Division/Group Supervisor (S-339)

2 credits, not offered every term

NWCG S-339 certified. Skills and knowledge required to perform the tasks of a Division or Group Supervisor as identified in the position task book, PMS 311-09. Prerequisite: Pass FRP-259 (S-330) or be a task force/strike team leader.

FRP-243 Survivor I (Map, Compass, GPS)

1-2 credits, Fall/Winter/Spring

Use maps, compass, grid locations, land descriptions, topography, distance, directions, and Global Positioning Systems (GPS). No prerequisites.

FRP-244 Survivor II (Wilderness)

1-3 credits, Fall/Winter/Spring

Be prepared to survive in the wilderness: the psychology of surviving and what to do when things go wrong. The *USAF Search & Rescue Survival Manual* is the text. No prerequisites.

FRP-245 Survivor III: Weather of the NW

2 credits, Fall/Winter/Spring

This course is designed for the wildland firefighter, mariner, hiker, hunter and others who need to know the basics of weather forecasting.

FRP-246 Survivor IV: Wilderness First Aid

2 credits, not offered every term

Covers first aid and evacuation techniques in a wilderness setting.

FRP-249 Leadership for Firefighters (L-280)

2 credits, not offered every term

NWCG L-280 certified. Develop an awareness of the human factors on the fire line, self-assess skills and abilities, and practice problem solving events in small teams. Pass FRP-130 (S-130).

FRP-259 Task Force/Strike Team Leader (S-330)

1-3 credits, not offered every term

NWCG S-330 certified. Learn to recognize, plan and implement appropriate tactics in various incident situations with various resources and identify hazards and risks and mitigate them. Prerequisites: FF1 and Pass FRP-230 (S-230).

FRP-260 Interagency Incident (S-260) Management

1 credit, not offered every term

NWCG S-260 certified. Provides the prerequisite knowledge and skills to perform the tasks of the positions in the Incident Command System (ICS) for which NWCG S-260 is required. Prerequisite: FF1.

FRP-270 Basic Air Operations (S-270)

1 credit, not offered every term

NWCG S-270 certified. A survey of the use of aircraft in fire suppression and how to conduct yourself in and around aircraft. No prerequisites.

FRP-280 Wildland Fire/Advanced CWE
2-6 credits
Fall/Winter/Spring/Summer

On-the-job experience in a wildland fire-fighting capacity meeting requirements as set forth in the wildland firefighting task book. Prerequisite: Pass FRP 180 & FRP-131. Required: Instructor consent.

FRP-290 Intermediate Wildland Fire Behavior (S-290)

3 credits, not offered every term
NWCG S-290 certified. Study of weather and environmental factors and how these factors affect wildland fires. Prerequisite: Pass FRP-130 (S-130).

G

Geology

G-101 General Geology
4 credits, Fall

For liberal arts majors. Introduces geologic principles and concepts, earth structure, igneous, sedimentary, and metamorphic rock environments; volcanic activity, and landforms. Introduction to minerals, ores, and basic types of rocks.

G-102 General Geology
4 credits, Winter

For liberal arts majors. Principles in landform development of glacial, coastal, desert, groundwater, systems, rivers and erosional processes. Earth history and environmental issues in geology. Introduction to topographic and geologic maps, structural geology, fossils.

G-103 General Geology
4 credits, Spring

For liberal arts majors. Principles of plate tectonics, earth's internal structure, seismic activity, mountain building, ocean features, earth resources. Introduction to compass work, field techniques, and GPS use.

G-119 Rocks & Minerals
3 credits, not offered every year

Introduction to the processes of rock and mineral formation. Emphasis on the geologic environments that form important ores, minerals, and basic rock types; geologic processes associated with mountain, volcanic, erosional, and sedimentary environments.

G-124 Natural History/Parks & Monuments
3 credits, not offered every year

Introduction to the natural history and geology of North America's most beautiful scenic areas. The geologic history and diversity of ecological habitats provide insight to the development of North America. Covers parks of geologic, ecological, and historical significance.

G-145 Geology of Pacific Northwest
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 geology and science majors. Introduces geologic principles and concepts, weathering, soils, earth structure, igneous, sedimentary, metamorphic rocks, volcanic activity, and landforms. Introduction to environmental geology.

G-202 General Geology
4 credits, Winter

For geology and science majors. Principles in landform development of glacial, coastal, desert, groundwater systems; rivers, erosional processes, earth history, fossils, and environmental issues. Introduction to rectangular survey, topographic and geologic maps, structural geology.

G-203 General Geology
4 credits, Spring

For geology and science majors. Principles of plate tectonics, earth's internal structure, seismic activity, mountain building, oceanography, earth resources. Introduction to Brunton compass work, field mapping techniques, GPS applications and use.

G-280 Geology/CWE
2-6 credits
Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with on-the-job work experience in the field of geology. Required: Instructor consent & a CWE seminar.

GE

General Engineering

GE-101A Engineering Problem Solving
2 credits, Fall

Introduction to basic ideas and tools of the engineering profession. Rudiments and methods of engineering analysis, design and problem solving. Emphasis on developing skills in the algorithmic method. Corequisite: MTH-251.

GE-101B Engineering Programming
2 credits, Fall

Intro to basic ideas and tools of the engineering profession. Basic preparation in rudiments and working methods of engineering design, analysis, and problem solving, with emphasis on developing skills in computer-aided problem solving methods. Intro to structured computer programming methods via MATLAB scripting language. Corequisite: MTH-251.

GE-102 Engineering Computation
4 credits, Fall

Introduction to data structures for solving engineering problems. Continues developing skills in the algorithmic method for engineering problem solving. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Corequisite: GE-101A.

GE-115 Engineering Graphics
4 credits, Spring

Mechanical design automation software used to design parts and assemblies, design methods used to build, maintain and modify parts. Covers 2-D documentation and isometric views cooperated with ASME standards. Includes real time shaded 3-D modeling. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: GE-101A.

GE-211 Statics
4 credits, Fall

First term of engineering mechanics sequence. Force analysis in structures and machines under various loading conditions. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-253. Corequisite: PH-211.

GE-212 Dynamics
4 credits, Winter

Kinematics, kinetics, work-energy, and impulse-momentum relationships of engineering systems. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisites: Pass GE-211 & pass PH-211.

GE-213 Strength of Materials
4 credits, Spring

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. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass GE-211.

GED

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

General Educational Development**GED-011 GED En Español**

0 credit, Fall/Winter/Spring/Summer
Basic academic skill development instruction offered in Spanish. Diagnostic tests determine individual academic needs. Open-entry, open-exit class offered at Campus Learning Center. Required: Instructor consent.

GED-011 GED On TV

0 credit, Fall/Winter/Spring/Summer
This course allows students to complete all requirements to take the GED test to obtain a high school equivalency certificate. Students watch the programs, complete workbooks and the five required tests. Required: Instructor consent.

GED-015 GED Preparation
0 credit, Fall/Winter/Spring

Basic academic skill development. Diagnostic tests determine individual academic needs. Students who pass General Educational Development (GED) tests receive high school equivalency certificates. Open-entry, open-exit classes offered at Tri-City Alternative Program and Young Parent Opportunity Program locations. Required: Instructor consent.

GED-049 Latino GED & Life Skills
0 credit, Fall/Winter/Spring/Summer

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. Required: Instructor consent.

GEO**Geography****GEO-100 Introduction to Physical Geography**

4 credits, Fall/Winter
Physical elements of geography and the environment in which people live. Focuses on natural processes that create physical diversity on the earth including weather and climate, vegetation and soils, and landforms. Recommended: Pass RD-090 or placement in RD-115.

GEO-110 Cultural & Human Geography
4 credits, Winter

Human population, agriculture, political patterns, language, religion, folk culture, popular culture, ethnic culture, urban landscapes, industry, and transportation. Recommended: Pass RD-090 or placement in RD-115.

GEO-130 Introduction to Environmental Geography

4 credits, not offered every term
Explores the contemporary global environmental problems such as: overpopulation, over consumption, ozone layer depletion, pollution, acid rain, deforestation, desertification, and waste problems. Examines alternative sources of energy to fossil fuel and sustainable development strategies. Recommended: Pass RD-090 or placement in RD-115.

GEO-208 Geography of the U.S. and 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. Familiarizes students with the regional similarities and differences throughout these countries. Recommended: Pass RD-090 or placement in RD-115.

GEO-230 World Regions & Landscapes
4 credits, not offered every term

Provides students with the fundamental geographical knowledge of world countries and their path towards development. Familiarizes students with the regional similarities and differences throughout the world. Recommended: Pass RD-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. Required: Instructor consent & a CWE seminar.

GER**German****GER-101 First-Year German**
4 credits, Fall

Introduction to sound system and basic structural patterns of German. Emphasis on the skills of listening, comprehension, speaking, reading, writing, and cultural similarities and differences. Recommended: Pass RD-090 or placement in RD-115. pass WR-095 or placement in WR-121.

GER-102 First-Year German
4 credits, Winter

Introduction to sound system and basic structural patterns of German. Emphasis on the skills of listening, comprehension, speaking, reading, writing, and cultural similarities and differences. Prerequisite: Pass GER-101 or instructor consent.

GER-103 First-Year German
4 credits, Spring

Introduction to sound system and basic structural patterns of German. Emphasis on the skills of listening, comprehension, speaking, reading, writing, and cultural similarities and differences. Prerequisite: Pass GER-102 or instructor consent.

GER-201 Second-Year German
4 credits, Fall

Review and expansion of basic language skills through discussion, reading, and writing of varied contemporary topics from the German language and cultural area. Prerequisite: Pass GER-103 or instructor consent.

GER-202 Second-Year German
4 credits, Winter

Review and expansion of basic language skills through discussion, reading, and writing of varied contemporary topics from the German language and cultural area. Prerequisite: Pass GER-201 or instructor consent.

GER-203 Second-Year German
4 credits, Spring

Review and expansion of basic language skills through discussion, reading, and writing of varied contemporary topics from the German language and cultural area. Prerequisite: Pass GER-202 or instructor consent.

GER-211 Intermediate German
Conversation
3 credits, Fall

Development of speaking and listening proficiency through creative activities such as discussions of excerpts from contemporary German-language media, presentations, games and interviews of classmates. Major topics and level of conversational difficulty will parallel GER-201. Prerequisite: Pass GER-103 with grade of "C" or better or instructor consent.

GER-212 Intermediate German
Conversation
3 credits, Winter

Development of speaking and listening proficiency through creative activities such as discussions of excerpts from contemporary German-language media, presentations, games and interviews of classmates. Major topics and level of conversational difficulty will parallel GER-202. Prerequisite: Pass GER-103 with grade of "C" or better or instructor consent.

GER-213 Intermediate German
Conversation
3 credits, Spring

Development of speaking and listening proficiency through creative activities such as discussions of excerpts from contemporary German-language media, presentations, games and interviews of classmates. Major topics and level of conversational difficulty will parallel GER-203. Prerequisite: Pass GER-103 with grade of "C" or better or instructor consent.

GIS**Geographic Information Systems****GIS-100 GIS Technology Survey**
2 credits, not offered every term

Identifies how GIS is used in different fields and helps students understand large-scale integration into areas such as emergency management, marketing, resource management, and infrastructure design.

GIS-131 GPS/GIS Mapping with ESRI
ArcPad
1 credit, not offered every term

ESRI's ArcPad provides portable database access, mapping, GIS and navigation functions to users in the field using handheld computers.

GIS-201 Introduction to Geographic Information System
4 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-205 Introduction to MapInfo
3 credits, not offered every term

Comprehensive MapInfo overview using geographic object editing and data analysis, emphasizing spatial queries and comparison. Includes techniques using these principles in the workplace. Prerequisite: Pass CS-120 or placement in CS-121; Pass MTH-060 or placement in MTH-065.

GIS-210 Research Techniques
2 credits, Fall

Focuses on geospatial data. How it is identified, obtained, organized, queried and managed in GIS. Covers integrating disparate data sources, industry standard formats, acquiring GPS and remotely sensed data and deriving spatial data from sources.

GIS-220 CAD Skills for GIS
4 credits, Winter

Introduction to basic CAD drawing and editing skills, their use in GIS, and the creation of CAD geometry that is compatible with GIS applications. Prerequisite: GIS 201. Instructor consent required.

GIS-232 Data Collection & Application
3 credits, Spring

Introduction to data collection techniques using global positioning systems, PDA's, and related software. Emphasis on different ways to create data through existing surveys, compilation of data from many sources. Merging data from differing sources, etc.

GIS-234 Aerial Photo Interpretation
3 credits, Spring

Introduction to the science of aerial photography, land use classification, and techniques used to interpret images, along with relevant fieldwork.

GIS-236 Visual Basic Programming for GIS
3 credits, Spring

An introduction to Object Oriented Programming and Visual Basic for Application (VBA) programming for ArcGIS. Basics of VBA and ArcObjects are explained so students can create VBA macros to customize the ArcGIS environment. Prerequisite: CS-121.

GIS-250 GIS Field Work
4 credits, Summer

Student will work on a project with a local company or agency in order to gain real-world field experience in a variety of conditions and situations.

GIS-254 Intro to ArcView GIS
1 credit, not offered every term

Provides conceptual overview and hands-on exposure using ArcView GIS software. Will create, edit, display, query and analyze geographic and tabular data to create presentation quality maps and charts.

GIS-255 Introduction to ArcGIS I
1 credit, not offered every term

Covers fundamental GIS concepts as well as how to query a GIS database, manipulate tabular data, edit spatial and attribute data clearly and efficiently using maps and charts.

GIS-280 GIS/CWE
2-6V credits

Spring/Fall/Winter/Summer

Cooperative Work Experience (co-op) is a process of education that integrates a student's classroom work with experience obtained through a cooperating employer. Required: Instructor consent.

GIS-281 ArcGIS I
5 credits, 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.

GIS-282 ArcGIS II
5 credits, Fall

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-284 GIS Software Applications
5 credits, Fall

Introduces standard techniques in typical applications of GIS, and addresses the commonalities of techniques across application areas. Corequisite: GIS 282. Prerequisite: GIS-232.

GIS-286 Remote Sensing
4 credits, Winter

This course covers the overview of data sources, methodology for remotely sensed data, application of data, and transformation of remotely sensed data into GRID. Prerequisite: GIS-234.

GIS-287 Spatial Modeling and Analysis
5 credits, Winter

Introduces answering analytical questions, the ability to overlay data sources and combine for project specific purposes. Covers spatial modeling tools to answer complex GIS questions, and the differences of analysis using vector vs. raster data. Prerequisites: GIS-284. Corequisite: GIS-288.

GIS-288 Advanced Databases for GIS
3 credits, Winter

Emphasis is on design, implementation, and documentation of enterprise GIS Databases. Students will work to create advanced database systems to enhance GIS software applications. Prerequisite: CS-121. Corequisite: GIS-287.

GIS-289 Special Project
3 credits, Spring

Design and execute a project that can be incorporated into the work experience. May be a project needed by the CWE employer or a project of interest to the student under the GIS supervisor direction. Required: Instructor consent.

GS**General Science**

See also Arts and Sciences (ASC).

GS-104 Physics
4 credits, Spring

Concepts and applications of mechanics, electricity and magnetism, waves, optics.

GS-105 Chemistry
4 credits, Fall

Develops a basic knowledge of introductory chemistry. Topics include matter and energy, models of the atom, the periodic table, naming compounds, chemical reactions, gases, liquids and solids, chemical bonding, and the mole concept.

GS-106 Earth Science
4 credits, Winter

Earth structure, plate tectonics, land form development of shorelines, deserts, mountain ranges, glaciers, deep oceans, etc. Study of minerals, rock of volcanic, sedimentary, and metamorphic origin.

GS-107 Astronomy
4 credits, Fall/Winter/Spring/Summer

Discusses the history of astronomy, the Earth and Moon, all the planets in our solar system, along with asteroids, meteors, and comets. Also offered as an online course. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121; pass MTH-095 with a "C" or better or placement in MTH-105 or MTH-111.

GS-109 Meteorology
4 credits, not offered every year

A study of the atmosphere, its composition, structure and properties with emphasis on the various processes responsible for weather, climate controls and change, and the impact of atmospheric phenomena on society.

GS-153 Introduction to Cosmology
4 credits, Spring

An introduction to modern scientific cosmology for non-science majors. Introduction to the research and developments in physics and astronomy that contributed to the modern model of the history of the universe. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

GS-160 Observational Astronomy
3 credits, Summer

Designed to introduce students to the fundamentals of observing the night sky. Students will be exposed to observational techniques and study the use of observational aids.

HD

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

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 credit.

HD-101 Service Learning Experience I
1 credit, Fall/Winter/Spring

Provides students with a service learning experience in a community setting. Students complete 22 hours of volunteer work and participate in seminars. Provides information, skill building, reflection and assessment methods. Required: Instructor consent.

HD-102 Service Learning Experience II
2-6 credits, Fall/Winter/Spring

A continuation of HD-101. Recommended: Pass HD-101. Required: Instructor consent.

HD-110 Career Planning
2 credits, not offered every term

Identify aptitudes and abilities, examine the potential job market and gain knowledge about training and educational opportunities. This course is part of the Life and Career Options Program.

HD-114 Life Planning
2 credits, not offered every term

Identify personal interests, social and interpersonal skills, home and volunteer activities and develop a plan to use the transferable skills in future employment. This course is part of the Life and Career Options Program.

HD-120 New Student College Success
1 credit, Fall/Winter/Spring/Summer

Provides strategies for creating college success including understanding self-management, increasing motivation, meaningful goal setting, controlling personal time and energy, effective study habits, use of on and off campus resources.

HD-140 Career Exploration
1-3 credits
Fall/Winter/Spring/Summer

Students use information about themselves (values, interests, personality and skills) and information about the world of work (career and industries) to make long term career decisions.

HD-141 Career Advancement/LCOP II
3 credits, Summer

Explore ways to retain jobs, enhance productivity on the job, and develop work skills to advance career opportunities beyond the current level of employment within organizations

HD-142 ADA Law at School and Work
3 credits, not offered every term

This class is a comprehensive introduction to the ADA law and its implications for people with disabilities in the academic world and the world of work.

HD-144 Assertive Communication
1 credit, not offered every term

Provides basic communication skills 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, not offered every term

Identifies specific personal stressors and focus on developing skills that enable students to deal more effectively with stress.

HD-146 Values Clarification
1 credit, not offered every term

Helps students examine beliefs, attitudes, and values behind decisions and actions. The student will examine whether behavior matches stated beliefs, evaluate the consequences of choices, and focus on clarifying a personal value system.

HD-147 Decision Making
1 credit, Fall/Winter/Spring/Summer

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-148 Dealing With Depression
1 credit, not offered every term

Introduction to causal theories, symptoms, treatments, and preventive methods for depression, a common mood disorder. Provides an opportunity to understand the impact of depression on the lives of those affected.

HD-152 Contemporary Latino Issues
1-2 credits, Fall/Winter/Spring

Reviews cultural adjustment & conflict of Latinos in the U.S. Provides tools for cultural self-assessment and achievement through review of socio-cultural issues.

HD-153 Managing Conflict in Your Life
1 credit, not offered every term

Introduction to managing conflict in a positive way. Examine personal beliefs about conflict and become more effective in solving problems.

HD-154 Building Self-Confidence
1 credit, not offered every term

Addresses elements forming and impacting self-confidence, including dealing with fear, self-esteem, personal power and establishing your center.

HD-155 Education Planning: You Decide
1 credit, not offered every term

Develop a clear awareness of life and career goals, degree options, and employment trends. Provides a basis for selecting a major and planning your education.

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 and Time Management
1 credit, not offered every term

The Procrastination and Time Management course provides students the opportunity to study their procrastination habits and time management patterns. Course will focus on components of time organization, choices re: procrastination, and methods to improve overall use of time.

HD-158 Managing Change
1 credit, not offered every term

This course is designed to enhance each student's knowledge and understanding about transition and change in their own life and others around them.

HD-190 Latino Leadership
1-3 credits, Fall/Winter/Spring

Teaches students of Latino descent intercultural and leadership skills, communication strategies, Latino History in the U.S. and the mentoring process. Course can be repeated up to 9 credits.

HD-202 Life Transitions
3 credits, Fall/Winter/Spring/Summer

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. This course is part of the Life and Career Options Program. Corequisite: HD-208.

HD-208 Career & Life Planning
3 credits, Fall/Winter/Spring/Summer

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. This course is part of the Life and Career Options Program. Corequisite: HD-202.

HD-209 Job Search Skills
1-3 credits
Fall/Winter/Spring/Summer

Use a job search plan to conduct labor market research, develop job search networking relationships, and to prepare and present applications, cover letters, resumé's, interviews, and thank you notes.

HD-210 Advanced Life and Career Options
3 credits, not offered every term

Focuses on continued development of skills necessary for academic and career success. Provides opportunities for refining interpersonal, job retention, and career advancement skills. This course is part of the Life and Career Options Program.

HD-215 Transfer Success
1 credit, not offered every term

This course is designed to assist students with all elements of the process of transferring from Clackamas to any 4-year college or university.

HD-252 Latino Issues in Higher Education
3 credits, Fall

Reviews cultural adaptation process of US Latinos and role of higher education in Latino contributions to US culture; teaches tools for cultural and educational self-assessment, and resources in higher education including career planning.

HD 280 Human Development/CWE
2-6 credits
Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with career related experience in the field of human development. Required: Instructor consent and a CWE seminar.

HDF

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

Family Studies

See also Early Childhood Education (ECE).

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-141 Parent Child Relations I: Context & History
3 credits, Winter

Course covers history of childbearing in the U.S, childrearing patterns, parent-child relations at each developmental stage, special challenges faced by parents and children and child socialization strategies to help children become increasingly more competent.

HDF-142 Parent-Child Relations II: Introduction to Parenting
3 credits, Spring

Covers topical issues related to today's diverse families including: family systems model. Uses case study methodology. Different family structures and stressors are studied including foster children, elderly parents, grandparents and immigrant parents.

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, intellectual, emotional and social growth and development of young children.

HDF-247 Preschool Child Development
3 credits, Winter

Emphasis on principles of development in children 2 to 6 years, including physical, cognitive, social and emotional growth, observation and assessment.

HDF-260 Child Abuse & Neglect
3 credits, Fall/Winter/Spring/Summer

Overview of child abuse problems for students interested in child care education and/or human services. A look at causes of abuse, abused child, abusive parents, role of teachers, areas of treatment, education, resources that can assist children and parents.

HE/HPE**Health****HE-151 Body and Drugs I**
3 credits, Fall/Winter/Spring

The first of a two-course sequence, this course examines the history of legal and illegal drug use; drug classification; the physiological and psychological impact of drugs on the body; and treatment modalities for drug abuse/addiction. This class will also review the stimulant group of drugs.

HE-152 Body and Drugs II
3 credits, Winter/Spring

The second of a two-course sequence, this course examines three drug categories (depressants, hallucinogens, and the "other" drugs), their history, their physiological and psychological impact; and their specific treatment modalities. Prerequisite: HE-151.

HE-204 Nutrition & Weight Control
3 credits, Fall/Winter/Spring

Methods of maintaining or improving fitness by considering diets and dieting, obesity, types of exercise, physical testing, cardio-vascular fitness and nutritional concepts. Also offered as a telecourse and online.

HE-205 Youth Addictions
3 credits, Winter/Spring

Increase knowledge of adolescent development and programs designed for prevention, assessment, intervention and treatment of chemically dependent youth. Investigate specific techniques for counseling youth. May be offered online. Required for Criminal Justice and Corrections students.

HE-249 Mental Health
3 credits, Fall/Winter/Spring

Examines factors which influence emotional and mental well-being. Emphasis on handling day-to-day situations in a positive, healthful manner.

HE-250 Personal Health
3 credits, Fall/Winter/Spring

Explores the interaction of health and the quality of life. Includes emotional behavior, drugs, disease, nutrition, human sexuality, cardiovascular functioning, and medical care. Also offered as a telecourse and an online course.

HE-252 First Aid/CPR
3 credits, Fall/Winter/Spring

Immediate and temporary care for injuries and sudden illness. Covers poisoning, control of bleeding, and proper methods of transportation, splinting, and bandaging. Successful completion (A or B grade) of course leads to a Red Cross Responding to Emergencies, First Aid and Community CPR Certification.

HE-255 Body & Alcohol
3 credits, Fall/Winter/Spring

Covers alcohol as a drug, problem drinking, alcohol use and its effect on family, social and economic well-being, and the rehabilitation process.

HE-261 Community CPR
1 credit, Fall/Winter/Spring

Completion of class with a passing grade of B or better entitles the student to an American Red Cross Certification in Adult, Child and Infant Cardiopulmonary Resuscitation.

HE-280 Health/CWE
2-6 credits
Fall/Winter/Spring/Summer

Cooperative work experience. Off-site work experience in a health-related occupation. Required: Instructor consent & a CWE Seminar.

HPE-295 Health & Fitness for Life
3 credits, Fall/Winter/Spring/Summer

Explores interaction of physical fitness and health. Meets three hours a week for personal fitness assessment and two hours of classroom sessions. Related topics include: nutrition, stress reduction, relaxation techniques, goal setting, and weight control.

HPE-296 Health & Fitness for Industry I
2 credits, Fall/Winter/Spring

Designed for students entering or already in physically demanding industrial occupations. Emphasis on identification and analysis of personal health and wellness issues as related to actual job setting.

HPE-297 Health & Fitness for Industry II
2 credits, Fall/Winter/Spring

Designed for students entering or already in physically demanding industrial occupations. Emphasis on identification and analysis of health and wellness issues as related to actual job site itself.

HOR

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

Horticulture**HOR-111 Horticulture Practicum/Fall**
6 credits, Fall

Aspects of practical horticulture. Emphasis on container and field nursery production, greenhouse crops, turf and landscape installation and maintenance. Practice in basic procedures of plant propagation, soil, water and fertilizer management, and transplanting. Seasonal projects parallel Horticulture classes.

HOR-114 Garden Design
1 credit, Winter or Spring

Introductory course for students to gain understanding and skills in the area of planning garden areas, including drawing skills to express garden schemes.

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.

HOR-123 Landscape Maintenance
3 credits, Fall

Principles and practices of landscape maintenance, plant growth and development, soil-water-fertilizer management, pruning, turf, pest control, diagnosis of problems in trees and shrubs, and maintenance scheduling.

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/Winter
3 credits, Winter

Emphasis on dormant pruning of fruiting and ornamental plants. Training in dormant pruning and training of grapes, fruit trees, deciduous, evergreens, ornamental trees and shrubs. Basic woody plant anatomy, growth, and development.

HOR-132 Pesticide Selection & Use
3 credits, Winter/Spring

Study of control methods for weed, insect, and disease pests affecting ornamental plants, emphasizing chemical and non-chemical control options, selection and proper application when handling pesticides is included. State testing for pesticide license and recertification credit is available. Also offered as an online course spring term.

HOR-133 Horticulture Practicum/Winter
6 credits, Winter

Aspects of practical horticulture. Emphasis on container and field nursery production, greenhouse crops, turf and landscape installation and maintenance. Practice in basic procedures of plant propagation, soil, water and fertilizer management, transplanting, pruning, pesticide application, and equipment operation.

HOR-134 Herb Growing & Gardening
1 credit, Winter or Spring

Study of herb plant propagation and garden use. Garden culture and design covered.

HOR-140 Soils & Fertilizers
3 credits, Spring

Soil characteristics and management, including nutritional elements and the relationship between the soil and plant growth.

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.

HOR-143 Horticulture Practicum/Spring
6 credits, Spring

Aspects of practical horticulture. Emphasis on container and field nursery production, greenhouse crops, turf and landscape installation and maintenance. Practice of plant propagation, soil, water and fertilizer management, transplanting, equipment operation, and maintenance. Seasonal projects parallel Horticulture classes.

HOR-144 Basic Pruning
1 credit, Spring

Why and how to prune trees, shrubs, and vines. Covers tools used for various pruning practices.

HOR-145 Turf Installation & Maintenance
3 credits, Spring

Installation and maintenance of turf grasses commonly used in landscape construction. Emphasizes select cultural practices, irrigation, weed and pest identification and control.

HOR-146 Fruit Tree Short Course
1 credit, Spring

Tree fruit recommendations for the Willamette Valley will be presented. Orchard bloom time, pruning, training, tree fruit insects and diseases, asexual propagation, harvesting, storage and uses of tree fruit will be discussed.

HOR-147 Marketing Water Efficient Landscaping
1 credit, Spring

Exploring the principles of water conservation in the landscape and how to be more profitable by selling water conservation practices to residential and commercial end users.

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
3 credits, Fall

Learn to identify and grow seasonal plants 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.

HOR-213 Computer-Aided Landscape Design
3 credits, Winter

Development of skills with LandCadd software and its use in landscape design. Computer-aided design (CAD) techniques needed to produce finished landscape designs, plant lists, and reports. Prerequisite: Pass CS-090 or placement in CS-120 & pass HOR-229.

HOR-215 Herbaceous Perennials
3 credits, Summer

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. **Oregon State University transfer course.**

HOR-220 Plant Propagation/Fall
3 credits, Fall

Proper techniques for reproducing plants from seeds, cuttings, and grafting. Emphasis on seasonal plant production. (See also HOR-233 & HOR-242.)

HOR-222 Horticultural Computer Applications
2 credits, Fall/Winter

Utilizes database, spreadsheet, word-processing, and other computer programs for record keeping and management for growers and landscape businesses. Prerequisite: Pass CS-091 or placement in CS-120.

HOR-223 Flower Arranging
3 credits, Fall

Development of skills in designing table arrangements using cut flowers, artificial, and dried flowers.

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.

HOR-225 Principles of Arboriculture
3 credits, Fall

Management of trees in landscape, including residential, commercial, and urban settings, following course materials prepared by the International Society of Arboriculture. Students study the value of trees, including ways that trees enhance the physical, aesthetic, economic, and psychological experiences of people. Preparation for the ISA Certified Arborist Exam.

HOR-226 Plant Identification/Fall
3 credits, Fall

Identification of deciduous trees, shrubs, and groundcovers, including their cultural requirements in the landscape. **Oregon State University transfer course.**

HOR-227 Plant Identification/Winter
3 credits, Winter

Identification of conifers and broadleaved evergreens, shrubs, and groundcovers, including their cultural requirements in the landscape. **Oregon State University transfer course.**

HOR-228 Plant Identification/Spring
3 credits, Spring

Identification of flowering trees, shrubs, and groundcovers, including their cultural requirements in the landscape. **Oregon State University transfer course.**

HOR-229 Basic Landscape Design
3 credits, Fall

Introduction to landscape planning, including basic drafting skills, grading, drainage, and site planning.

HOR-230 Equipment Operation & Maintenance
3 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.

HOR-231 Irrigation/Drainage Design
3 credits, Fall/Winter

Design of irrigation and drainage systems for various situations, including underground and above-ground, residential and commercial systems.

HOR-232 Commercial Floral Design
3 credits, Winter

Creating specific floral pieces including corsages, wedding and funeral arrangements using cut flowers, artificial, and dried flowers.

HOR-233 Plant Propagation/Winter
3 credits, Winter

Proper techniques for reproducing plants using cuttings, grafting, and division. Emphasis on seasonal plant production. (See also HOR-220 & HOR-242.)

HOR-234 Intermediate Landscape Design
3 credits, Winter

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. Prerequisite: Pass HOR-229.

HOR-235 Weed Identification
2 credits, Fall

Identification and life cycles of weeds commonly found in landscapes and nurseries. Up to 15 recertification credits may be granted by the Oregon Department of Agriculture toward pesticide license renewal.

HOR-236 Insect Identification
2 credits, Fall

Identification and life cycles of insects which damage ornamental plants in greenhouses, landscapes, and nurseries. Up to 15 recertification credits may be granted by the Oregon Department of Agriculture toward pesticide license renewal.

HOR-237 Disease Identification
2 credits, Winter

Identification of ornamental plant diseases which occur in greenhouses, landscapes, and nurseries. Up to 15 recertification credits may be granted by the Oregon Department of Agriculture toward pesticide license renewal.

HOR-238 Landscape Business Operations
3 credits, Winter

Includes business practices, management, organizational structures of landscape business, and application of practices to develop or manage a landscape business.

HOR-239 Tree Climber Training
2 credits, Winter

The safe use of rope and saddle tree climbing procedures will be covered through lecture, discussion, and field practice.

HOR-240 Irrigation/Drainage Practices
3 credits, Spring

Materials, equipment, and methods used to install irrigation systems in landscape areas. Emphasis on home lawns, gardens, and larger areas, including drainage methods for improved performances.

HOR-241 Nursery Management
3 credits, Spring

Essentials of nursery practices, including containers and field growing practices, crop scheduling, management, and marketing.

HOR-242 Plant Propagation/Spring
3 credits, Spring

Proper techniques for reproducing plants from seed, cuttings, division, and micro-propagation. Emphasis on seasonal plant production. (See also HOR-220 & HOR-233.)

HOR-243 Tree & Shrub Pruning/Spring
3 credits, Spring

Pruning of woody ornamentals, including trees, shrubs, vines, and groundcovers. Emphasis on pruning of spring flowering ornamentals and training new growth.

HOR-244 Environmental Landscape Design
3 credits, Spring

Design of landscapes to develop ecosystems using plants to encourage wildlife and low maintenance. Includes the proper use and installation of wildlife food plants and various water habitats.

HOR-245 Advanced Landscape Design
3 credits, Spring

Advanced skill development in drawing, site analysis, and design, including commercial and residential landscapes meeting professional standards. Prerequisite: Pass HOR-229 and HOR-234.

HOR-246 Organic Gardening
3 credits, Spring

Philosophy, writers, principles and practices of organic gardening. Organic gardening techniques appropriate to the maritime Pacific Northwest.

HOR-247 Hardscape Installation
3 credits, Spring

Materials and construction methods used in landscape hardscape development with emphasis placed on design, materials selection, construction and maintenance of hardscape features for walls, patios, lighting, fencing, decks, and water features.

HOR-248 Flower Arrangers Garden/Spring
3 credits, Spring

Learn to identify and grow seasonal plants 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.

HOR-250 Western Herbs
1 credit, Spring

This course introduces students to herbs that can be grown locally. Instruction will focus on the components and uses of herbs.

HOR-251 Herbal Products
1 credit, Spring or Summer

Instruction will be provided in making herbal teas, skin salve, tincture, infused oil, vinegar and syrup. Covers what ingredients to use and why each is important.

HOR-252 Kitchen Herbs
1 credit, Spring or Summer

Instruction will focus on how to use common herbs and spices as food and for craft. Practical instruction is provided to utilize herbs and spices.

HOR-280 Horticulture/CWE
3 credits, Fall/Winter/Spring/Summer

Cooperative work experience. On-the-job experience in the various segments of horticulture. Students enroll in co-op after completing nine credits of horticulture courses. Required: A CWE seminar.

HOR-281 Horticulture/CWE
6 credits, Fall/Winter/Spring/Summer

Cooperative work experience. On-the-job experience in the various segments of horticulture. Students enroll in co-op after completing nine credits of horticulture courses. Required: A CWE seminar.

HOR-282 Horticulture/CWE
3 credits, Fall/Winter/Spring/Summer

Cooperative work experience. On-the-job experience in the various segments of horticulture. Students enroll in co-op after completing nine credits of horticulture courses. This class is available to students in the Horticulture program who wish to use co-op as an elective credit. Required: A CWE seminar.

HPD

Courses with this prefix may not transfer with credit 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-009 CPR-Initial

0.6 ceu, Fall/Winter/Spring/Summer
American Heart Association (AHA) Healthcare Provider CPR class. For initial training of AHA Healthcare Provider (Level "C") CPR card.

HPD-009 CPR-Renewal

0.4 ceu, Fall/Winter/Spring/Summer
American Heart Association (AHA) Healthcare Provider CPR class. For re-certification of AHA Healthcare Provider (Level "C") CPR card.

HPD-009 EMT-Oregon Intermediate Bridge

5.6 ceu, not offered every term
Required certification upgrade for Oregon EMT-Intermediates. Enhances knowledge of roles and responsibilities of the OREMT-I, emergency pharmacology, venous access and medication administration, ECG interpretation and dysrhythmia management.

HPD-009 Pain Management for Nurses

0.6 ceu, not offered every term
Fulfills 6 of the 7 hours of pain management education mandated by the Oregon State Board of Nursing (OSBN). Per OSBN requirement, students will need to complete an additional one-hour course online provided by the Oregon Pain Management Commission (www.oregonpain.org/Presentation.aspx).

HPD-130 Advanced Cardiac Emergencies

1 credit, not offered every term
Develops skills at the provider level in accordance with American Heart Association Advanced Cardiac Life Support guidelines. Successful completion of the course leads to certification as an AHA ACLS Provider. Prerequisite: AHA BLS Healthcare Provider training within the past two years.

HS

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

Human Services/ Gerontology

HS-100 Introduction to Human Services

3 credits, Fall
Student will examine interpersonal skills, personal values, decisions and problems for human service trainees. Addresses stresses, demands, and rewards of working in this field. Required for Human Services degree.

HS-130 Introduction to Hospice Care

2 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 to become a Hospice Volunteer.

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, historical, political and social trends.

HS-156 Interviewing Theory and Techniques

3 credits, Fall
Provides the theory and specific techniques required for entry-level interviewing in human service settings.

HS-165 Activity Director

3 credits, not offered every term
Provides training for activity directors in long-term care and residential facilities. Focuses on therapeutic activities to promote continual growth and development in residents.

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. Pre-requisite to Human Services CWE courses.

HS-217 Career Development Facilitator I

4 credits, Fall
Presents an overview of career development theory and practice, including facilitator's role/scope of practice, career development theorists, adult development and legal/ethical issues. Covers working with diverse populations, the career development interview and helping skills.

HS-218 Career Development Facilitator II

4 credits, Winter
Overview of career assessment and labor market information in relation to career development. Includes use of assessment instruments: selection criteria, administration, and interpretation. Identification of obstacles/opportunities and research labor market information.

HS-219 Career Development Facilitator III

4 credits, Spring
Presents an overview of career decision making, goal setting, job search strategies and techniques, and workshop facilitation skills. Includes program design, promotion, and professional development options.

HS-260 Victim Advocacy and Assistance

4 credits, Fall/Winter/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-267 Intervention Strategies Working with Families

4 credits, Spring
Expands students' knowledge of working with families, using specific theories and techniques. Addresses multicultural perspective, history of family structure and effective interventions.

HS-280G Gerontology/CWE
4-6 credits, Spring

Cooperative Work Experience. On-the-job experience to acquaint gerontology students with the roles and related activities of organizations serving the elderly. This is an opportunity to apply theories and techniques learned in the classroom. Required: Instructor consent & a Human Services CWE seminar.

HS-280 Human Services Generalist I/CWE
2-6 credits, Fall/Winter/Spring

Cooperative Work Experience. Supervised experience in human services including but not limited to: social service, early childhood care, criminal/juvenile justice; gerontology, and other related occupations. Prerequisite: HS-170. Required: Instructor consent & a Human Services CWE seminar.

HS-281 Human Services Generalist II/CWE
4 credits, Fall/Winter/Spring

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. Prerequisite: HS-170. Required: Instructor consent & a Human Services CWE seminar.

HS-282 Human Services Generalist III/CWE
4 credits, Winter/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. Prerequisite: HS-170. Required: Instructor consent & a Human Services CWE seminar.

HST***History*****HST-101 History of Western Civilization**
4 credits, Fall/Winter

Origins and development of western civilization from ancient times to the 1300s. Recommended: Pass RD-090 or placement in RD-115.

HST-102 History of Western Civilization
4 credits, Winter/Spring

Origins and development of western civilization from the Renaissance to the 1800s. Recommended: Pass RD-090 or placement in RD-115.

HST-103 History of Western Civilization
4 credits, Fall/Spring

Origins and development of western civilization in the 19th and 20th centuries. Recommended: Pass RD-090 or placement in RD-115.

HST-121 Readings in European History
4 credits, not offered every year

Independent readings in European History from ancient times to ca. 1300. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass HST-101.

HST-122 Readings in European History
4 credits, not offered every year

Independent readings in European History from 1300 to 1800. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass HST-102.

HST-123 Readings in European History
4 credits, not offered every year

Independent readings in European History from 1800 to the present. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass HST-103.

HST-201 History of the United States
4 credits, Fall

Covers the period from early discovery to the Age of Jackson. Recommended sequence be taken in order. Recommended: Pass RD-090 or placement in RD-115.

HST-202 History of the United States
4 credits, Winter

Covers the period from the Age of Jackson to World War I. Recommended sequence be taken in order. Recommended: Pass RD-090 or placement in RD-115.

HST-203 History of the United States
4 credits, Spring

Covers the period since WWI. Recommended sequence be taken in order. Recommended: Pass RD-090 or placement in RD-115.

HST-238 History of Oregon
4 credits, Fall

Survey of history from the earliest days of exploration through the establishment of Portland and the economics of the 1880s. Emphasis on Lewis and Clark, founding of Astoria, era of the missionaries, Oregon Trail, and attainment of Statehood. Recommended: Pass RD-090 or placement in RD-115.

HST-239 History of Oregon
4 credits, Winter

Survey of history from the 1880s to the present. Emphasis on progressive legislation, women's suffrage, and economic development of the state. Tom McCall and his legacy, and the implications for current issues in politics. Recommended: Pass RD-090 or placement in RD-115.

HST-280 History/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with on-the-job work experience in the field of history. Required: Instructor consent & a CWE seminar.

HUM***Humanities Inquiry*****HUM-150 The Columbia Basin: Watershed of the Great Northwest**
5 credits, not offered every year

The Columbia River watershed dominates the culture and economy of the Pacific Northwest, past, present, and future. This course explores the Columbia River Basin and its natural and human history. Includes field trips. Recommended: Pass RD-090 or placement in RD-115.

HUM-151 The Columbia Basin: Watershed of the Great Northwest
5 credits, not offered every year

The Columbia River is the largest river in the western United States. This course focuses on management of the Columbia River Basin and its resources, with Portland as the metropolis of the watershed. Includes field trips. Recommended: Pass RD-090 or placement in RD-115.

HUM-152 The Columbia Basin: Watershed of the Great Northwest**5 credits, not offered every year**

Issues and opportunities associated with the Columbia River watershed are of immediate importance. This course grapples with the future of the Columbia River Basin and the living organisms (including humans) dwelling in it. Includes field trips. Recommended: Pass RD-090 or placement in RD-115.

HUM-160 Faith & Reason**5 credits, not offered every year**

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: Pass RD-090 or placement in RD-115.

HUM-161 Faith & Reason**5 credits, not offered every year**

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: Pass RD-090 or placement in RD-115.

HUM-162 Faith & Reason**5 credits, not offered every year**

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 both personal intellectual landscapes. Recommended: Pass RD-090 or placement in RD-115.

HUM-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. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-171 Metamorphoses**5 credits, not offered every year**

Explores the effect of change on individuals and societies. Helps students evaluate the probable success of various means of promoting personal, social/cultural/political, and paradigmatic change through readings in Darwin, Marx, Gandhi, and Kafka. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-172 Metamorphoses**5 credits, not offered every year**

Explores, analyzes, and evaluates the changes occurring now. Through independent study, peer instruction, website and digital portfolio development, students will examine the intersections of cultural, social, individual, religious, paradigmatic shifts happening in our own lifetimes. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-180 Pathway to Sustainability**5 credits, not offered every year**

Can we create a more sustainable and just world? We will question our assumptions regarding economic models, democracy, our relationships with the environment, and social structures? What are the roots of the current ecological crisis? Recommended: Pass RD-090 or placement in RD-115.

HUM-181 Pathway to Sustainability**5 credits, not offered every year**

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? Recommended: Pass RD-090 or placement in RD-115.

HUM-182 Pathway to Sustainability**5 credits, not offered every year**

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? Recommended: Pass RD-090 or placement in RD-115.

HUM-190 Human Nature**5 credits, not offered every year**

This course explores the complex connections between humans and nature and specifically asks, "What is human nature?" We will look at humans as biological organisms, language speakers, constructors and constructions of society and culture. Recommended: Pass RD-090 or placement in RD-115.

HUM-191 Human Nature**5 credits, not offered every year**

Explores the complex connections between humans and nature. How have we described and represented nature to ourselves? How have humans over the course of time understood themselves and interacted with the natural world? Recommended: Pass RD-090 or placement in RD-115.

HUM-192 Human Nature**5 credits, not offered every year**

Explores the complex connections between humans and nature. How have our understandings of nature and human nature changed? Do humans have unique responsibilities toward the natural world and, if so, what are they? Recommended: Pass RD-090 or placement in RD-115.

HUM-212 Introduction to Chicano/a – Latino/a Studies**4 credits, not offered every term**

This interdisciplinary course surveys the socio-historical and political-economic experiences and cultural roots of Chicano/as and Latino/as in the United States. Topics include race, class, gender, language, immigration, various social institutions (education, family, religion), labor issues, rural/urban cultures, reform and social movements, cultural resistance and expressive culture. Recommended: Pass WR-090 or placement in WR-095.

HUM-220 Modern War in American Popular Culture**4 credits, not offered every term**

Emphasizes observation, reflection, description, and critical thinking in order to gain a deeper understanding of the war in Vietnam and the Gulf War as seminal events represented in American popular culture. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-221 Science in American Popular Culture**4 credits, not offered every term**

Emphasizes observations, reflection, description, and critical thinking in order to gain a deeper understanding of the development of evolutionary theory, catastrophe theory, and historical disasters as represented in American popular culture. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-222 Civil Rights in American Popular Culture**4 credits, not offered every term**

Emphasizes observation, reflection, description, and critical thinking in order to gain a deeper understanding of civil rights history as represented in American popular culture and the ways in which concepts of civil rights have expanded. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-223 The Humanistic Tradition**4 credits, not offered every year**

Multi-disciplinary examination of major issues and topics from prehistory through the middle ages including perspectives from anthropology, history, art, literature, philosophy, religion, and science. Recommended: Pass RD-090 or placement in RD-115.

HUM-224 The Humanistic Tradition**4 credits, not offered every year**

Multi-disciplinary examination of major issues and topics from the Renaissance Enlightenment from anthropology, history, art, literature, philosophy, religion, and science. Recommended: Pass RD-090 or placement in RD-115.

HUM-225 The Humanistic Tradition**4 credits, not offered every year**

Multi-disciplinary examination of major issues and topics from 19th and 20th centuries including perspectives from anthropology, history, art, literature, philosophy, religion, and science. Recommended: Pass RD-090 or placement in RD-115.

HUM-226 Science & Religion**4 credits, not offered every term**

Examines different aspects of science and religion and how scientific inquiry affects beliefs. Discusses the historical development of astronomy, cosmology, physics, biology, and theology. Investigates the current state of questions in religion and science. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-227 Civil War & Psychology**4 credits, not offered every term**

Explores causes and effects of the Civil War, with a special emphasis on social, cultural, and economic factors. Analyzes the character and personality of civilian and military leaders of both the North and South. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-228 The Renaissance**4 credits, not offered every term**

Students gain insight into its influence on architecture, emphasis upon development of individual personality, confidence in the power of formal education, belief in citizens' participation in public life, and the rise of scientific inquiry. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-229 Latin American Studies**4 credits, not offered every term**

Survey and analysis of Latin America from pre-colonization to the modern era. Focuses on the political, social, cultural, and economic structure of Latin America. Discusses race and class relations, imperialism, revolution, neo-colonialism, and dependency theory. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-230 Gender & Material Culture**4 credits, not offered every term**

Provides in-depth study of social and cultural significance of material culture as it applies to gender, within a historical context. Focuses is on the material world of American society from the colonial era to present. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

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: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-232 Women in American History**4 credits, not offered every term**

Explores changing roles of women in American history. Emphasis on concepts of separate spheres, public/private realms, development of women's rights, role of women in reform and social movements, and women's roles and experiences across race and class. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-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: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-234 Freedom, Privacy and Technology**4 credits, not offered every term**

Investigation of how the development of computer based technologies is transforming the notion of privacy, anonymity, and individual freedom. Explores social impact of knowledge and data gathering techniques, surveillance, mass marketing, and commercialization of online world. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

J

Journalism**J-134 Photojournalism**
3 credits, Fall/Spring

Emphasizes composition, lighting, and weather conditions, and creative ways to illustrate a story. Weekly shooting assignments. Recommended: Basic photography skills.

J-211 Mass Media & Society
3 credits, Spring

Introductory class provides a study of the development and operations of media. Includes discussion of newspapers, magazines, electronic media and advertising, and public relations. Required for journalism majors at the University of Oregon. Recommended: Pass RD-090 or placement in RD-115.

J-215 Publications Lab
1 credit, Fall/Winter/Spring

Provides students the opportunity to work on *The Clackamas Print* in areas of writing, photography, editing, production, or advertising.

J-216 Reporting
3 credits, Fall/Winter/Spring

Introduces the student to the fundamentals of journalism: news gathering, newspaper style, interviewing, lead writing, news writing and the laws of libel. Prerequisite: Pass WR-095 or placement in WR-121.

J-218 Editing & Design
3 credits, Winter

Instruction in copy editing, headline writing, page design, layout, and desktop publishing.

J-220 Introduction to Broadcast Journalism
4 credits, Fall/Winter/Spring

Provides students the opportunity to develop skills needed to adapt and translate print journalism to other media via scriptwriting, video and audio production, web output and digital video editing. Recommended: Pass RD-090 or placement in RD-115.

J-226 Electronic Newspaper Production
3 credits, Fall/Winter/Spring

Weekly production of *The Clackamas Print*, the college newspaper. Students participate in an afternoon lab, producing design, layout and paste-up of the paper using desktop publishing.

J-280 Journalism/Public Relations/CWE
2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job experience and training related to journalism. Required: Instructor consent & a CWE seminar.

LIB

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

Library**LIB-101 Introduction to Library Research**
1 credit, Fall/Winter/Spring

This "research boot camp" 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: Pass CS-090 or equivalent experience.

MA

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

Medical Assistant**MA-110 Medical Terminology**
3 credits, Fall/Winter/Spring/Summer

Understanding and effectively communicating with other health care professionals. Includes pronunciation, spelling, and meaning of words. Introduction to pathophysiology/disease processes.

MA-112 Medical Office Practice
4 credits, Fall

Fundamental information pertaining to the ambulatory care setting. Examines medical law and bioethics and introduces students to the administrative and transdisciplinary skills/competencies of a Medical Assistant. Required: Instructor consent. Corequisite: MA-145.

MA-115 Phlebotomy
1 credit, Spring/Summer

Develops basic understanding and application of blood specimen collection and handling techniques used in the ambulatory care setting and hospital laboratory setting. Required: Instructor consent. Prerequisite: Pass MA-116, MA-117, MA-118 & MTH-054. Corequisite: MA-121.

MA-116 Introduction to Medications
2 credits, Winter

Medications commonly administered in the ambulatory care setting. Legal aspects of administering medications as well as therapeutic and adverse outcomes of medications. Principles of preparing and administration of oral and parenteral medications. Required: Instructor consent. Prerequisites: Pass MA-110, MA-112 & MA-145. Corequisites: MA-117, MA-118 & MTH-054.

MA-117 Clinical Lab Procedures I
2 credits, Winter

Introduces common laboratory procedures and terminology used in the ambulatory care setting. Required: Instructor consent. Prerequisites: Pass MA-110, MA-112 & MA-145. Corequisites: MA-116, MA-118 & MTH-054.

MA-118 Examination Room Techniques
3 credits, Winter

Fundamental information pertaining to the ambulatory care setting. Examines office procedures including medical asepsis, vital signs, physical exams including documentation, special exams and procedures and introduces students to the clinical and transdisciplinary skill/competencies of a Medical Assistant. Required: Instructor consent. Prerequisites: Pass MA-110, MA-112 & MA-145. Corequisites: MA-116, MA-117 & MTH-054.

MA-119 Medical Assistant Practicum I
4 credits, Spring

Supervised unpaid assignment in the ambulatory care setting to gain administrative experience. Required: Instructor consent and 8 hours community service. Prerequisites: Pass MA-115 & MA-121.

MA-120 Medical Assistant Practicum II
6 credits, Spring

Supervised unpaid assignment in the ambulatory care setting to gain clinical experience. Required: Instructor consent and 8 hours community service. Prerequisite: Pass MA-119.

MA-121 Clinical Lab Procedures II
2 credits, Spring

Continuation of common laboratory procedures used in the ambulatory care setting. Required: Instructor consent. Prerequisites: Pass MA-116, MA-117, MA-118 & MTH-054. Corequisite: MA-115.

MA-145 Medical Coding & Health Information Management
3 credits, Fall

ICD9/CPT coding, insurance and billing, accounts receivable and data management in the ambulatory care office. Required: Instructor consent. This course will NOT meet the requirement for the Medical Office Administrative Assistant certificate. Corequisite: MA-112.

MET

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

Mechanical Engineering Technology**MET-150 Principles of Engineering—PLTW**
6 credits, not offered every term

This course helps students understand the field of engineering/engineering technology. Explores various technology systems and manufacturing processes to help students learn how engineers and technicians use math, science and technology in an engineering problem solving process to benefit people. The course also includes concerns about social and political consequences of technological change. This course is part of the Project Lead the Way (PLTW) curriculum.

MET-151 Introduction to Engineering Design—PLTW

6 credits, not offered every term

This course that involves 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 Project Lead the Way (PLTW) curriculum.

MFG

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

Manufacturing Technology

The Manufacturing Department has a variety of programs and classes. Most Manufacturing classes can be customized to meet the needs of industry. For additional information contact the Customized Training Department at ext. 3523.

MFG-047 Manufacturing Specialist I
10 credits, not offered every term

Workplace readiness course whereby students will gain an understanding of manufacturing processes through hands on experience. Topics may include: machining fundamentals, CNC machine operation and welding processes. Workplace success skills and interpersonal skills also covered. Corequisite: MFG-048.

MFG-048 Manufacturing Specialist II
10 credits, not offered every term

A continuation of MFG-047. Corequisite: MFG-047.

MFG-104 Print Reading
2 credits, Fall/Winter/Spring

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, Winter

Covers precision measuring tools such as micrometers, dial indicators, gauge blocks, sine bars and other instruments used in quality control of manufactured products.

MFG-106 Applied Geometric Dimensioning & Tolerancing for Manufacturing
3 credits, Spring

Introduces participants to the application of gauging and inspection using Geometric Dimensioning and Tolerancing. Students will identify inspection equipment and inspect GDT characteristics while experiencing their manufacturing implications.

MFG-107 Industrial Safety & OSHA
3 credits, Fall/Winter/Spring

Covers safety hazards and OSHA requirements in the workplace. Covers eye safety, grinding wheel hazards, electrical and chemical hazards, slips and falls, back injuries, and environmental regulations. Independent projects will be required.

MFG-109 Computer Literacy for Technicians**3 credits, Fall/Winter/Spring**

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**

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. Required: Instructor consent.

MFG-111 Machine Tool Fundamentals I**3-9 credits, Fall/Winter/Spring**

Covers machine tool operations including drill presses, lathes, and milling machines. Includes internal and external threading, and introduction to CNC technology. Recommended: MFG-104 & MFG-107.

MFG-112 Machine Tool Fundamentals II**3-9 credits, Fall/Winter/Spring**

Covers setup and operation of the vertical milling machine and boring techniques on the lathe. Surface grinding, selection of abrasive grinding wheels and introduction to CNC technology included. Recommended: MFG-111.

MFG-113 Machine Tool Fundamentals III**3-9 credits, Fall/Winter/Spring**

Topics include offset boring heads, rotary tables, indexing devices, and taper attachments. Also covers applied technical math, inspection techniques, optical comparators, coordinate measuring machines, cylindrical grinding, and basic CNC technology. Recommended: MFG-111 & MFG-112.

MFG-124 Statistical Process Control**3 credits, Spring**

Concepts and methods to organize and implement an ongoing quality improvement program. Integrates Dr. Deming's management philosophy with problem solving and charting techniques. Covers \bar{x} -bar, R and C charts, and capability analysis.

MFG-130 Basic Electricity I**3 credits, not offered every term**

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, not offered every term**

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, MTH-060.

MFG-132 Basic Electricity III**3 credits, not offered every term**

Study of the Oregon State Laws and Administrative rules and the National Electrical Code (NEC) in a practice test style format. Includes examination and test techniques. Recommended: MFG-130, MFG-131.

MFG-133 Programmable Logic Controllers**3 credits, Spring**

A study of the 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 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).

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 & turning centers. Recommended for individuals with limited knowledge of CNC machining. Recommended: MFG-111.

MFG-201 CNC I: Set-up & Operation**4 credits, Fall/Spring**

"Hands-on" class will teach students how to set-up and operate CNC milling centers and will include an introduction to basic G&M-code programming. Designed for persons with little or no previous experience. Recommended: MFG-109, MFG-112, MTH-050.

MFG-202 CNC II: Programming & Operation**4 credits, 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. Recommended: MFG-201.

MFG-203 CNC III: Applied Programming & Operation**3 credits, 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. Recommended: MFG-201 or MFG-204.

MFG-204 Computer-Aided Manufacturing I**4 credits, Fall**

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. Recommended: MFG-201 & MFG-112.

MFG-205 Computer-Aided Manufacturing II**4 credits, Winter**

Continuation of CAM I. Includes instruction in Mastercam surfaces and lathe and solid modeling software. Emphasis on hands-on manufacturing activities. Additional topics might include reverse engineering, automation, robotics and motion control. Recommended: MFG-204

MFG-206 Computer-Aided Manufacturing III
2 credits, Spring

Final class in the Computer-Aided Manufacturing series will concentrate on a capstone project. Students will design, program, and fabricate an industrial caliber independent project. Recommended: MFG-205.

MFG-209 Programming and Automation for Manufacturing
3 credits, Winter

High-level computer literacy for technologists. Focus is on structured computer programming in Visual Basic language and the application of programming industrial automation. Hands-on experience in data acquisition. 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 & MFG-204. (May be taken concurrently with MFG-204).

MFG-211 Machine Tool Fundamentals IV
6 credits, Fall/Winter/Spring

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. Recommended MFG-104, MFG-105, and MFG-113.

MFG-221 Materials Science
3 credits, 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.

MFG-224 Intro to Lean Manufacturing
2 credits, not offered every term

This course provides a fundamental understanding of Lean Manufacturing. Participants will learn about the philosophy and tools that make up a lean manufacturing system. Learning will take place through classroom discussions, multi-media presentations and factory simulations. Topics will include Six Sigma, TPS, 5S TQM, SPC, etc.

MFG-240 Coordinate Measuring Machine Basics

2 credits, not offered every term

Introduction to measurements of part features and locations using a Brown & Sharpe CMM. Includes set-up for datum dimensioning of part features and principles of CMM's as they apply to industry to verify quality.

MFG-271 MasterCam Mill I
4 credits, not offered every term

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, not offered every term

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
3 credits, not offered every term

Covers geometry creation and lathe programming using Mastercam to generate toolpaths such as: Rough, Finish, Thread and Drill. Mill/turn machining conventions, C-axis programming, tool libraries and solids toolpath verification are also covered. Recommended: MFG-271 or prior experience.

MFG-274 Mastercam Router
4 credits, not offered every term

Covers creation of wire frame models and solid bodies relative to the wood working industry. Creating, editing, and verifying tool paths for CNC router applications. Focus on the CAD/CAM process from print to part using the current release of Mastercam Router.

MFG-280 Manufacturing Technology/ CWE

2-6 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. Required: Instructor consent & a CWE seminar.

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-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, and introduction to graphs, and signed numbers. Prerequisite: Pass MTH-010 with a "C" or better; or placement in MTH-020.

MTH-050 Technical Mathematics I
3 credits, Fall/Winter/Spring/Summer

Topics include problem-solving, estimating, metric measurement, simple geometry, scientific notation, accuracy and precision of measurements, and an introduction to probability and statistics. Prerequisite: Pass MTH-020 with a "C" or better; or placement in MTH-050.

MTH-054 Math for Health Care Professionals

4 credits, Fall/Winter

Topics include problem solving, ratios and proportions, accuracy and precision of metric, apothecary and household systems of measurement and calculating medication doses. Required: Instructor consent. Prerequisite: Pass MTH-020 with a "C" or better; or placement in MTH-060. This course may not be waived.

MTH-060 Algebra I
4 credits, Fall/Winter/Spring/Summer

An introduction to topics in algebra. Designed for review or for the beginner, expressions, equations, and inequalities are explored numerically, symbolically, graphically, and verbally. Prerequisite: Pass MTH-020 with a "C" or better; or placement in MTH-060.

MTH-065 Algebra II
4 credits, Fall/Winter/Spring/Summer

The second term of topics in algebra. This course continues the exploration of expressions, equations, and inequalities numerically, symbolically, graphically, and verbally. Prerequisite: Pass MTH-060 with a "C" or better; or placement in MTH-065.

MTH-080 Technical Mathematics II
3 credits, Fall/Winter/Spring/Summer

Topics include introduction to algebra and polynomials, solving equations, ratio and proportions, and trigonometry. Prerequisite: Pass MTH-050 with a “C” or better; or placement in MTH-080.

MTH-082 Math for Water Technology
1-4 credits, Fall/Winter

Math problem solving for water, wastewater and ultrapure water applications. Problems include flow rate, chemical dosage, detention time, treatment plant loading, treatment process efficiency, unit conversion and process control. Prerequisite: Pass MTH-065 with a “C” or better; or placement in MTH-080. This course may not be waived.

MTH-085 Technical Mathematics III
3 credits, Fall/Winter/Spring/Summer

Topics include nonlinear equations, quadratic equations, functions, trigonometric functions, and applications of solid geometry. Prerequisite: Pass MTH-080 with a “C” or better; or placement in MTH-085.

MTH-092 Math for Computer Technicians
4 credits, Fall

A survey of topics relevant to computer technicians that includes number systems, logic, truth tables, Boolean algebra, base 2 and base 16 representation, and circuit reduction. The course will emphasize problem solving techniques, and will involve the use of appropriate computer software. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisites: Pass CS-120, pass MTH-065 with a “C” or better; or placement in MTH-095. This course may not be waived.

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. Prerequisite: Pass MTH-065 with a “C” or better; or placement in MTH-095.

MTH-105 Introduction to Contemporary Math

4 credits, Fall/Winter/Spring

A transfer mathematics course for non-science majors. The topics covered in this course focus students on critical thinking, problem solving, mathematical communication, and applications relevant to contemporary society. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-095 with a “C” or better; or placement in MTH-105 or MTH-111.

MTH-111 College Algebra
5 credits, Fall/Winter/Spring/Summer

A transfer course designed for students preparing for trigonometry or statistics. Standards-based approaches to functions and their properties. Particular attention will be paid to the use of functions to model applications and solve problems. Recommended: Pass RD-090 or placement in RD-115; Pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-095 with a “C” or better; or placement in MTH-111.

MTH-112 Trigonometry/Pre-Calculus
5 credits, Fall/Winter/Spring/Summer

A transfer course designed for students preparing for calculus. Standards-based approaches to trigonometric functions, polar coordinates, vectors, and parametric equations. Particular attention will be paid to modeling applications and solving problems. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-111 with a “C” or better.

MTH-211 Fundamentals of Elementary Math I

4 credits, Fall

Problem solving, logic, set theory, and whole numbers. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-095 with a “C” or better; or placement in MTH-111.

MTH-212 Fundamentals of Elementary Math II

4 credits, Winter

Integers, rational numbers, real numbers, probability and statistics. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-211 with a “C” or better.

MTH-213 Fundamentals of Elementary Math III

4 credits, Spring

Geometry, measurement, computer software applications. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-212 with a “C” or better.

MTH-243 Probability & Statistics
4 credits, Fall/Winter/Spring/Summer

Descriptive statistics, elementary probability, random variables, and inferences on the mean. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-111 with a “C” or better; or placement in MTH-112.

MTH-244 Statistics
4 credits, Fall/Winter/Spring/Summer

Hypothesis tests and confidence intervals for one and two populations, linear regression, test for association, and analysis of variance. A student project is required. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-243 with a “C” or better.

MTH-251 Calculus I
5 credits, Fall/Winter/Spring/Summer

Topics and applications of differentiation. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-112 with a “C” or better; or placement in MTH-251.

MTH-252 Calculus II
5 credits, Winter/Spring/Summer

Topics and applications of integration. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-251 with a “C” or better.

MTH-253 Calculus III
5 credits, Fall/Spring

Additional topics in calculus including sequences and series. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-252 with a “C” or better.

MTH-254 Vector Calculus
5 credits, Spring

The study of vectors and analytic geometry in three-space, the calculus of vector-valued functions, and the calculus of several variables. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-253 with a "C" or better.

MTH-256 Differential Equations
4 credits, Winter

An introduction to the study of first-order differential equations, first-order systems of differential equations, linear systems of equations, and applications of these topics. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement WR-121. Corequisite: MTH-253.

MTH-261 Linear Algebra
4 credits, Winter

An introduction to systems of linear equations, vectors, matrices, linear transformations, determinants, and applications of these topics. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-252 with a "C" or better.

MTH-280 Mathematics/CWE
2-6 credits
Fall/Winter/Spring/Summer

Cooperative work experience. Practical experience in teaching, tutoring or applying mathematics while supervised by a teacher or mathematician. Required: Instructor consent & a CWE seminar.

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.

MUP-102 Concert Band
2 credits, Fall/Winter/Spring

Performance and study of traditional and contemporary band literature. Emphasis on musical style and basic instrumental techniques as applied to ensemble playing. Tuition waivers available. Required: ability to read music and play a band instrument.

MUP-104 Pep Band
0-1 credit, Fall/Winter/Spring

Instrumental performing group concentrating on rock, pop, and contemporary styles in the small to medium-sized group setting. No audition.

MUP-105 Jazz Ensemble
2 credits, Fall/Winter/Spring

Instrumental performing group concentrating on jazz, Afro-Cuban, funk, and contemporary styles in the "big-band" setting. Includes exploration of jazz improvisation and styles of famous jazz orchestras and composers.

MUP-121 Clackamas Chorale
1 credit, Fall/Winter/Spring

College-level vocal ensemble (mixed, male and female) focusing on a variety of musical styles, sound vocal techniques, and sight singing. Nonmajors, including community singers, welcome. No audition.

MUP-122 Chamber Choir
2 credits, Fall/Winter/Spring

Select vocal ensemble which rehearses and performs choral music from the Renaissance to the 20th century. Provides preparation for entering professional fields of music and performance. Emphasis on a cappella singing applied to appropriate chamber music. Recommended for vocal music majors.

MUP-125 Vocal Jazz Ensemble
2 credits, Fall/Winter/Spring

Performing ensemble that cultivates musical, professional, and personal growth through rehearsal and performance. Includes study of jazz as it applies to vocal ensemble combined with rhythm section. Emphasis on style, improvisation, and techniques.

MUP-141 College Orchestra
1 credit, 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.

MUP-142 Chamber Ensemble: Jazz Combo I
0-1 credit, Fall/Winter/Spring

Instrumental performing group concentrating on jazz, Afro-Cuban, and contemporary styles in the combo/small group setting. Includes exploration of jazz improvisation and styles of famous jazz performers, and composers. Required: Instructor consent.

MUP-158 Chamber Ensemble
0-2 credits, 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. Recommended: Corequisite MUP-104, MUP-121 or MUP-122.

MUP-171 Individual Lessons: Jazz Piano
1 credit, Fall/Winter/Spring/Summer

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-171 Individual Lessons: Piano
1 credit, Fall/Winter/Spring/Summer

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-174 Individual Lessons: Jazz Voice
1 credit, Fall/Winter/Spring/Summer

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-174 Individual Lessons: Voice
1 credit, Fall/Winter/Spring/Summer

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-175 Individual Lessons: Violin**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-176 Individual Lessons: Viola**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-177 Individual Lessons: Cello**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-178 Individual Lessons: Jazz Bass**1 credit, Fall/Winter/Spring/Summer**

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-178 Individual Lessons: Bass**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-180 Individual Lessons: Jazz Guitar**1 credit, Fall/Winter/Spring/Summer**

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-180 Individual Lessons: Guitar**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-181 Individual Lessons: Jazz Flute**1 credit, Fall/Winter/Spring/Summer**

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-181 Individual Lessons: Flute**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-182 Individual Lessons: Oboe**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-183 Individual Lessons: Jazz Clarinet**1 credit, Fall/Winter/Spring/Summer**

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-183 Individual Lessons: Clarinet**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-184 Individual Lessons: Jazz**Saxophone****1 credit, Fall/Winter/Spring/Summer**

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-184 Individual Lessons: Saxophone**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-185 Individual Lessons: Bassoon**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-186 Individual Lessons: Jazz Trumpet**1 credit, Fall/Winter/Spring/Summer**

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-186 Individual Lessons: Trumpet**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-188 Individual Lessons: Jazz**Trombone****1 credit, Fall/Winter/Spring/Summer**

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-188 Individual Lessons: Trombone**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-189 Individual Lessons: Baritone**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-190 Individual Lessons: Tuba**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-191 Individual Lessons: Jazz**Percussion****1 credit, Fall/Winter/Spring/Summer**

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-191 Individual Lessons: Percussion**1 credit, Fall/Winter/Spring/Summer**

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-194 Chamber Ensemble: Percussion**1 credit, Fall/Winter/Spring**

Instrumental performing group concentrating on percussion literature from all musical periods. Tuition waivers available to deserving students. Required: Instructor consent.

MUP-202 Concert Band
2 credits, Fall/Winter/Spring

Performance and study of traditional and contemporary band literature. Emphasis on musical style and basic instrumental techniques as applied to ensemble playing. Tuition waivers available. Required: Ability to read music and play a band instrument.

MUP-204 Pep Band
0-1 credit, Fall/Winter/Spring

Instrumental performing group concentrating on rock, pop, and contemporary styles in the small to medium-sized group setting. No audition.

MUP-205 Jazz Ensemble
2 credits, Fall/Winter/Spring

Instrumental performing group concentrating on jazz, Afro-Cuban, funk, and contemporary styles in the "big-band" setting. Includes exploration of jazz improvisation and styles of famous jazz orchestras and composers.

MUP-221 Clackamas Chorale
1 credit, Fall/Winter/Spring

College-level vocal ensemble mixed, male and female) focusing on a variety of musical styles, sound vocal techniques, and sight singing. Nonmajors, including community singers, welcome. No audition.

MUP-222 Chamber Choir
2 credits, Fall/Winter/Spring

Select vocal ensemble which rehearses and performs choral music from the Renaissance to the 20th century. Provides preparation for entering professional fields of music and performance. Emphasis on a cappella singing applied to appropriate chamber music. Recommended for vocal music majors.

MUP-225 Vocal Jazz Ensemble
2 credits, Fall/Winter/Spring

Performing ensemble that cultivates musical, professional, and personal growth through rehearsal and performance. Includes study of jazz as it applies to vocal ensemble combined with rhythm section. Emphasis on style, improvisation, and techniques.

MUP-241 College Orchestra
1 credit, 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.

MUP-242 Chamber Ensemble: Jazz Combo IV

0-1 credit, Fall/Winter/Spring
Instrumental performing group concentrating on jazz, Afro-Cuban, and contemporary styles in the combo/small group setting. Includes exploration of jazz improvisation and styles of famous jazz performers, and composers.

MUP-258 Chamber Ensemble
0-2 credits, 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. Recommended: Corequisite MUP-204, MUP-221 or MUP-222.

MUP-271 Individual Lessons: Piano
1 credit, Fall/Winter/Spring/Summer

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-271 Individual Lessons: Jazz Piano
1 credit, Fall/Winter/Spring/Summer

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-274 Individual Lessons: Voice
1 credit, Fall/Winter/Spring/Summer

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-274 Individual Lessons: Jazz Voice
1 credit, Fall/Winter/Spring/Summer

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-275 Individual Lessons: Violin
1 credit, Fall/Winter/Spring/Summer

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-276 Individual Lessons: Viola
1 credit, Fall/Winter/Spring/Summer

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-277 Individual Lessons: Cello
1 credit, Fall/Winter/Spring/Summer

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-278 Individual Lessons: Bass
1 credit, Fall/Winter/Spring/Summer

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-278 Individual Lessons: Jazz Bass
1 credit, Fall/Winter/Spring/Summer

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-280 Individual Lessons: Guitar
1 credit, Fall/Winter/Spring/Summer

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-280 Individual Lessons: Jazz Guitar
1 credit, Fall/Winter/Spring/Summer

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-281 Individual Lessons: Flute
1 credit, Fall/Winter/Spring/Summer

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-281 Individual Lessons: Jazz Flute
1 credit, Fall/Winter/Spring/Summer

College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-282 Individual Lessons: Oboe
1 credit, Fall/Winter/Spring/Summer
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-283 Individual Lessons: Clarinet
1 credit, Fall/Winter/Spring/Summer
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-283 Individual Lessons: Jazz Clarinet
1 credit, Fall/Winter/Spring/Summer
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-284 Individual Lessons: Saxophone
1 credit, Fall/Winter/Spring/Summer
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-284 Individual Lessons: Jazz Saxophone
1 credit, Fall/Winter/Spring/Summer
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-285 Individual Lessons: Bassoon
1 credit, Fall/Winter/Spring/Summer
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-286 Individual Lessons: Trumpet
1 credit, Fall/Winter/Spring/Summer
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-286 Individual Lessons: Jazz Trumpet
1 credit, Fall/Winter/Spring/Summer
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-288 Individual Lessons: Trombone
1 credit, Fall/Winter/Spring/Summer
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-288 Individual Lessons: Jazz Trombone
1 credit, Fall/Winter/Spring/Summer
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUP-289 Individual Lessons: Baritone
1 credit, Fall/Winter/Spring/Summer
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-290 Individual Lessons: Tuba
1 credit, Fall/Winter/Spring/Summer
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-291 Individual Lessons: Percussion
1 credit, Fall/Winter/Spring/Summer
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

MUP-291 Individual Lessons: Jazz Percussion
1 credit, Fall/Winter/Spring/Summer
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

MUS

Music

MUS-101 Music Fundamentals
3 credits, Fall/Winter/Spring
Introduction to fundamentals of reading and writing music. Designed for non-music majors or majors needing substantial preparation for Music Theory I.

MUS-101L MIDI Lab
0 credit, Fall
A MIDI lab in which Music Fundamentals students improve their music skills and become familiar with music-related software packages. The applications are designed to reinforce concepts presented in MUS-101.

MUS-102 Music Fundamentals
3 credits, Winter
Introduction to fundamentals of reading and writing music. Designed for non-music majors or majors needing substantial preparation for Music Theory I.

MUS-102L MIDI Lab
0 credit, Winter
A MIDI lab in which Music Fundamentals students improve their music skills and become familiar with music-related software packages. The applications are designed to reinforce concepts presented in MUS-102.

MUS-103 Music Fundamentals
3 credits, Spring
Introduction to fundamentals of reading and writing music. Designed for non-music majors or majors needing substantial preparation for Music Theory I.

MUS-103L MIDI Lab
0 credit, Winter
A MIDI lab in which Music Fundamentals students improve their music skills and become familiar with music-related software packages. The applications are designed to reinforce concepts presented in MUS-103.

MUS-105 Music Appreciation
3 credits, Fall/Winter/Spring/Summer
Explores music from the Medieval through the 20th Century featuring instrumental and vocal music. Study of musical terms, instruments of the orchestra, musical genres and composers including Haydn, Mozart, Beethoven, Tchaikovsky, Brahms, and Stravinsky. Recommended for musicians and music majors.

MUS-106 Audio Recording at Home
1 credit, Fall/Winter/Spring/Summer
An overview of the basic tools and techniques used in audio recording at home. Get help with your home recording equipment. 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

Introduction to the basic techniques and tools used in audio recording. Areas of study include signal path, microphone applications, software, hardware, outboard gear, soldering techniques, 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: Pass 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: Pass MUS-107 & pass MUS-108.

MUS-111 Music Theory I
3 credits, Fall

Presents the diatonic material and structure of tonal music in theory and practice. Required for music majors. Required: Ability to read music. Recommended: Pass MTH-095 or placement in MTH-111; pass RD-090 or placement in RD-115; Pass WR-095 or placement in WR-121. Corequisites: MUS-111L, MUS-114 & MUS-127.

MUS-111L MIDI Lab
0 credit, Fall

Introduces students to Finale (music notation software) on Macintosh computers. Required for first-year music majors. Corequisites: MUS-111, MUS-114 & MUS-127.

MUS-112 Music Theory I
3 credits, Winter

Presents the diatonic material and structure of tonal music in theory and practice. Required for music majors. Required: Ability to read music. Recommended: Pass MTH-095 or placement in MTH-111, pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Corequisites: MUS-112L, MUS-115 & MUS-128. Prerequisites: Pass MUS-111 & pass MUS-111L.

MUS-112L MIDI Lab
0 credit, Winter

Introduces students to Finale (music notation software) on Macintosh computers. Required for first-year music majors. Corequisites: MUS-112, MUS-115 & MUS-128.

MUS-113 Music Theory I
3 credits, Spring

Presents the diatonic material and structure of tonal music in theory and practice. Required for music majors. Required: Ability to read music. Recommended: Pass MTH-095 or placement in MTH-111, pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Corequisites: MUS-113L, MUS-116 & MUS-129. Prerequisites: Pass MUS-112 & pass MUS-112L.

MUS-113L MIDI Lab
0 credit, Spring

Introduces students to Finale (music notation software) on Macintosh computers. Required for first-year music majors. Corequisites: MUS-113, MUS-116 & MUS-129.

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. Required for first-year music majors. Corequisites: MUS-111, MUS-111L & MUS-127.

MUS-115 Aural Skills I
2 credits, Winter

Diatonic sight singing in major keys using sol feg syllables and moveable "do". Melodic dictation and aural recognition of intervals, triads, and 7th chords. Required for first-year music majors. Corequisites: MUS-112, MUS-128 & MUS-112L. Prerequisite: Pass MUS-114.

MUS-116 Aural Skills I
2 credits, Spring

Diatonic sight singing in major keys using sol feg syllables and moveable "do". Melodic dictation and aural recognition of intervals, triads, and 7th chords. Required for first-year music majors. Corequisites: MUS-113, MUS-113L & MUS-129. Prerequisite: Pass MUS-115.

MUS-120 Finale I
2 credits, not offered every term

Fundamentals, specialized techniques and in-depth study or advanced techniques of computer-generated music notation via Finale for Macintosh. Prerequisites: Pass MUS-113, pass MUS-113L & pass MUS-129.

MUS-121 Finale II
2 credits, not offered every term

Fundamentals, specialized techniques and in-depth study or advanced techniques of computer-generated music notation via Finale for Macintosh. Prerequisite: Pass MUS-120.

MUS-122 Finale III
2 credits, not offered every term

Fundamentals, specialized techniques and in-depth study or advanced techniques of computer-generated music notation via Finale for Macintosh. Prerequisite: Pass MUS-121.

MUS-124 Jazz Arranging/Finale
3 credits, not offered every term

Introduction to jazz arranging taught via Finale, a music notation program. Includes ranges, transposition, and playing techniques of various instruments. Emphasis on current stylistic approach and integration of electronic instruments.

MUS-127 Keyboard Skills I
2 credits, Fall

Develops basic keyboard skills. Studies keyboard applications of the materials of tonal music. Required for music majors. Corequisites: MUS-111, MUS-111L & MUS-114.

MUS-128 Keyboard Skills I
2 credits, Winter

Develops basic keyboard skills. Studies keyboard applications of the materials of tonal music. Required for music majors. Corequisites: MUS-112, MUS-112L & MUS-115. Prerequisite: Pass MUS-127.

MUS-129 Keyboard Skills I
2 credits, Spring

Develops basic keyboard skills. Studies keyboard applications of the materials of tonal music. Required for music majors. Corequisites: MUS-113, MUS-113L & MUS-116. Prerequisite: Pass MUS-128.

MUS-130 Music & Media: Sex, Drugs, Rock & Roll
1 credit, Fall/Winter/Spring

Explores the relationship of music to economic, political, cultural, and artistic subjects. Examines how music serves and is served by pop culture and media.

MUS-131 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 Piano for Pleasure
1 credit, Winter

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 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
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
1 credit, Winter

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-136 Group Voice
1 credit, Spring

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-137 Group Guitar I: Guitar for Dummies
1 credit, Fall/Winter/Spring

For beginning to advanced 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

For intermediate to advanced players. Covers finger picking, lead guitar, rock and popular styles, music reading, and music theory. Students provide own instrument.

MUS-139 Group Guitar III
1 credit, Spring

For intermediate to advanced players. Covers finger picking, lead guitar, rock and popular styles, music reading, and music theory. Students provide own instrument.

MUS-140 Careers in Music
3 credits, Fall

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, Winter

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, loops, etc. Uses Roland sound modules, Fatar keyboard controllers, Behrenger mixers, and other common production software/hardware.

MUS-143 Introduction To Electronic Music II: Sequencing & Sampling
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. Uses Roland sound modules, Fatar keyboard controllers, Behrenger mixers, and other common production software/hardware. Prerequisite: Pass MUS-142.

MUS-144 Introduction To Electronic Music III: Digital Audio
3 credits, Fall/Winter/Spring

Exploration of digital sound recording and editing, synthesis, sampling, and sequencing. Presents CD production techniques integrating digital audio with the MIDI sequence. Uses Pro Tools, and other common production software/hardware. Prerequisites: Pass MUS-142 & pass MUS-143.

MUS-145 Introduction to Digital Sound, Video & Animation
3 credits, not offered every term

An introduction to new media. Includes sound, video, animation, mp3, DVD, and compression technology.

MUS-146 Entertainment Law & New Media
3 credits, not offered every term

The basic elements of copyright law and licensing as it applies to artists, songwriters, composers, film makers, and New Media Artists. How to protect your intellectual property and benefit from your rights as a copyright owner.

MUS-147 Music, Sound & Moviemaking
1 credit, Fall/Winter/Spring

Introduction to music and sound as related to moviemaking. Students will have the opportunity to create and assemble music, sound, and video into a finished product.

MUS-148 Live Sound Engineering
3 credits, not offered every year

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-189 Performance & Repertoire
1 credit, Fall/Winter/Spring

A performance forum required for all students studying privately 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.

MUS-201 Music Literature: Greek-Renaissance

4 credits, not offered every year

For nonmajors. Emphasis on cultivating understanding of music through study of elements, forms, and historical styles. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

MUS-202 Music Literature: Baroque-Classical

4 credits, not offered every year

For nonmajors. Emphasis on cultivating understanding of music through study of elements, forms, and historical styles. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

MUS-203 Music Literature: Romantic-the 20th Century

4 credits, not offered every year

For nonmajors. Emphasis on cultivating understanding of music through study of elements, forms, and historical styles. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

MUS-204 Music Literature: American Folk Music

4 credits, not offered every year

For nonmajors. Emphasis on cultivating understanding of music through study of elements, forms, and historical styles. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

MUS-205 Music Literature: History of Jazz
4 credits, not offered every term

For nonmajors. Emphasis on cultivating understanding of music through a study of elements, forms, and historical styles. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

MUS-206 Music Literature: History of Rock

4 credits, Fall/Winter/Spring/Summer

For nonmajors. Emphasis on cultivating understanding of music through study of elements, forms, and historical styles. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

MUS-211 Music Theory II
3 credits, Fall

Advanced study of the chromatic materials and structure of tonal music. Required for second-year music majors. Recommended: Pass MTH-095 or placement in MTH-111, pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Corequisites: MUS-211L, MUS-214 & MUS-224. Prerequisites: Pass MUS-113, pass MUS-113L, pass MUS-116 & pass MUS-129.

MUS-211L MIDI Lab
0 credit, Fall

Advanced use of Finale (music notation software) and basic use of QuarkXPress (desktop publishing software) on Macintosh computers. Required for second-year music majors. Corequisites: MUS-211, MUS-214 & MUS-224. Prerequisite: Pass MUS-113L.

MUS-212 Music Theory II
3 credits, Winter

Advanced study of the chromatic material and structure of tonal music. Required for second-year music majors. Corequisites: MUS-212L, MUS-215 & MUS-225. Prerequisite: Pass MUS-211L & pass MUS-211.

MUS-212L MIDI Lab
0 credit, Winter

Advanced use of Finale (music notation software) and basic use of QuarkXPress (desktop publishing software) on Macintosh computers. Required for second-year music majors. Corequisites: MUS-215, MUS-225 & MUS-212. Prerequisite: Pass MUS-211L.

MUS-213 Music Theory II
3 credits, Spring

Advanced study of the chromatic material and structure of tonal music. Required for second-year music majors. Corequisites: MUS-213L, MUS-216 & MUS-226. Prerequisites: Pass MUS-212L & pass MUS-212.

MUS-213L MIDI Lab
0 credit, Spring

Advanced use of Finale (music notation software) and basic use of QuarkXPress (desktop publishing software) on Macintosh computers. Required for second-year music majors. Corequisites: MUS-213, MUS-216 & MUS-226. Prerequisite: Pass MUS-212L.

MUS-214 Keyboard Skills II
2 credits, Fall

Advanced keyboard applications of the materials of diatonic and chromatic music. Required for second-year music majors. Corequisites: MUS-211, MUS-211L & MUS-224. Prerequisite: Pass MUS-129.

MUS-215 Keyboard Skills II
2 credits, Winter

Advanced keyboard applications of the materials of diatonic and chromatic music. Required for second-year music majors. Corequisites: MUS-212, MUS-212L & MUS-225. Prerequisite: Pass MUS-214.

MUS-216 Keyboard Skills II
2 credits, Spring

Advanced keyboard applications of the materials of diatonic and chromatic music. Required for second-year music majors. Corequisites: MUS-213, MUS-213L & MUS-226. Prerequisite: Pass MUS-215.

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. Required for second-year music majors. Corequisites: MUS-211, MUS-211L & MUS-214. Prerequisite: Pass MUS-116.

MUS-225 Aural Skills II
2 credits, Winter

Diatonic and chromatic sight singing with sol feg syllables and moveable “do”. Four-part dictation including all chromatic devices studied in Theory II. Required for second-year music majors. Corequisites: MUS-212, MUS-212L & MUS-215. Prerequisite: Pass MUS-214.

MUS-226 Aural Skills II
2 credits, Spring

Diatonic and chromatic sight singing with sol feg syllables and moveable “do”. Four-part dictation including all chromatic devices studied in Theory II. Required for second-year music majors. Corequisites: MUS-213, MUS-213L & MUS-216. Prerequisite: Pass MUS-225.

MUS-280 Music/CWE
2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of music. Required: Instructor consent & a CWE seminar. Prerequisites: Pass MUS-107, pass MUS-140 & pass MUS-142.

NRS**Nursing****NRS-110 Foundations of Nursing – Health Promotion**
5 credits, Fall

Introduces the learner to the framework of the Oregon Consortium of Nursing Education (OCNE) curriculum. Emphasis on health promotion across the life span including learning about self-health and client health practices. Screening of healthy children, teaching the family experiencing a normal pregnancy, interventions to prevent substance abuse and interactions with healthy, community-dwelling older adult are exemplars. Prerequisites: BI-231, BI-232 & BI-233.

NRS-110C Foundations of Nursing – Health Promotion Clinical
4 credits, Fall

Clinical application of NRS-110 content.

NRS-111 Foundations of Nursing in Chronic Illness I
2 credits, Winter

Introduces assessment and common interventions (including technical procedures) for clients with chronic illnesses common across the life span in major ethnic groups within Oregon. Case exemplars include children with asthma, adolescent methamphetamine abuse, adult-onset diabetes, and older adults with dementia. Prerequisite: NRS-110. Corequisites: NRS-230 & NRS-232.

NRS-111C Foundations of Nursing in Chronic Illness I Clinical
4 credits, Winter

Clinical application of NRS-111 content.

NRS-112 Foundations of Nursing in Acute Care I
2 credits, Spring

Introduces the learner to assessment and common interventions for care of patients across the life span 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. Prerequisite: NRS-110. Corequisites: NRS-231 & NRS-233.

NRS-112C Foundations of Nursing in Acute Care I Clinical
4 credits, Spring

Clinical application of NRS-112 content.

NRS-221 Foundations of Nursing in Chronic Illness II & End of Life
3 credits, Fall

Evidence base related to family care giving and symptom management is 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 symptom management, negotiating in interdisciplinary teams and impact of individual/family development/cultural beliefs are included. Prerequisite: Completion of the first year of nursing curriculum.

NRS-221C Foundations of Nursing in Chronic Illness II & End of Life Clinical
6 credits, Fall

Clinical application of NRS-221 content.

NRS-222 Foundations of Nursing in Acute Care II & End of Life
3 credits, Winter

Focuses on complex and/or unstable patient care situations which may require strong recognition skills, rapid decision making, and some of which may result in death. 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. Prerequisite: Completion of the first year of nursing curriculum.

NRS-222C Foundations of Nursing in Acute Care II & End of Life Clinical
6 credits, Winter

Clinical application of NRS-222 content.

NRS-224 Scope of Practice and Preceptorship for AAS Completion
3 credits, Spring

This course is designed to formalize the clinical judgments, knowledge and skills necessary in safe, registered nurse practice. The preceptor model provides a context that allows the student to experience the nursing work world in a selected setting, balancing the demands of job and life long learner. Required for AAS and eligibility for RN licensure.

NRS-224C Scope of Practice and Preceptorship for AAS Completion - Clinical
6 credits, Spring

Clinical application of NRS-224 content.

NRS-230 Clinical Pharmacology I
3 credits, Winter

Introduces the theoretical background that enables students to provide safe and effective care related to drugs and natural products to persons throughout the lifespan. Drugs are studied by therapeutic or pharmacological class using an organized framework, with attention to physiological conditions, including anxiety and depression. Prerequisites: BI-231, BI-232, BI-233 & BI-234.

NRS-231 Clinical Pharmacology II

3 credits, Spring

This sequel to NRS-230 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. The course addresses additional classes of drugs and related natural products and physiological conditions not contained in Clinical Pharmacology I. Prerequisite: NRS-230.

NRS-232 Pathophysiological Processes I
3 credits, Winter

Introduces pathophysiological processes that contribute to many different disease states across the lifespan and human responses to those processes. Assists students in learning how to make selective clinical decisions regarding using current, reliable sources of pathophysiology information which will be the foundation for assessments and client education. Prerequisites: BI 231, BI-232, BI-233 & BI-234.

NRS-233 Pathophysiological Processes II
3 credits, Spring

NRS-233 continues to explore additional pathophysiological processes not covered in NUR-232 that contribute to disease states across the lifespan and human responses to those processes. Assists students in learning how to make selective clinical decisions regarding using current, reliable sources of pathophysiology information for diverse populations. Prerequisite: NRS-232.

NUR

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

Nursing**NUR-090 Nursing Assistant I**

7 credits, Fall/Winter/Spring/Summer

Prepare the student to perform routine nursing assistant tasks to clients in the acute care and sub-acute care settings, as well as in the community. The Oregon State Board of Nursing requires 75 hours of didactic and skills lab instruction. May not be challenged. Restricted: Instructor consent.

NUR-090C Nursing Assistant I Clinical

0 credit, Fall/Winter/Spring/Summer

Perform routine nursing assistant tasks to clients in hospitals, long-term and skilled care facilities, as well as in the community. The Oregon State Board of Nursing requires 75 hours of clinical practicum. May not be challenged. Restricted: Instructor consent.

NUR-160 Fluid and Electrolytes

2 credits, not offered every year

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. Prerequisite: Pass BI-233.

NUR-217 EKG Interpretation

1 credit, Spring

Four-week course focuses on developing skills in arrhythmia recognition and interpretation. Overview of cardiac A & P, and electro-physiology. Recommended for graduating nurses or practicing registered nurses who desire to increase their knowledge in EKG analysis.

NUR-288 Physical Assessment

3 credits, not offered every year

Focuses on the role and responsibility of the professional nurse to assess the health status of individuals. Complete health history and systematic physical assessment in a laboratory setting. Restricted: Registered nurses and nursing students.

OS

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

Study Skills

See also English as a Second Language (ESL), Study Skills (EL).

OS-010 Study Skills/Student Athletes

1-3 credits, Fall

Learning strategies for college targeted for student athletes. Explores academic strengths and weaknesses, tips for student success, and study skills.

OST

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

Occupational Skills Training**OST-180 Occupational Skills Training Program**

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-131 Introduction to Physical Education Health & Recreation**

3 credits, Spring, every other year

Provides overview of the profession. Examines professional orientation, philosophy, performance objectives, personal qualifications, professional organizations and publications, and job opportunities. Recommended: Pass WR-095 or placement in WR-121.

PE-185 Physical Education

1 credit, Fall/Winter/Spring/Summer

Activities may include badminton, basketball, conditioning, aerobic dance (both regular and step) modern dance, ballet, tap and jazz dance, self defense, tai chi, soccer, golf, jogging, karate, mountaineering, horseback riding, racquetball, exercise and relaxation, tennis, skiing (downhill and cross country) softball, swimming, volleyball, and weight training. Current physical examination before enrolling in a physical education course is recommended.

PE-260 Care/Prevention of Athletic Injuries

2 credits, Winter/Spring

Care and prevention of athletic injuries. Taping techniques and rehabilitation methods of injury will be discussed and practiced.

PE-270 Sport & Exercise Psychology
3 credits, Fall/Winter/Spring

This course provides students the basic understanding, and knowledge of psychological skills used to improve physical performance in themselves and/or their peers/teammates.

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 student's job performance by qualified college staff and site supervision. Required: Instructor consent & a CWE seminar.

PE-194/PE-294 Professional Activities
1-2 credits, Fall/Winter/Spring

For Physical Education majors and minors. Basic skills, methods and techniques of teaching physical education. Activities offered are: basketball/volleyball, fundamentals of movement, field games, conditioning, tennis/badminton, or track and field.

PE-294 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 interaction 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**

See also Technical Physics (TPH).

PH-104 Descriptive Astronomy
4 credits, Winter/Spring

Survey of astronomy for non-science majors. Historical and cultural context of discoveries concerning planets, stars, the solar system, stellar evolution, star clusters, galaxies, and cosmology. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

PH-121 General Astronomy
4 credits, Fall/Winter/Spring

Discusses the history of astronomy, the Earth and moon, all planets in our solar system, along with asteroids, meteors, and comets. Also offered as an online course. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121; pass MTH-095 with a "C" or better or placement in MTH-105 or MTH-111.

PH-122 General Astronomy
4 credits, Winter

Discusses the properties of our sun and other stars, and stellar evolution. Also offered as an online course. Prerequisite: Pass PH-121 or GS-107.

PH-123 General Astronomy
4 credits, Spring

Discusses star clusters, the properties of our own galaxy, the other galaxies, and cosmology. Also offered as an online course. Prerequisite: Pass PH-122.

PH-201 General Physics
5 credits, Fall

Units and vectors, kinematics, forces, Newton's Laws of Motion, circular motion, work and energy, impulse and momentum, rotational motion. Prerequisite: Pass MTH-111 with a "C" or better or placement in MTH-112.

PH-202 General Physics
5 credits, Winter

Elasticity and simple harmonic motion, fluid statics and dynamics, heat energy and phase changes, heat transfer, kinetic theory of gases, waves and sound, wave interference, electric forces and fields. Prerequisite: Pass PH-201.

PH-203 General Physics
5 credits, Spring

Electrical energy and voltage, Ohm's Law and DC circuits, magnetic forces and fields, EM induction, reflection and refraction of light, particles and waves, special relativity. Prerequisite: Pass PH-202.

PH-211 General Physics With Calculus
5 credits, Fall

Kinematics, Newton's Laws of Motion, gravitation, work and energy, impulse and momentum, rotational motion. Prerequisite: Pass MTH-251 with a "C" or better or placement in MTH-252.

PH-212 General Physics With Calculus
5 credits, Winter

Equilibrium, elasticity, fluids, oscillations, waves, sound, temperature, thermal expansion, Ideal Gas law, Kinetic Theory of Gases, heat, First Law of Thermodynamics, electric charge and field, Gauss' law. Prerequisite: Pass PH-211.

PH-213 General Physics With Calculus
5 credits, Spring

Electric potential and energy, capacitance, Ohm's Law and DC circuits, magnetic field and forces, EM induction, Maxwell's equations, geometric optics, special relativity, and Plank's constant. Prerequisite: Pass PH-212.

PH-280 Physics/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with on-the-job experience and training related to physics. Required: Instructor consent & a CWE seminar.

PHC**Pharmacology****PHC-211 Pharmacology I**
2 credits, Fall/Spring

Study of pharmacological properties, therapeutic and adverse effects on the body of cardiovascular, psychotherapeutic, autonomic nervous system drugs, and pain management. Prerequisites: BI-231 & BI-232 or admission to Nursing Program.

PHC-212 Pharmacology II
2 credits, Winter/Spring

Study of pharmacological properties, therapeutic and adverse effects of drugs on the respiratory, gastrointestinal, and endocrine system. Covers hormones, anti-inflammatory, anti-microbial, anti-infection and neoplastic agents. Prerequisite: PHC-211.

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: Pass RD-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: Pass RD-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: Pass RD-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: Pass RD-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: Pass RD-090 or placement in RD-115.

PHL-213 Asian Philosophy**4 credits, not offered every term**

Examines the underlying belief systems of Hinduism, Buddhism, Taoism, and Confucianism. Course explores their concepts of cause and effect, freedom, personal identity, moral value, truth, and enlightenment. Recommended: Pass RD-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: Pass RD-090 or placement in RD-115.

PIE

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

Program for Intensive English**PIE-011 PIE Tutoring****0 credit, Fall/Winter/Spring/Summer**

Designed for the Program for Intensive English student who needs one-on-one instruction in conversation, pronunciation, reading, grammar, writing, or GED preparation. Required: Instructor consent.

PIE-020 Life Skills I**0 credits, not offered every term**

Introduces the language necessary to function in day-to-day American society at the beginning level. Listening, speaking, grammar, reading and writing are taught in the contexts of work, family and community. Required: Instructor consent.

PIE-022 Life Skills 1 & 2**0 credit, Fall/Winter/Spring/Summer**

Introduces the language necessary to function in day-to-day American society at the beginning levels; listening, speaking, grammar, reading, and writing in the contexts of work, family, and community. Required: Instructor consent.

PIE-032 Low Intermediate Conversation**0 credits, not offered every term**

For low intermediate level ESL students who want to learn and practice speaking and listening to improve their fluency in English for living and working situations. Required: Instructor consent.

PIE-033 Intermediate Conversation**3 credits, Fall/Winter/Spring/Summer**

Intermediate level students learn and practice speaking and listening to improve their fluency in English for living and working situations. Required: Instructor consent.

PIE-034 Upper Intermediate Conversation**3 credits, not offered every term**

Upper-intermediate level students practice speaking and listening to improve their fluency in English for living and working situations. Required: Instructor consent.

PIE-036 Communicating with Customers**3 credits, not offered every year**

For upper-intermediate and advanced level non-native speakers of English who desire employment in retail and/or customer service. Teaches the basics of customer service. Students practice customer service skills. Required: Instructor consent.

PIE-040 Beginning Grammar**0 credit, Fall/Winter/Spring/Summer**

Presentation and practice of the verb "to be", simple present verb tense, nouns, descriptive/possessive adjectives, prepositions of place and time, and simple sentence structures in written and spoken English. Required: Instructor consent.

PIE-041 Upper Beginning Grammar**0 credit, Fall/Winter/Spring/Summer**

Presentation and practice of simple present and simple past, present continuous, adverbs of frequency, articles, and nouns in written and spoken English. Required: Instructor consent.

PIE-042 Intermediate Grammar A**3 credits, Fall/Spring**

Part A of a 2-part series. Presentation and practice of past tense, used to, future/be going to, comparative and superlative adjectives, and question forms in written and spoken English. Required: Instructor consent.

PIE-043 Intermediate Grammar B**3 credits, Winter/Summer**

Part B of a 2-part services. Presentation and practice of present perfect with time expressions, review of present continuous, introduction to past continuous, and modals of possibility, necessity and advice in written and spoken English. Required: Instructor consent.

PIE-044 Upper Intermediate Grammar A
3 credits, Fall/Spring

Part A of a two part series of classes designed to help upper intermediate ESL students gain knowledge and proficiency in the use of verb forms that frequently occur together, gerunds, and infinitives. Required: Instructor consent.

PIE-047 Upper Intermediate Grammar B
3 credits, Winter/Summer

Part B of a 2-part series. Presentation and practice of adjective clauses, phrasal verbs, and passive voice in written and spoken English. Required: Instructor consent.

PIE-049 Upper Beginning Reading and Writing

0 credit, Fall/Winter/Spring/Summer

For upper beginning level ESL students who read and write at the sentence level. Students will read short texts in order to improve reading skills, write a variety of sentences and put related sentences in paragraph form. Required: Instructor consent.

PIE-050 Beginning Reading/Writing
0 credit, Fall/Winter/Spring/Summer

Designed for beginning level students who have limited knowledge of written English. Practice alphabet recognition, read and write short sentences, read short paragraphs, and gain reading and scanning skills to use in everyday life and in the workplace. Required: Instructor consent.

PIE-051 Upper Beginning Reading
0 credit, not offered every term

For students who read at the sentence level. Students will read short texts in order to improve reading skills. Required: Instructor consent.

PIE-052 Upper Beginning Writing
0 credit, Fall/Winter/Spring/Summer

For students who write at the sentence level. Students will write a variety of sentences and put related sentences in paragraph form. Required: Instructor consent.

PIE-053 Intermediate Reading/Writing
6 credits, Fall/Winter/Spring/Summer

Intermediate level students focus on paragraph level writing with emphasis on reading and writing skills as needed for more advanced ESL and college courses, in the workplace, and in everyday life. Required: Instructor consent.

PIE-054 Upper Intermediate Reading/Writing

6 credits, Fall/Winter/Spring/Summer

Upper intermediate students will practice reading and writing skills needed to succeed in college, the workplace, and everyday life. Introduction to multiple paragraph essays. Required: Instructor consent.

PIE-056 Intermediate Reading
3 credits, not offered every term

For intermediate level ESL students who read at the paragraph level. Introduction to strategies for improving reading skills as needed for more advanced ESL and college courses, in the workplace, and in everyday life. Required: Instructor consent.

PIE-057 Intermediate Writing
3 credits, Fall/Winter/Spring/Summer

For intermediate level ESL students who are ready to begin writing at the paragraph level. Strategies for improving writing skills as needed for more advanced ESL and college courses, in the workplace, and in everyday life. Required: Instructor consent.

PIE-058 Upper Intermediate Reading
3 credits, not offered every term

For upper intermediate level ESL students who read beyond the paragraph level. Development of reading skills needed to succeed in college and in everyday life. Required: Instructor consent.

PIE-059 Upper Intermediate Writing
3 credits, not offered every term

For upper intermediate level ESL students. Development of the writing skills needed to succeed in college and in everyday life. Introduction to multiple paragraph essays. Required: Instructor consent.

PIE-060 Pronunciation
3 credits, not offered every term

For ESL students who want to sound more natural when speaking English. Focuses on increasing awareness of the sounds of American English, improving intelligibility, and producing speech more fluently. Required: Instructor consent.

PIE-061 Introduction to Pronunciation
0 credit, not offered every year

For ESL students who want to sound more natural when speaking English. Focuses on increasing student awareness of the sounds of American English, improving intelligibility, and producing speech more fluently. Required: Instructor consent.

PIE-062 Introduction to Idioms
0 credit, not offered every year

Introduction to common American idioms and slang in the context of conversation skills. For upper intermediate ESL students. Required: Instructor consent.

PIE-063 American Idioms/Slang A
3 credits, not offered every term

Part A of a 2-part series of classes. Introduces common American idioms while practicing conversation skills at the upper intermediate level. Required: Instructor consent.

PIE-064 American Idioms/Slang B
3 credits, not offered every term

Part B of a 2-part series of classes. Introduces common American idioms while practicing conversation skills at the upper intermediate level. Required: Instructor consent.

PIE-067 Video and Conversation
0 credit, not offered every year

Intensifies intermediate/advanced ESL language skills in listening/speaking. Outside of class, view Crossroads Café video series, complete workbook exercises. In class, practice listening for specific information, participate in pair, small group, whole class activities. Required: Instructor consent.

PIE-070 Computer Lab
0 credit, Fall/Winter/Spring/Summer

Provides opportunities to improve English language skills by using language learning software. Required: Instructor consent.

PIE-073 Writing Workshop
0 credit, not offered every year

For ESL students who want to improve their writing skills for everyday life, the workplace and college courses. Students work individually with instructor guidance. Required: Instructor consent.

PIE-081 Upper Intermediate Reading Skills
3 credits, not offered every year

Upper intermediate level students will practice the reading skills needed to succeed in college and in everyday life. Required: Instructor consent.

PIE-084 Vocabulary Building
3 credits, not offered every term

Develops upper intermediate to advanced level students' vocabulary range and vocabulary acquisition skills. Required: Instructor consent.

PIE-085 TOEFL/TOEIC Preparation
0 credit, not offered every term

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. Includes familiarization with test components, test-taking techniques, strategies and computer skills. Required: Instructor consent.

PIE-088 Skills for College Success
3 credits, not offered every year

For upper intermediate/advanced level PIE students who plan to attend a U.S. college or university. Increase knowledge of the culture/norms of the American classroom, college schedules/catalogs, analyze course materials, improve study/test-taking skills. Required: Instructor consent.

PIE-090 The Clackamas Experience
0 credit, Fall/Winter/Spring/Summer

Designed for international students entering Clackamas Community College for the first time. Students learn about college policies and procedures, students' rights and responsibilities, learning styles, possible programs of study, matriculation procedures, and culture shock. Required: Instructor consent.

PS***Political Science*****PS-201 US Government: National Political Process**
4 credits, Fall

Reviews the development of the U.S. Constitution, including democratic vs. republican theories of government, evolution of civil liberties, and principles of equal protection of the law. Examines present state of Congress, presidency, and Supreme Court. Recommended: Pass RD-090 or placement in RD-115.

PS-202 US Government: National Government Institutions
4 credits, Winter

Examines American political parties, the role of money in politics and American political participation in general. Examines American domestic, economic and foreign policy. Recommended: Pass RD-090 or placement in RD-115.

PS-203 US Government: State/Local Institutions
4 credits, Spring

Introduces students to American state and local government, with an emphasis on Oregon politics at the state and local level. Recommended: Pass RD-090 or placement in RD-115.

PS-204 Introduction to Comparative Politics
4 credits, Fall

Explores the various ideologies, institutions, and processes that constitute the nation-states that make up the world political system. Recommended: Pass RD-090 or placement in RD-115.

PS-205 International Relations
4 credits, Spring

Introduces students to contemporary international politics. Examines international institutions and nation-state behavior, as well as diplomacy, peacekeeping, and war as instruments of foreign policy. Recommended: Pass RD-090 or placement in RD-115.

PS-206 Introduction to Political Theory
4 credits, Winter

Introduces the fundamental political question: What is justice? Examines the writings of political philosophers such as Plato, Aristotle, Rousseau, and Locke. Recommended: Pass RD-090 or placement in RD-115.

PS-225 Introduction to Political Ideologies
4 credits, Fall

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: Pass RD-090 or placement in RD-115.

PS-280 Political Science/CWE
2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of political science. Required: Instructor consent & a CWE seminar.

PSY***Psychology*****PSY-101 Human Relations**
3 credits, Fall/Winter/Spring/Summer

Introduction to interpersonal relationships and human relations in a social context. Includes individual and group activities, lecture, and discussions with an emphasis on student participation. Recommended: Pass RD-090 or placement in RD-115.

PSY-110 Psychology: An Overview
4 credits, Fall/Spring

A general introduction to the field of psychology. Explores a wide variety of topics. Recommended: Pass RD-090 or placement in RD-115.

PSY-200 Psychology As 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 may include consciousness, sleep, memory, emotion, and language. Recommended: Pass RD-090 or placement in RD-115.

PSY-205 Psychology As a Social Science
4 credits, Fall/Winter/Spring

Principles of conditioning and social psychology, the study of how groups affect the individual. Further topics may include motivation, personality, development, and stress. Recommended: Pass RD-090 or placement in RD-115.

PSY-214 Introduction to Personality
4 credits, Winter

Explores the major theories about personality and personality assessment. Each of the major theories is examined for its contribution as well as its limitations in explaining the development or organization of personality. Recommended: Pass RD-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. Recommended: Pass RD-090 or placement in RD-115.

PSY-216 Introduction to Social Psychology
4 credits, not offered every year

Examines how we think about and interact with others. Includes perception, attributions, aggression, attitude formation, attraction, intimacy, social influence, and prejudice. Recommended: Pass RD-090 or placement in RD-115.

PSY-218 Introduction to Experimental Psychology
4 credits, not offered every year

Introduction to the principles of the scientific method in general and to the specific methods used in psychological research. Recommended for students pursuing a psychology major. Recommended: Pass RD-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. May be taken in any order, but recommend PSY-200 precede PSY-219. Recommended: Pass RD-090 or placement in RD-115.

PSY-221 Introduction to Counseling
4 credits, Winter/Spring

Provides an overview of the theoretical background for different approaches to counseling. Recommended: Pass RD-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, and the biology of sexuality and conception. Recommended: Pass RD-090 or placement in RD-115.

PSY-238 Psychology, Science, & Pseudoscience
4 credits, not offered every year

Develops a critical and objective thinking; separates fact from fiction. Focuses on an understanding of science and the scientific method, information processing, psychological barriers to sound thinking, and paranormal claims. Recommended: Pass RD-090 or placement in RD-115.

PSY-240 Interpersonal Awareness & Growth
4 credits, Fall/Winter

Examines the dynamics of personality and explores techniques for overcoming self-defeating behaviors. Develops methods for making personal changes. Recommended: Pass RD-090 or placement in RD-115.

PSY-280 Psychology/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with on-the-job work experience in the field of psychology. Required: Instructor consent & a CWE seminar.

R***Religious Studies*****R-101 Comparative Religions**
4 credits, Fall/Winter/Spring

The nature of myth and story, ancient religions, ideas of God, Judaism, and introduction to religious topics. Recommended: Pass RD-090 or placement in RD-115.

R-102 Comparative Religions
4 credits, Fall/Winter/Spring

Covers written and oral sources, Christianity, Islam, and includes the history and philosophy of other Western religious developments. Recommended: Pass RD-090 or placement in RD-115.

R-103 Comparative Religions
4 credits, Fall/Winter/Spring

The history, ideas, and philosophy of the Eastern religions including Buddhism, Hinduism, and Taoism. Recommended: Pass RD-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. Also covers 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: Pass RD-090 or placement in RD-115.

R-207 Judaic Studies
4 credits, not offered every term

Covers topics related to ancient Judaism and the Bible. Examines Judaism through the Diaspora and Rabbinic Judaism, Middle Ages, Renaissance, and the Modern Era. Contemporary topics include the Holocaust, Arab-Israeli Wars, and other religious conflicts. Recommended: Pass RD-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: Pass RD-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: Pass RD-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: Pass RD-090 or placement in RD-115.

R-280 Religion/CWE

2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with on-the-job work experience in the field of religion. Required: Instructor consent & a CWE seminar.

RD**Reading**

See also Study Skills (EL & OS).

RD-080 Basic Reading Skills

1-3 credits, Fall/Winter/Spring

Identifies individual reading strengths/weaknesses. Emphasizes basic reading skills in vocabulary, main idea, supporting detail, inferences, comprehension. 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: Pass RD-080 or placement in RD-090.

RD-115 College Reading

3 credits, Fall/Winter/Spring

Emphasizes textbook comprehension, critical reading and thinking, vocabulary, and speed techniques for college-level reading. Prerequisite: Pass RD-090 or placement in RD-115.

RE

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

Real Estate**RE-118 Real Estate Appraisal I**

3 credits, Fall

Real estate appraisal principles and methodologies used in the valuation of residential property.

RE-228 Real Estate Appraisal II

3 credits, Winter

Application of the basic principles and methodologies of the valuation of residential property. A number of practical problems and a case study are reviewed. Prerequisite: Pass RE-118 or instructor consent.

RE-238 Real Estate Appraisal III

3 credits, Spring

Income property appraisal principles and methodology. Prerequisite: Pass RE-228 or instructor consent.

RE-239 Real Estate Appraisal IV

3 credits, not offered every year

Reinforces the student's ability to perform the appraisal of income-producing properties. Prerequisite: Pass RE-238 or instructor consent.

RUS**Russian****RUS-101 First-Year Russian**

4 credits, Fall

Introduces students to all basic language skills in Russian. Emphasis placed on oral skills, vocabulary, and grammar in patterns that imitate natural conversation. For students without a background in Russian. Conducted in Russian as much as possible. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

RUS-102 First-Year Russian

4 credits, Winter

Continues introduction of all basic language skills in Russian. Emphasis placed on developing oral skills and practicing vocabulary and grammar in patterns that imitate natural conversational exchanges. The course is conducted in Russian as much as possible. Prerequisite: Pass RUS-101 or instructor consent.

RUS-103 First-Year Russian

4 credits, Spring

Continues introduction of all basic language skills in Russian. Emphasis placed on oral skills, vocabulary, and grammar in patterns that imitate natural conversation. Conducted in Russian as much as possible. Prerequisite: Pass RUS-102 or instructor consent.

RUS-201 Second-Year Russian

4 credits, not offered every year

First of a three-term sequence in intermediate Russian which continues developing all of the basic language skills presented up through RUS-103. Course focuses on oral skills, vocabulary, and grammar in patterns that imitate natural conversation. Prerequisite: RUS-103 or instructor consent.

RUS-202 Second-Year Russian

4 credits, not offered every year

Second of a three-term sequence in intermediate Russian which continues to focus on all of the language skills presented up through RUS-201. Prerequisite: RUS-201 or instructor consent.

RUS-203 Second-Year Russian

4 credits, not offered every year

Third of a three-term sequence in intermediate Russian which continues to focus on all of the language skills presented up through RUS-202. Prerequisite: RUS-202 or instructor consent.

SBM

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

Small Business Management**SBM-020 Greenhouse/FastTrac™**

0 credit, Fall/Winter/Spring/Summer

Comprehensive two-term program for the entrepreneur starting up any type of new business or taking a fresh look at an established business. Evening classes in seminar format, plus individual business counseling.

SBM-021 Small Business Management I

0 credit, Fall/Winter/Spring/Summer

First year of a three-year program to help owners/managers of established businesses manage more effectively and achieve success. Monthly evening class meetings plus individual business counseling. Class topics emphasize financial analysis, goals, and communication.

SBM-022 Small Business Management II

0 credit, Fall/Winter/Spring/Summer

Second-year topics emphasize marketing concepts and strategy. Monthly evening class meetings plus individual business counseling.

SBM-023 Small Business Management III

0 credit, Fall/Winter/Spring/Summer

Third-year topics emphasize integrating strategies and business growth. Monthly evening class meetings plus individual business counseling.

SM

Courses with this prefix may not transfer with credit to a four-year institution unless applied as part of the 12 allowable professional 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. Many of these classes can be customized to meet the needs of the industry. For additional information on a customized class for your company, contact the Customized Training Department at ext. 3523.

SM-049 Semiconductor Operator I 10 credits, not offered every term

Workplace readiness program focusing on basic skills required for entry-level operator jobs in the semiconductor and microelectronics industries. Specialized curriculum covers cleanroom process techniques, manufacture of silicon wafer and computer chips, and workplace readiness. Corequisite: SM-050.

SM-050 Semiconductor Operator II 10 credits, not offered every term

A continuation of SM-049. Corequisite: SM-049.

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. Microcontamination 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

2-6 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. Required: Instructor consent & a CWE seminar.

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: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SOC-205 Social Stratification and Social System

4 credits, Fall/Winter/Spring

Examines issues of social structure and social stratification. Explores various social institutions (family, economy, education, health, religion and politics) and inequalities of race, class, gender and age as well as various theoretical perspectives. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SOC-206 Institutions and Social Change 4 credits, Fall/Winter/Spring

Explores various social institutions (family, work, economy, education, health and politics), stratification systems, social movements, and other elements of culture from a social change perspective. Various theories of social organization and sources social change will be examined. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SOC-210 Marriage, Family & Intimate Relations

4 credits, not offered every term

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 influences patterns of courtship, intimate relations, marriage, and family, and explore the various challenges facing families today. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SOC-223 Psycho-Social Aspects of Aging 4 credits, Winter

An individual and societal perspective. Emphasis on normal versus abnormal aging, major life transitions, and providing services to the aged. Recommended: Pass WR-095 or placement in WR-121.

SOC-225 Social Problems 4 credits, not offered every term

Applies the sociological framework to the study of social problems, their identification, analysis of causes and possible solutions. Topics may include mental disorders, addiction, crime, discrimination, inequality, poverty, alienation, violence, environment, and energy. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SOC-230 Perspectives on Aging
4 credits, Fall

Overview of the field of gerontology. Characteristics of old people: Myths, stereotypes, and realities. Issues in aging: economic/political, physical/mental, and psychological/sociological. Networks of programs to serve the aged: governmental/families, and formal/informal. Recommended: Pass WR-095 or placement in WR-121.

SOC-231 Health & Biological Aspects of Aging
4 credits, Winter

Normal biological aging and the effects of life-style and disease on functional ability. Use tools to screen older people for functional and nutritional status and develop plans to enhance independence. Recommended: Pass WR-095 or placement in WR-121.

SOC-232 Encounters With Death
4 credits, Spring

Introduces current studies and programs in death, dying, grief, and bereavement. Activities and discussion designed to enable students to identify and face feelings about death. Recommended: Pass WR-095 or placement in WR-121.

SOC-280 Sociology/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Provides students with on-the-job work experience in the field of sociology. Required: Instructor consent & a CWE seminar.

SP**Speech****SP-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, and clarity of expression. Designed for non-transfer students.

SP-105 Listening
4 credits, not offered every term

Analyzes listening behavior and emphasizes the development in understanding & appreciation of listening as a vital element in communication process. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SP-111 Public Speaking
4 credits, Fall/Winter/Spring/Summer

Practice in organization, research, and delivery of a variety of speeches. Prerequisites: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SP-112 Persuasive Speaking
4 credits, Winter

Persuasive speaking, audience analysis, study of reasoning, and the basic theories of persuasion. Prerequisites: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SP-126 Communication Between Sexes
4 credits, Fall/Winter/Spring

Examines ways women and men are different and similar in their communication behaviors. Traditions, myths, social roles and current issues are discussed. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SP-129 Oral Interpretation
4 credits, not offered every term

Oral interpretation of literature from the areas of prose, poetry and drama. Analyze specific literary works and communicate understanding through performance. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisite: SP-221.

SP-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.

SP-150 Competitive Platform Speaking
4 credits, not offered every term

Advanced theory and practice in public speaking. Simulated public speaking situations, audience analysis, and rhetorical strategies will be emphasized. Students will prepare and present a variety of speeches. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisite: SP-222.

SP-167 Parliamentary Procedure
4 credits, not offered every term

The principles and practice of parliamentary procedure to develop skills in conducting business during meetings. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisite: SP-223.

SP-211 Communication Theory
4 credits, not offered every year

Designed to enhance understanding of the theoretical assumptions and methods of inquiry in the study of human communication. Focuses on theories and empirical research across diverse contexts in communications. Recommended: Pass RD-090 or placement in RD-115. Prerequisites: Pass SP-100 or pass SP-111 & pass WR-121.

SP-218 Interpersonal Communication
4 credits, not offered every term

The interpersonal communication process examined through lectures, reading, and exercises. Subjects include goal-setting, first impressions, conflict resolution, non-verbal messages, image building and assertiveness. Note: Certain sections of SP-218 are offered online. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SP-219 Small Group Communication
4 credits, not offered every term

Theories and practices of small group communication through group discussion, reading and written exercises. Emphasis on effective group communication, leadership skills, and problem-solving in small groups. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SP-221 Speech & Debate: Forensics
1 credit, Fall

Practical application of public speaking skills in a variety of settings. Preparation for and participation in intercollegiate forensic activities. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisite: SP-129.

SP-222 Speech & Debate: Forensics
1 credit, Winter

Practical application of public speaking skills in a variety of settings. Preparation for and participation in intercollegiate forensic activities. Recommended: Placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisite: SP-150.

SP-223 Speech & Debate: Forensics
1 credit, Spring

Practical application of public speaking skills in a variety of settings. Preparation for and participation in intercollegiate forensic activities. Prerequisite: Pass SP-111 or instructor consent. Corequisite: SP-167.

SP-224 Speech & Debate: Forensics
1 credit, Fall

Practical application of public speaking skills in a variety of settings. Preparation for and participation in intercollegiate forensic activities. Prerequisite: Pass SP-111 or instructor consent. Corequisite: SP-229.

SP-225 Speech & Debate: Forensics
1 credit, Winter

Practical application of public speaking skills in a variety of settings. Preparation for and participation in intercollegiate forensic activities. Prerequisite: Pass SP-111 or instructor consent. Corequisite: SP-250.

SP-226 Speech & Debate: Forensics
1 credit, Spring

Practical application of public speaking skills in a variety of settings. Preparation for and participation in intercollegiate forensic activities. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisite: SP-267.

SP-227 Non-Verbal Communication
4 credits, not offered every term

Explores theories and types of nonverbal behavior in relation to the communication process and in relation to physical environments, social roles, gender & culture. Examines the influence, interpretation and/or management of such qualities as appearance, body movement, facial expression, voice, use of space, touch, and time. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SP-229 Oral Interpretation
4 credits, not offered every term

Oral interpretation of literature from the areas of prose, poetry and drama. Analyze specific literary works and communicate that understanding through performance. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisite: SP-224.

SP-250 Competitive Platform Speaking
4 credits, not offered every term

Advanced theory and practice in public speaking. Simulated public speaking situations, audience analysis, and rhetorical strategies will be emphasized. Students will prepare and present a variety of speeches. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisite: SP-225.

SP-267 Parliamentary Procedure
4 credits, not offered every term

The principles and practice of parliamentary procedure to develop skills in conducting business during meetings. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisite: SP-226.

SP-280 Speech/CWE
2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of communications. Required: Instructor consent & a CWE seminar.

SPN**Spanish****FRL-100 Workplace Spanish**
0-4 credits, Fall/Winter/Spring

Designed to teach specific occupational language and communication techniques. Introduces the specialized vocabulary, ability to communicate, and cultural awareness that employees need to successfully help their Spanish-speaking clientele. Emphasizes routine questions and answers, dialogues, direct commands, role-playing activities, and situations that resemble the use of Spanish in daily contact with Hispanic clients.

SPN-101 First-Year Spanish
4 credits, Fall/Winter/Summer

First term 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. Offered summer term as an intensive 3-week course. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SPN-102 First-Year Spanish
4 credits, Summer/Winter

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. Offered summer term as intensive 3-week course. Prerequisite: Pass SPN-101 or instructor consent.

SPN-103 First-Year Spanish
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. Offered summer term as intensive 3-week course. Prerequisite: Pass SPN-102 or instructor consent.

SPN-120 Spanish for Health Professionals
3 credits, not offered every year

A course for students enrolled in the CCC nursing program and other health care professionals. Presents the specialized vocabulary needed to communicate with Spanish-speaking patients in health-care settings. Emphasizes personalized questions, grammatical exercises, dialogues, role-playing activities, and situations that resemble the use of Spanish in daily contact with patients. Prerequisite: SPN-101 or instructor consent.

SPN-201 Second-Year Spanish
4 credits, Fall

First of a three-term intermediate, multimedia course. Concentration is on speaking, listening comprehension, reading, and writing. Explores cultural differences among Spanish-speaking countries and between the latter and European-American culture. Prerequisite: Pass SPN-103 or instructor consent.

SPN-202 Second-Year Spanish
4 credits, Winter

Second of a three-term, intermediate, multimedia course. Concentration is on speaking, listening comprehension, reading, and writing. Explores cultural differences among Spanish-speaking countries and between the latter and European-American culture. Prerequisite: Pass SPN-201 or instructor consent.

SPN-203 Second-Year Spanish
4 credits, Spring

Third of a three-term, intermediate, multimedia course. Concentration is on speaking, listening comprehension, reading, and writing. Explores cultural differences among Spanish-speaking countries and between the latter and European-American culture. Prerequisite: Pass SPN-202 or instructor consent.

SPN-211 Intermediate Spanish Conversation
3 credits, Fall

Emphasis will be to continue to develop oral proficiency beyond that achieved by the end of second year Spanish including expanding vocabulary and broadening the student's cultural awareness of the Spanish-speaking world. Grammatical explanations will be kept to a minimum. Prerequisite: Pass SPN-203 or instructor consent.

SPN-212 Intermediate Spanish Conversation
3 credits, Winter

Emphasis will be to continue to develop oral proficiency beyond that achieved by the end of second year Spanish including expanding vocabulary and broadening the student's cultural awareness of the Spanish-speaking world. Grammatical explanations will be kept to a minimum. Prerequisite: Pass SPN-203 or instructor consent.

SPN-213 Intermediate Spanish Conversation
3 credits, Spring

Emphasis will be to continue to develop oral proficiency beyond that achieved by the end of second year Spanish including expanding vocabulary and broadening the student's cultural awareness of the Spanish-speaking world. Grammatical explanations will be kept to a minimum. Prerequisite: Pass SPN-203 or instructor consent.

SPN-221 The Latin American Short Story
3 credits, not offered every year

Concentrates on reading and analyzing short stories of well-known Latin American authors. This is a one term course. It is geared toward students with experience in the spoken language who want to improve their reading and writing skills. Prerequisite: Pass SPN-203 or instructor consent.

SPN-280 Spanish/CWE
2-6 credits**Fall/Winter/Spring/Summer**

Cooperative work experience. Provides students with on-the-job work experience in the field of Spanish. Required: Instructor consent & a CWE seminar.

SSC**Social Science Inquiry****SSC-150 The Columbia Basin: Watershed of the Great Northwest**
5 credits, not offered every year

The Columbia River watershed dominates the culture and economy of the Pacific Northwest, past, present, and future. This course explores the Columbia River Basin and its natural and human history. Includes field trips. Recommended: Pass RD-090 or placement in RD-115.

SSC-151 The Columbia Basin: Watershed of the Great Northwest
5 credits, not offered every year

The Columbia River is the largest river in the western United States. This course focuses on social issues of the management of the Columbia River Basin and its resources, with Portland as the metropolis of the watershed. Includes field trips. Recommended: Pass RD-090 or placement in RD-115.

SSC-152 The Columbia Basin: Watershed of the Great Northwest
5 credits, not offered every year

Issues and opportunities associated with the Columbia River watershed are of immediate importance. This course grapples with the future of the Columbia River Basin and the living organisms (including humans) dwelling in it. Includes field trips. Recommended: Pass RD-090 or placement in RD-115.

SSC-160 Faith & Reason
5 credits, not offered every year

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: Pass RD-090 or placement in RD-115.

SSC-161 Faith & Reason
5 credits, not offered every year

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: Pass RD-090 or placement in RD-115.

SSC-162 Faith & Reason
5 credits, not offered every year

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 landscape. Recommended: Pass RD-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. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-171 Metamorphoses**5 credits, not offered every year**

Explores the effect of change on individuals and societies. Helps students evaluate the probable success of various means of promoting personal, social/cultural/political, and paradigmatic change through readings in Darwin, Marx, Gandhi, and Kafka. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-172 Metamorphoses**5 credits, not offered every year**

Explores, analyzes, and evaluates the changes occurring now. Through independent study, peer instruction, website and digital portfolio development, students will examine the intersections of cultural, social, individual, religious, paradigmatic shifts happening in our own lifetimes. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 placement in WR-121.

SSC-180 Pathway to Sustainability**5 credits, not offered every year**

Can we create a more sustainable and just world? We will question our assumptions regarding economic models, democracy, our relationships with the environment, and social structures? What are the roots of the current ecological crisis? Recommended: Pass RD-090 or placement in RD-115.

SSC-181 Pathway to Sustainability**5 credits, not offered every year**

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? Recommended: Pass RD-090 or placement in RD-115.

SSC-182 Pathway to Sustainability**5 credits, not offered every year**

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? Recommended: Pass RD-090 or placement in RD-115.

SSC-190 Human Nature**5 credits, not offered every year**

This course explores the complex connections between humans and nature and specifically asks, "What is human nature?" We will look at humans as biological organisms, language speakers, constructors and constructions of society and culture. Recommended: Pass RD-090 or placement in RD-115.

SSC-191 Human Nature**5 credits, not offered every year**

Explores the complex connections between humans and nature. How have we described and represented nature to ourselves? How have humans over the course of time understood themselves and interacted with the natural world? Recommended: Pass RD-090 or placement in RD-115.

SSC-192 Human Nature**5 credits, not offered every year**

Explores the complex connections between humans and nature. How have our understandings of nature and human nature changed? Do humans have unique responsibilities toward the natural world and, if so, what are they? Recommended: Pass RD-090 or placement in RD-115.

SSC-212 Introduction to Chicano/a – Latino/a Studies**4 credits, not offered every term**

This interdisciplinary course surveys the socio-historical and political-economic experiences and cultural roots of Chicano/as and Latino/as in the United States. Topics include race, class, gender, language, immigration, various social institutions (education, family, religion), labor issues, rural/urban cultures, reform and social movements, cultural resistance and expressive culture. Recommended: Pass WR-090 or placement in WR-095.

SSC-220 Modern War & American Popular Culture**4 credits, not offered every term**

Emphasizes observation, reflection, description, and critical thinking in order to gain a deeper understanding of the war in Vietnam and the Gulf War as seminal events represented in American popular culture. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-221 Science in American Popular Culture**4 credits, not offered every term**

Emphasizes observations, reflection, description, and critical thinking in order to gain a deeper understanding of the development of evolutionary theory, catastrophe theory, and historical disasters as represented in American popular culture. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-222 Civil Rights in American Popular Culture**4 credits, not offered every term**

Emphasizes observations, reflection, description, and critical thinking in order to gain a deeper understanding of civil rights history as represented in American popular culture and the ways in which the concepts of the civil rights have expanded. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-223 The Humanistic Tradition**4 credits, not offered every year**

Multi-disciplinary examination of major issues and topics from prehistory through the middle ages including perspectives from anthropology, history, art, literature, philosophy, religion, and science. Recommended: Pass RD-090 or placement in RD-115.

SSC-224 The Humanistic Tradition**4 credits, not offered every year**

Multi-disciplinary examination of major issues and topics from the Renaissance Enlightenment from anthropology, history, art, literature, philosophy, religion, and science. Recommended: Pass RD-090 or placement in RD-115.

SSC-225 The Humanistic Tradition
4 credits, not offered every year

Multi-disciplinary examination of major issues and topics from 19th and 20th centuries including perspectives from anthropology, history, art, literature, philosophy, religion, and science. Recommended: Pass RD-090 or placement in RD-115.

SSC-226 Science & Religion
4 credits, not offered every term

Examines different aspects of science and religion and how scientific inquiry affects beliefs. Discusses historical development of astronomy, cosmology, physics, biology, and theology. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-227 Civil War & Psychology
4 credits, not offered every term

Explores causes and effects of the Civil War, with a special emphasis on social, cultural, and economic factors. Analyzes the character and personality of civilian and military leaders of both the North and South. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-228 The Renaissance
4 credits, not offered every term

Students gain insight into its influence on architecture, emphasis upon the development of individual personality, confidence in the power of formal education, belief in the citizen's participation in public life, and the rise of scientific inquiry. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-229 Latin American Studies
4 credits, not offered every term

Survey and analysis of Latin America from pre-colonization to the modern era. Focuses on the political, social, cultural, and economic structure of Latin America. Discusses race and class relations, imperialism, revolution, neo-colonialism, and dependency theory. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-230 Gender & Material Culture
4 credits, not offered every term

Provides an in-depth study of social and cultural significance of material culture as it applies to gender, within a historical context. Focuses on the material world of American society from the colonial era to the present. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-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: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-232 Women in American History
4 credits, not offered every term

Explores changing roles of women in American history. Emphasis on concepts of separate spheres, public/private realms, development of women's rights, role of women in reform and social movements, and women's roles and experiences across race and class. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 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: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-234 Freedom, Privacy and Technology
4 credits, not offered every term

Investigation of how the development of computer based technologies is transforming the notion of privacy, anonymity, and individual freedom. Explores social impact of knowledge and data gathering techniques, surveillance, mass marketing, and commercialization of online world. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

TA**Theatre Arts****TA-101 Appreciation of Theatre Arts**
4 credits, Fall

Develop personal understanding of theatre by attending productions. Plays are reviewed and evaluated in written form and in group discussion. Recommended: Pass WR-095 or placement in WR-121.

TA-102 Appreciation of Theatre Arts
4 credits, Winter

Develop personal understanding of theatre by attending productions. Plays are reviewed and evaluated in written form and in group discussion. Recommended: Pass WR-095 or placement in WR-121.

TA-103 Appreciation of Theatre Arts
4 credits, Spring

Develop personal understanding of theatre by attending productions. Plays are reviewed and evaluated in written form and in group discussion. Recommended: Pass WR-095 or placement in WR-121.

TA-111 Fundamentals of Technical Theatre
4 credits, Fall

Study and practice in techniques of assembling various types of productions for presentation. Includes basic principles and techniques in stage design, construction and lighting.

TA-112 Fundamentals of Technical Theatre
4 credits, Winter

Study and practice in techniques of assembling various types of productions for presentation. Includes basic principles and techniques in stage design, construction and lighting.

TA-113 Fundamentals of Technical Theatre
4 credits, Spring

Study and practice in techniques of assembling various types of productions for presentation. Includes basic principles and techniques in stage design, construction and lighting.

TA-141 Acting I
4 credits, Fall

Studies the methods, techniques and theories of acting as an art form. Performance of lab exercises and excerpts from plays are the basic teaching approaches. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

TA-142 Acting II
4 credits, Winter

Studies the methods, techniques and theories of acting as an art form. Performance of lab exercises and excerpts from plays are the basic teaching approaches. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

TA-143 Acting III
4 credits, Spring

Studies the methods, techniques, and theories of acting as an art form. Performance of lab exercises and excerpts from plays are the basic teaching approaches. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass TA-141 or TA-142 or instructor's consent.

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 performances. Required: Instructor consent.

TA-195 One-Act Plays
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. Required: Instructor consent.

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. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisites: Pass TA-111, pass TA-112 & pass TA-113.

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 production. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisites: Pass TA-111, pass TA-112 & pass TA-113.

TA-213 Technical Theatre Study
4 credits, Spring

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. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisites: Pass TA-111, pass TA-112 & pass TA-113.

TA-241 Shakespeare for Actors
4 credits, not offered every year

Explore character development and performance with particular emphasis on style, genre, language and rhythm. Lecture, discussion and student presentations based on select texts. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisites: Pass TA-141, pass TA-142 & pass TA-143.

TA-242 Acting Techniques: Scene Study
4 credits, not offered every year

An overview of Western theater history from the time of the Greeks to the present. Lecture, discussion and student presentation, including performances from selected scenes, will be used to explore each era of theater. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisites: Pass TA-141, pass TA-142 & pass TA-143.

TA-243 Play Direction
4 credits, not offered every term

Theory, philosophy and practice of play directing. Casting and rehearsal of players, production organization, script analysis and scene building. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisites: Pass TA-141, pass TA-142 & pass TA-143.

TA-253 Theatre Rehearsal/Performance
1-3 credits, Fall/Winter/Spring

Training in theatre production through intensive study and rehearsal of scenes and plays for public performances. Required: Instructor consent.

TA-280 Theatre/CWE
2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides student with a learning experience related to course of study and career goal. Major emphasis will be given to on-the-job experience and training. Required: Instructor consent & a CWE seminar.

TA-295 One-Act Plays
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. Required: Instructor consent.

WLD

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

Welding Technology

Many of these classes can be customized to meet the needs of the industry. For additional information on a customized class for your company, contact the Customized Training Department at 503-657-6958, ext. 3523.

WLD-100 Welders' Print Reading I
3 credits, Winter

Provides instruction in reading and interpretation of sketches and prints common in welding practice. Conventional drafting symbols, welding symbols, development of basic shop drawings and projects.

WLD-102 Introduction to Welding
2 credits, Fall/Winter/Spring

Designed for the beginner and experimental welder. Includes: oxy-acetylene, stick, and wire feed welding, oxy-acetylene and plasma arc cutting, bending, coloring and finishing techniques.

WLD-103 Traditional Iron Working
2 credits, Fall/Winter/Spring

Course builds on the WLD-102 course. Designed for the creative metal worker. Provides support instruction related to metal sculpture, bending and welding dissimilar metals. Includes blacksmithing techniques and manual metal forming.

WLD-111 Shielded Metal Arc Welding (STICK)

4 or 8 credits, Fall

Provides students with the opportunity to acquire knowledge and skills to perform fillet welds in all positions with the SMAW process. Oxy-fuel cutting, air carbon arc cutting and gouging also covered.

WLD-112 Intro to SMAW Pre-Pipe Welding

2 credits, Fall, Winter, Spring

Provides students with beginning theory and practical instruction in SMAW as it relates to pipe welding. Stringer, fillet, and open root groove welds, and oxy-fuel cutting will be covered.

WLD-113 GMAW/FCAW Welding (Wirefeed)

4 or 8 credits, Winter

Provides opportunity to acquire the knowledge and skills to perform fillet welds in all positions with GMAW and FCAW. Oxy-fuel and plasma cutting also covered.

WLD-115 GTAW Welding (TIG)

4 or 8 credits, Spring

Provides opportunity to 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-150 Welding Processes

4 credits, Fall/Winter/Spring/Summer

Oxy-acetylene welding, brazing, and cutting, stick welding, and wire feed, oxy-fuel and plasma cutting. Includes: safety, electrical fundamentals, routine maintenance, minor repair, 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 welding practice. Development of basic shop drawing views and projections, basic layout math review, ISO and AWS symbols and weld joints are covered. Recommended: WLD-100.

WLD-210 Beginning SMAW Pipe Welding
2 credits, Fall, Winter, Spring

Provides an opportunity to acquire the knowledge and skills to perform open root groove welds on plate and pipe using E6010 and E7018. Oxy-fuel pipe cutting will be included. Completion of WLD-110, WLD-111 or experience in SMAW is required.

WLD-211 Advanced SMAW
4 credits, Fall

Provides an opportunity to acquire the 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. Recommended: WLD-111.

WLD-212 SMAW Pipe
2 credits, Fall/Spring

This course will provide theory and practical instruction in open root V groove pipe welding using E6010 and E7018 electrodes. Oxy-fuel pipe cutting will be included. Experience in SMAW is required. May be substituted for WLD-211 Advanced SMAW.

WLD-213 Advanced GMAW/FCAW
4 credits, Winter

Provides an opportunity to acquire the 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. Recommended: WLD-113.

WLD-215 Advanced GTAW
4 credits, Spring

Provides an opportunity to acquire the knowledge and skills to perform groove 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. Recommended: WLD-115.

WLD-250 Welding Fabrication I Beginning Project

4 credits, Fall

Instruction in fabrication techniques including blueprint reading, layout, sketching, bills of material, job cost calculations, measuring, fitting, cutting and welding. A beginning project will be assigned to each student.

WLD-251 Welding Fabrication II Intermediate Project

4 credits, Winter

Students will be assigned an intermediate fabrication project based on skills learned in WLD-250.

WLD-252 Welding Fabrication III Advanced Project

4 credits, Spring

Students will use techniques from Fabrication I and II to build an advanced project. Students will be responsible for all aspects of managing the project to completion.

WLD-260A AWS Welder Certification, 1 Plate

0 credit, Fall/Winter/Spring/Summer

Welder certification in accordance with AWS D1.1 in flat, horizontal, vertical, or overhead position for students enrolled in any CCC welding course. A city card is available for an additional fee.

WLD-260B AWS Welder Certification, 2 Plates

0 credit, Fall/Winter/Spring/Summer

Welder certification in two positions, (vertical and overhead), in accordance with AWS D1.1 for students enrolled in any CCC welding course. A city card is available for an additional fee.

WLD-260C AWS Welder Certification on Pipe

0 credit, Fall/Winter/Spring/Summer

Welder certification on pipe in accordance with AWS D1.1 for students enrolled in any CCC welding course. A city card is available for an additional fee.

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 or in preparation for taking their AWS certification test and is a requirement in the welding technology AAS degree. May be repeated. Required: prior welding experience.

WLD-280 Welding Technology/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Practical experience in the welding trades. Coordination of instruction will occur with industry and the welding and cooperative work departments. Required: Instructor consent & a CWE seminar.

WQT

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

Water & Environmental Technology**WQT-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.

WQT-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.

WQT-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. Prerequisite: Pass WQT-010.

WQT-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. Prerequisite: Pass WQT-011.

WQT-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. Prerequisite: Pass WQT-020.

WQT-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. Prerequisite: Pass WQT-021.

WQT-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. Prerequisite: Pass MTH-065 or placement in MTH-080. Corequisite: MTH-082.

WQT-111 Waterworks Operations I
3 credits, Fall

Introduction to municipal drinking water treatment and distribution systems. Basic waterworks hydraulics, drinking water regulations, waterworks math, waterworks bacteriology, and introduction to water disinfection. Also offered as an online course. Prerequisite: Pass MTH-065 or placement in MTH-080. Corequisite: MTH-082.

WQT-120 Wastewater Operations II
3 credits, Winter

Secondary wastewater treatment alternatives with municipal application. Fixed and suspended film systems and clarification process. Prerequisite: Pass WQT-110. Corequisite: MTH-082.

WQT-121 Waterworks Operations II
3 credits, Winter

Basic hydrology, ground water and surface water sources, well construction and operation, introduction to water chemistry, waterworks hydraulics, and fundamentals of pumps and pumping. Also offered as an online course. Prerequisite: Pass WQT-111. Corequisite: MTH-082.

WQT-122 Water Distribution/Wastewater Collection Systems
3 credits, Winter

Elementary engineering aspects of water distribution and wastewater collection systems. System components, construction materials, pump station design, and related topics. Prerequisite: Pass WQT-110. Corequisite: WQT-120.

WQT-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. Prerequisite: Pass CH-104.

WQT-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, electrodeionization treatment, UV, ozonation, degassification, and microfiltration. Prerequisite: Pass CH-104. Corequisite: MTH-082.

WQT-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: Pass WQT-120.

WQT-131 Water Treatment
4 credits, Spring

Design, operation, and process control of water treatment plants. Includes water chemistry, coagulation, sedimentation, filtration, and disinfection procedures. Review for Oregon Operator certification exams. Lab includes field trips to local water treatment facilities. Prerequisite: Pass WQT-121.

WQT-132 Collection & Distribution Lab
1 credit, Spring

Provides student with field exposure to water distribution systems and wastewater collection systems. Weekly field visits include cross-connection inspection, distribution valving, reservoirs, water metering/repair, pumping station operations, smoke testing, and CCTV.

WQT-134 Environmental Chemistry II
2 credits, Spring

Provides experience in test procedures required for wastewater treatment NPDES discharge permits and the drinking water industry. Prerequisite: Pass WQT-123.

WQT-135 High Purity Water Production II
4 credits, Spring

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: Pass WQT-125.

WQT-180 Water & Environmental Projects I
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: Inclusive CWE Seminar.

WQT-241 Aquatic Microbiology
4 credits, Fall

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. Prerequisite: Pass BI-204.

WQT-242 Hydraulics/Water & Wastewater
3 credits, Fall

Study of closed conduit and open channel flow. Includes hydrostatics, head-loss, pump characteristics, Bernoulli's and the energy equations, and basic characteristics of water. Prerequisite: Pass MTH-065 or placement in MTH-080.

WQT-245 Instrumentation and Control
4 credits, Fall

Methods used to monitor and control treatment processes in wastewater, water and high purity water facilities. Advanced water analysis to include typical monitoring of HPW treatment. Fundamentals of control loops, control systems and data management.

WQT-280 Water & Environmental Projects II
5 credits, Fall

Practical experience in a municipal, public or private wastewater treatment plant of specific activated sludge design. Process loading criteria, data acquisition, trend charting, and relevant process strategies will be addressed. Corequisite: Inclusive CWE Seminar.

WR**Writing****WR-080 Basic Writing Skills**
3 credits, Fall/Winter/Spring

Intense grammar and punctuation review for native English speakers who wish to develop or improve basic writing skills. Prerequisite: Placement in WR-080.

WR-090 Fundamentals of English
3 credits, Fall/Winter/Spring/Summer

Diagnostic and remedial approach to eliminating deficiencies in grammar, punctuation, and usage. Prerequisite: Pass WR-080 or placement in WR-090.

WR-095 Paragraph to Essay
3 credits, Fall/Winter/Spring/Summer

Preparatory study for transfer writing courses, with emphasis on paragraph construction and short papers. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-095 or placement in WR-121.

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. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-095 or placement in WR-121.

WR-121 English Composition
3 credits, Fall/Winter/Spring/Summer

Methods of structure, content, and expository writing. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-095 or placement in WR-121.

WR-122 English Composition
3 credits, Fall/Winter/Spring/Summer

Style, logic, and argumentation. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-121.

WR-123 English Composition
3 credits, Fall/Winter/Spring/Summer

The research paper. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-121 & pass WR-122.

WR-146 Publishing Chapbooks
1 credit, not offered every year

Editing, preparing, and printing of individual student chapbooks (poetry, fiction, creative nonfiction, or drama). Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

WR-169 Introduction to the Art of Dialog
1 credit, not offered every year

This course will focus on the use of creative dialog in fiction, poetry, playwriting and screenwriting. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

WR-227 Technical Report Writing
3 credits, Fall/Winter/Spring/Summer

Introduction to the types of writing encountered in business, industry, the academic world, technology, and government. Emphasizes format, organization, design, clarity, precision, brevity, and ethical considerations. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-121 and pass WR-122.

WR-239 Creative Nonfiction Intensive
1 credit, not offered every year

Techniques of developing and editing creative nonfiction (personal essays, memoirs, and literary journalism). Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

WR-240 Creative Writing: Nonfiction
4 credits, Fall/Spring

Techniques of writing and analyzing types of creative nonfiction such as literary journalism, memoirs, nature or science writing, and personal essays. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-095 or placement in WR-121 or instructor consent.

WR-241 Creative Writing: Fiction
4 credits, Fall/Winter

Techniques of creative writing and the development of critical appreciation of the art of writing fiction. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-095 or placement in WR-121 or instructor consent.

WR-242 Creative Writing: Poetry
4 credits, Fall/Winter

Techniques of creative writing and analyzing the craft and types of poetry, such as traditional and non-traditional forms. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-095 or placement in WR-121 or instructor consent.

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. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-095 or placement in WR-121 or instructor consent.

WR-244 Advanced Fiction Writing
4 credits, Spring

For students with previous writing experience who wish to learn advanced techniques of writing fiction. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-241 or instructor consent.

WR-245 Advanced Poetry Writing
4 credits, Spring

For students with writing experience who wish to learn advanced techniques of writing poetry, including developing voice and style and exploring publishing. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-242 or instructor consent.

WR-246 Advanced Creative Writing: Editing & Publishing
4 credits, not offered every year

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: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-240, WR-241, WR-242, WR-243, or WR-262 or instructor consent.

WR-247 Advanced Playwriting
4 credits, not offered every term

Designed for students with previous writing experience who wish to learn advanced techniques of playwriting. Includes the art of dialogue and the elements of dramatic structure. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-243 or instructor consent.

WR-249 Publishing on Land and Online
1 credit, not offered every year

For students with previous writing experience who wish to learn the advantages and disadvantages of publishing online and on land. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

WR-262 Introduction to Screenwriting
4 credits, Winter

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. Students will review movie scenes and compose their own scenes to be read and discussed in class. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-095 or placement in WR-121 or instructor consent.

WR-263 Advanced Screenwriting
4 credits, Spring

Further exploration of the fundamentals of screenplay composition through the creation of a full-length feature script. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass WR-262 or instructor consent.

WR-264 Screenwriting and Production
4 credits, Spring

Exploration of the process of translating a written work into an image-based medium. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121 or instructor consent.

WR-265 Advanced Screenwriting and Production
4 credits, Spring

Applies filmmaking skills to the production of a short film from a written script. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-095 or placement in WR-121; successful completion of WR-264 or instructor consent.

WR-268 Script Analysis
1 credit, not offered every year

Focus on the skills necessary to break down an original script and analyze it with the intent of readying the work for production. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

WR-269 The Art of Dialog
4 credits, Spring

Focus on the use of creative dialog in fiction, poetry, playwriting, screenwriting and creative nonfiction. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-095 or placement in WR-121.

WR-279 Issues in Poetry Writing
1 credit, not offered every year

Techniques of writing poems, with particular focus on a key issue such as the use of imagery, rhythm, or form. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

WR-280 Writing/CWE
2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of writing. Required: Instructor consent & a CWE seminar.

WS**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 future. Topics: family, education, work, health care, sexuality, and political/economic status. Recommended: Pass RD-090 or placement in RD-115.

Z**Zoology****Z-201 General Zoology**
4 credits, not offered every year

A lab course offering cellular and molecular basis of animal life including genetics, evolution, systematics, and protist diversity. Recommended: Pass MTH-095 with a "C" or better or placement in MTH-105 or MTH-111; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

Z-202 General Zoology
4 credits, not offered every year

A lab course covering the maintenance of the cellular environment, evolution of animal systems, and diversity of the less complex invertebrate animal phyla. Recommended: Pass MTH-095 with a "C" or better or placement in MTH-105 or MTH-111; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

Z-203 General Zoology
4 credits, not offered every year

A lab course covering diversity of the more complex invertebrate and vertebrate animal phyla. Includes animal behavior, distribution, ecology, and conservation. Recommended: Pass MTH-095 with a "C" or better or placement in MTH-105 or MTH-111; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

Z-280 Zoology/CWE
2-6 credits**Fall/Winter/Spring/Summer**

Cooperative Work Experience. Provides students with on-the-job work experience in the field of Zoology. Required: Instructor consent & a CWE seminar.



Smart Choice

Academic Regulations

Adding & Dropping Classes

- To officially add or drop a course you must file a request with the Registrar's Office via CougarTrax, by mail, fax, or in person. (Ceasing to attend class does not constitute official withdrawal.)
- Adding a course after the class has started requires the instructor's written consent and/or a signature on a registration form.
- Drops after the sixth week of the term (for full term courses) require the signature of the instructor and will appear on your transcript with a "W" in the grade column. In order to drop a course without responsibility for a grade, your registration request must be filed before the end of the sixth week of the term.
- No adding/dropping is accepted after the eighth week of the term for classes that are in progress.

Administrative Withdraw

You may be administratively withdrawn from one or more of your classes under the following conditions:

1. If you did not attend the first class session and did not notify your instructor of your absence.
2. If you were unable to demonstrate completion of course prerequisite requirements.

Students withdrawn under these conditions will be notified by the Registrar's Office. *If you are using Financial Aid or Veterans benefits, you may owe a repayment.* Please check with the Student Financial Services Office for additional information regarding your enrollment status and entitlement to benefits.

Attendance

You must be officially registered to attend class, and you are expected to attend the classes in which you're enrolled. If you do not attend your first class session, and do not contact your instructor before the first class session, you may be administratively withdrawn from the class to accommodate wait-listed students. If you're withdrawn from a class under this procedure, you'll be notified by the Registrar's Office.

Absences

Absences during religious holidays when the college is open will be accepted if notification is received before class begins.

Absences due to participation in college-sponsored field trips, intercollegiate functions and other trips may be excused through prior arrangement with your instructors. *Financial aid programs have specific attendance requirements. Contact the Student Financial Services Office for more information, 503-657-6958, ext. 2422.*

Wait List

You may be able to request a position on a class wait list if the class you want is full at the time of registration. Requests can be made via the Web, or in person. You will be enrolled should an opening become available in the course you have requested. Students are enrolled from the wait list on a first-come, first-served and eligibility basis. Certain conditions may affect the eligibility of those requesting a wait list placement. These conditions are as follows:

1. Wait list seat load capacity has been met.
2. There is a "hold" on your student record that restricts registration.
3. There are course restrictions in place such as "instructor consent."
4. You are already enrolled in another section of the same course.
5. There is a time conflict with the course you have selected.
6. You have reached the maximum number of credits allowed (20) without additional authorization.
7. Class has already begun.

Frequently-asked question:

How do I know which courses transfer?

It is your responsibility to know the requirements of the college or university to which you intend to transfer and to meet those requirements. For assistance, see your faculty advisor or a staff member in the Advising & Counseling Center to help you create an educational plan to fit your program of study and the transfer requirements for the four-year institution where you plan to complete a bachelor's degree.

College Credits

The standard unit of measurement for college work is called a credit.

A full-time student is defined as someone enrolled in 12 or more credits in any one term. No student may enroll in more than 20 credits per term without approval from a counselor.

COURSES NUMBERED:

100 and above	College level courses resulting in transcribed academic credit which may be applied toward a degree and/or certificate. May also transfer to four-year colleges.
10 through 99	Courses that result in transcribed academic credit which may or may not be applied toward a degree and/or certificate. May be transferable to other community colleges.*
01 through 08	Continuing education courses, workshops or seminars that carry no credit or application toward a degree and/or certificate. Not transcribed.
09	Classes, seminars, workshops and training resulting in Continuing Education Units (CEUs). These courses are not transcribed as academic credit nor are they applicable toward a degree and/or certificate.

* Students should consult with a faculty advisor or an academic advisor in the Advising & Counseling Center to verify course eligibility towards degree/certificate requirements.

Acceptance of Credit

Credits from regionally accredited institutions recognized by the Council for Higher Education Accreditation (CHEA) may be accepted for course placement, course equivalency, program requirements and degree completion. If you have taken classes at other colleges and would like this course work reviewed for transfer credit at CCC, include official copies of your transcripts with your application for admission or ask the college you previously attended to send a copy of your official transcript to the CCC Registrar's Office.

Credit by Examination (Challenge Exam)

You can challenge a course for credit by taking an oral, written, performance examination, or a combination for course eligibility. Challenge exams are subject to the following limitations:

- Certain courses have been approved for challenge (see the Advising & Counseling Center).

- You must be enrolled at CCC and complete a minimum of three credits during the term in which you challenge a course.
- Challenge exams need to be completed by the eighth week of the term. Credit from challenge exams completed after the eighth week will be recorded on your transcript the following term.
- The per credit challenge fee must be paid prior to testing.

You may challenge a course by obtaining an application from the Enrollment Services Center or Advising & Counseling Center and contacting the college department responsible for instruction of the course. The exam is comprehensive, covering all the basic information and skills required of a student completing the course in the regular manner. The examination may be written, oral, performance or a combination. For more information call the Advising & Counseling Center, 503-657-6958, ext. 2794.

Variable Credit

Some courses are eligible for variable credit. These courses are noted in the *Schedule of Classes* with a "V" in the credit column. This option allows you to pursue an individualized learning program. Notify your instructor of the number of credits you are pursuing.

You must register for the number of credits you expect to earn in that term.

Grades

Letter grades are used to indicate the quality of work completed. To find your grade point average (GPA), divide the total number of grade points earned by the total number of credits attempted in classes graded A-F. Courses graded Pass/No Pass are excluded in calculating GPA. If you believe a grading error has occurred, you must notify your instructor immediately.

GRADE	EXPLANATION	POINTS/CREDIT HOUR
A	Excellent	4
B	Good	3
C	Average	2
D	Below Average	1
F	Fail	0
P	Pass, credit given, no grade points	N/A
N	No pass, no credit, no grade points	N/A
I	Incomplete, no credit, no grade points	N/A
X	Audit, no credit, no grade points	N/A
W	Withdrawn after sixth week of term, no credit, no grade points	N/A
UG	Unreported grade no credit, no grade points	N/A

Audit

An Audit allows you to attend class without responsibility for a grade. Audit carries no credit and does not contribute toward full-time student status. Audited courses do not qualify for Veterans or Social Security benefits, Financial Aid and athletic eligibility. Registration, tuition, fees and attendance standards for audited courses are the same as for credit courses. To change your status from audit to credit, or from credit to audit, please talk with your instructor and make these changes through the registration process before the end of the eighth week of the term.

Calendar

Clackamas Community College operates on the quarter system. Fall, winter and spring terms are 11 weeks in length and summer term classes are eight or 11 weeks in length. Credits as noted on transcripts are measured in quarter hours.

Final Exams

Final examinations take place the last week of each term (see the *Schedule of Classes* for exact dates and times). You must take finals at the scheduled time; exceptions will be made only for illness or other circumstances beyond your control, and must be approved by your instructor prior to scheduled exam time.

Honors

Students achieving a term GPA of 3.5 or better based on nine or more credits graded (A-F) will be recognized at the end of each term for academic excellence on their transcripts.

Incomplete

A grade of Incomplete (I) indicates that the quality of work is satisfactory, but an essential requirement of the course has not been completed. Incompletes are granted only for acceptable reasons and only with the instructor's consent. An Incomplete must be made up within one calendar year from the time it is received or it will remain on your transcript, and then the course must be repeated if credit is to be received.

You must make arrangements with the instructor to complete a course in which you've received an Incomplete.

Pass/No Pass

A Pass grade indicates satisfactory completion of the course (equivalent to a C or better). A No Pass grade means the course was not satisfactorily completed and no credit was granted. Some courses are offered only on a Pass/No Pass basis. Some courses offer the option to choose between Pass/No Pass and an A-F grade option and some courses may be taken as A-F letter grade only. You will select your grade option at the time of registration. Changes to grade option must be made with the Registrar's Office by the end of the eighth week of the term.

Repeating Courses

You may repeat a course as many times as you choose. You must fill out a Repeated Course form in the Registrar's Office to request a recalculation of your GPA. A repeated course will reflect an "R" on your transcript. The grade (A, B, C, D, F) of your last attempt will be used in computing your cumulative GPA. Other attempts will be shown on your transcript, but will not be included in calculating your GPA.

Satisfactory Academic Progress

If you intend to register for six or more credits in a degree or certificate program, you are subject to standards of satisfactory academic progress.

The standards of academic progress are: completion of at least 50 percent of your enrolled credits (not including credits dropped or changed to audit), and a term GPA of 2.0 or greater. Failure to meet either standard will place you on alert status.

If you are on academic alert, you will be sent written notification of your status at the end of the term, including information on resources, tutoring and other options available to you. You must attend an educational planning session before the end of the next term of enrollment in order to draw up an educational plan for improving your academic work. This term will be called your academic alert term.

If you complete 50 percent of your courses and achieve a term GPA of 2.0 or greater during an academic alert term, but have a cumulative GPA less than 2.0, you may enroll for a second academic alert term. You must repeat the educational planning process.

If you do not complete 50 percent of your courses and/or do not achieve a term GPA of 2.0 or greater during an academic alert term, you will be prohibited from registering for college credit classes for one term (summer excluded). Upon re-enrollment, you must repeat the educational planning process.

If you enroll after a one-term restriction and still do not complete 50 percent of your courses and achieve a term GPA of 2.0 or greater during an alert term, you will be prohibited from registering for college credit classes. You may appeal your loss of registration privilege by writing to the Dean of Student Services. An appeals committee will inform you of the outcome within 10 working days of the receipt of the appeal.

Please note: There may be higher standards required for students who receive financial aid; are admitted to Medical Assistant, Clinical Lab Assistant, or Nursing programs; are international students; participate in college athletics; or who receive scholarships.

Transcripts

Official transcripts of your coursework at CCC may be ordered in person, by written request or fax through the Registrar's Office. Official transcripts are \$5 each; unofficial transcripts are available by going to the Web at <http://www.clackamas.edu>

For more information call the Transcript Request Line, 503-657-6958, ext. 2480.

Clackamas Community College reserves the right to withhold issuance of transcripts to students who have not met their obligations to the college.

Graduation

Students are encouraged to petition for graduation at least two terms prior to the term in which they expect to finish. Petitions for graduation may be obtained from the Enrollment Services Center, Advising & Counseling Center, Registrar's Office, or by going to the Web at <http://www.clackamas.edu>

Formal graduation activities are held at the end of Spring term. Students who complete degree or certificate requirements during preceding terms are invited to participate in the Spring term commencement ceremony. Two ceremonies are planned, the first for High School Diploma and GED graduates, and a second for certificate and degree program graduates.

Honors status is granted to students achieving a cumulative GPA of 3.5 on total credits earned at Clackamas. The honors status of Spring term graduates is determined by cumulative GPA through the preceding Winter term.

Multiple Degrees/Certificates of Completion

A student wishing to earn multiple associate degrees must complete 24 credit hours of college level coursework that are above and beyond those used to satisfy the previously earned associate degree requirements. Earning multiple certificates of completion requires an additional 12 credits of college level coursework that are above and beyond those used to satisfy the previously earned certificate.

Please note that a separate Petition for Graduation must be filed for each individual associate degree and/or certificate of completion that you are attempting to earn.

Multiple degrees/certificates may be earned as follows:

- One AAOT
- One ASOT– Business
- One AGS
- One or more AAS with differing program areas
- One or more Certificates of Completion with differing occupational content areas

Student Rights & Responsibilities

Your Social Security Number

Providing your Social Security number is voluntary. OAR 581-41-460 authorizes Clackamas Community College to ask you to provide your number. Your Social Security number will be used for keeping records, doing research, aggregate reporting, extending credit and collecting debt. Please read the statement in the *Schedule of Classes* which describes how your number will be used. Providing your Social Security number means that you consent to the use of your number in the manner described.

Student Information

The college collects data on all students.* The kind and amount of data differ for each student depending on the kind of services you use and the length of your stay at the college. Pursuant to Public Law 93-380, you may review all official records, files, or data pertaining to you, with the following exceptions:

- Confidential financial information reported by the parent or guardian unless the records explicitly grant by written permission the student to review the financial statement.
- Medical, psychiatric, or similar records used for treatment purposes.

Continued

Access to your student record is guaranteed and must be made available to you within 45 days of your official request. You may challenge the content of a record you consider inaccurate, misleading, or otherwise in violation of your privacy or other rights by contacting the college Registrar. You have the right to a hearing as outlined in the “*Students’ Rights, Freedoms & Responsibilities*” section of the *Student Handbook*.

**All data from records submitted, filed and accumulated in the Registrar’s Office become the property of the College.*

Release of Information

Clackamas Community College adheres to and is committed to honoring all state and federal laws pertaining to the privacy and confidentiality of your directory information and academic record. You have the right to restrict access to information if you so choose. Please refer to the following in regards to the release and restriction of directory information.

Directory Information

Clackamas Community College has established an institutional policy regarding the release of limited directory information as defined in the Family Educational Rights and Privacy Act (FERPA). The following information will be released upon request to anyone:

1. Enrollment status
2. Verification of certificate or degree award
3. Residency status
4. Major
5. Athletic participation – height and weight of team members
6. The following information may be released by the Dean of Enrollment Services or Registrar:
 - a. Student name, address, telephone number
 - b. Class location to Public Safety in case of health or safety emergencies.

Exceptions to the above may include but are not limited to:

1. Release of alumni names and addresses to our Foundation Office for communication with CCC graduates;
2. The release and posting of names of students receiving academic honors/awards;
3. Student athletes may sign a release of information form through the Athletic Department for the release of information regarding registration activity, grades and access to records by their coach or the athletic director.

Students employed with the college that have access to student records receive FERPA training and are asked to read and sign an institutional confidentiality statement of understanding. Directory information for use within the college is permitted in accordance with FERPA guidelines. Disclosure within the college does not constitute institutional authorization to transmit, share or disclose any or all information received to a third party.

Requesting to Restrict the Release of Directory Information

You may restrict the release of directory information as mentioned above by submitting a Student Directory Restriction request form with the Registrar’s Office. This restriction will remain in place until you ask for removal. It will remain in place even after you graduate or have stopped attending.

Family Educational Rights & Privacy Act (FERPA)

The Family Educational Rights and Privacy Act (FERPA) provides students with specific rights regarding their academic records. They are as follows:

- The right to inspect and review your records. You may request to review your records by submitting a written request to the Registrar’s Office or other school official having custody of such records.
- The right to seek amendment to your record if you believe it to be inaccurate, misleading or in violation of your privacy rights. Requests for amendments must be in writing and must describe the specific item or record you wish to have amended. You must also include the reasons why the amendment is justified.
- The right to consent to disclosure of personally identifiable information contained in your academic records, except when consent is not required by FERPA. FERPA does not require a student’s consent when disclosure is to school officials with legitimate educational interests (See AR 6-96-0031). Additionally, consent is not required by FERPA in the instances where a person or company with whom the college has contracted or appointed as its agent and/or students serving on official committees have legitimate educational interest. A school official has a legitimate educational interest if the official needs to review an academic record in order to fulfill his/her professional responsibilities.
- The right to file a complaint with the Department of Education, Family Compliance Office concerning alleged failures by the college to comply with the FERPA requirements.

- FERPA allows the college to disclose your directory information without consent. If you do not want this information released, you must submit a request with the Registrar's Office.

Solomon Amendment Disclosure

The Solomon Amendment requires by law that the college release: student name, address, telephone number, date of birth, educational level, academic major and degrees awarded upon request from recruiters of the branches of the U.S. military. If you request that this information not be released, CCC will not release to military recruiters or other parties except as noted in this publication or upon written permission from you.

Student ID Cards

Photo student ID cards are available at each of our campuses. You'll need this card for transactions on campus, including library checkout, access to computer and tutorial labs, the Assessment Center, enrollment verification, and admission to college events. Picture identification will be required to obtain your photo ID card.



Smart Choice

Student, Community & Business Resources

Student, Community & Business Resources

Student Resources

Academic Advising

**CCC OREGON CITY CAMPUS
BILL BROD COMMUNITY CENTER**
503-657-6958, ext. 2794

**CCC HARMONY CAMPUS
HARMONY BUILDING, H101**
503-657-6958, ext. 3108

Academic advisors are available on a drop-in basis to help students by providing a wide range of academic information and assisting students with many academic processes including course selection, degree requirements, educational planning and transfer information.

The Advising & Counseling Center provides many services to assist students. Residing in the Advising & Counseling Center are:

- Academic advisors
- Latino support services
- Transfer Center
- Tutorial services
- Disability Resource Center
- International Students Program
- College counselors
- High school supplementary courses program

Associated Student Government

CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-657-6958, ext. 2245

The Associated Student Government (ASG) of Clackamas Community College is the governing body of CCC students. The president and vice president are elected by the student body; senators and other officers are determined by a selection process. ASG operates under a constitution designed to promote student activities which stimulate social, physical, moral and intellectual life on campus.

Athletics

CCC OREGON CITY CAMPUS, RANDALL HALL
503-657-6958, ext. 2291

Intercollegiate

Clackamas is a member of the Northwest Athletic Association of Community Colleges (NWAACC) and competes in intercollegiate sports with other colleges throughout the Northwest. Intercollegiate athletics for men include cross-country, track, wrestling, basketball and baseball. Women's intercollegiate sports include basketball, softball, volleyball, track, cross country and soccer.

Intramural

In addition to a comprehensive physical education program, Clackamas offers opportunities for students to participate in a variety of intramural sports activities, including tennis, racquetball, fun runs, softball, volleyball, basketball, flag football and badminton (not all activities are offered each year).

Bookstore

CCC OREGON CITY CAMPUS, MCLOUGHLIN HALL
503-657-6958, ext. 2248

The campus bookstore is located at the north end of McLoughlin Hall, first floor. Student can buy required textbooks, reference books, general books and supplies, imprinted shirts, backpacks, paperbacks, gifts, art supplies, greeting cards, candy, cold drinks and much more. Hours of operation are posted outside the bookstore.

The bookstore offers textbooks online at www.cccbooks.com. Textbook reservations will be offered through the website starting Fall '07. Please check the website for further information.

Students may sell their unwanted new and used books for cash at the bookstore. Books may be worth up to 50 percent of the original price. Receipts are not needed for textbook buy-back. Call for buy-back hours.

CCC HARMONY CAMPUS, OIT BUILDING
503-657-6958, ext. 3669

Limited bookstore hours are offered at CCC Harmony Campus Monday-Thursday the first two weeks of fall, winter and spring terms. Please check the current *Schedule of Classes* for exact hours of operation.

Campus Tours

CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-657-6958, ext. 2481

CCC tours are provided for prospective students and community members to view campus life. Student Ambassador tour guides are available by appointment. Call to schedule an individual or group tour, or sign up online at <http://www.clackamas.edu/inside.asp?content=2001>

Career Information

CCC OREGON CITY CAMPUS, COMMUNITY CENTER

Career & Employer Resource Center

503-657-6958, ext. 2409/2232
<http://depts.clackamas.edu/career>

Advising & Counseling Center

503-657-6958, ext. 2794

Career, employment and training information and services are provided to students and potential students. Information and Services include:

- Career exploration resources
- Career assessment tools
- Job search information and planning
- Résumé, cover letter, application and interviewing assistance
- Individualized on-the-job training arranged with local employers
- Employment listings
- Career workshops and classes
- Job search workshops and classes
- Career counseling
- Many of these resources are available online.
- Career exploration courses are available both on campus and online.

Cooperative Work Experience also offers an opportunity for students to earn credits while having workplace experiences that enhance their knowledge and employability.

Child Care

CCC OREGON CITY CAMPUS, FAMILY RESOURCE CENTER
503-657-9795

The Child Care Center is available for students, employees and community families. The center, managed by the YMCA of Columbia-Willamette, is open year-round, Monday through Friday. Care is available for children ages six weeks through six years for a monthly fee. During the summer, care is also available for six- to 12-year-olds. The center is supervised by specialists trained in the social and developmental needs of young children and accredited by the National Association for the Education of Young Children.

Short-term care is available for students in two or three hour time blocks, two to three times a week, for children 30 months and older. Fee is per term.

Preregistration is required. Scholarships are available on a limited basis. For referral to local family day care homes, call 503-253-5000.

Clubs

CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-657-6958, ext. 2245

Some of the clubs active on campus include Associated Landscape Contractors of America, NW Collegiate Ministries, Black Student Union, Cat Club, Chrysalis, Computer, Deutschen Veren (German), Fellowship of Christian Athletes, Rainbow, Horticulture, International, Latter Day Saints Student Association (LDSSA), Pacific Northwest Clean Water Association Students, Phi Theta Kappa, Spanish, Speech, Unidos and Writers. New interest groups are free to organize under the student constitution and the regulations of the college.

Computer Labs

CCC OREGON CITY CAMPUS
503-657-6958, ext. 2308

CCC HARMONY CAMPUS
503-657-6958, ext. 3108

The college has computers available for student use, with lab assistance, in several major lab areas. Streeter Hall and the OIT library are the only general access lab open to all students.

Many academic departments manage their own computer labs. Specialized software for these programs is usually available in these labs only. Check with specific departments to see if they provide lab hours for their students.

College Counselors

CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-657-6958, ext. 2794

College counselors are available on a walk-in basis or by appointment and can help with a wide array of personal and academic and/or professional concerns. These include academic, personal and/or relationship issues, drug or alcohol issues, job and career counseling, as well as dealing with any issues or concerns with college staff or policies.

Streeter Hall Academic Computing Lab

CCC OREGON CITY CAMPUS, STREETER HALL
503-657-6958, ext. 2308

Computers in the Streeter Lab are available to any Clackamas student upon presentation of a current CCC student ID card. Students who are not computer literate need to enroll in a computer competency class before using the lab. Students can take advantage of Windows-based computers, word processing and spreadsheet programs and lab tutors. Computers in the Streeter Lab have e-mail capability and Internet access. Other network access such as Telnet, FTP and World Wide Web is also available.

Lab hours are posted at <http://cs.clackamas.edu/streeterlab/>

Business Computer Lab

CCC OREGON CITY CAMPUS, MCLOUGHLIN HALL, M133
503-657-6958, ext. 2510

The Business Department computer lab is for the use of all business and online students. Group work may be arranged by appointment. Instructor assistants are available to help students with all business technology programs.

The lab is open Monday through Thursday, day and evening; Friday, day only. Lab hours are posted in McLoughlin Hall outside rooms M130 and M132 and on the web at www.clackamas.edu/business/. The lab is closed weekends, summer and when the college is closed. Students travelling a distance may call ahead to confirm lab availability.

Drafting Technology Lab

BARLOW HALL, B274, B276 & B277
503-657-6958, ext. 2379

Open lab schedules are posted outside each lab.

The Drafting Technology labs are available for current CAD, CDT or GIS students only. Lab assistants are available.

Music Technology and Audio Recording Labs

NIEMEYER CENTER, N216
503-657-6958, ext. 2434

The Music MIDI and Audio Recording Labs enable students to compose, record, print and produce music. These labs are available to CCC students enrolled in music classes which use related Music Technology hardware and software. The CCC MIDI lab houses 20 state-of-the-art MIDI work stations. The Audio Recording Lab features both analog and digital recording formats.

Software includes Finale, Digital Performer, Pro Tools, Reason, Vision, Music Shop, Practica Musica and Band in a Box.

CWE Student Tutors

CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-657-6958, ext. 2324

Students working as tutors are linked with the CCC Cooperative Work Experience program which provides them with credits earned for on-the-job experience.

Eligibility for tutoring is determined by the Coordinator of Tutorial Services, and may require the recommendation of the instructor or the Advising & Counseling Center.

Disability Resource Center

CCC OREGON CITY CAMPUS, COMMUNITY CENTER, CC142
503-657-6958, ext. 2324

Disability Resource Center (DRC) offers a wide range of services to provide students with disabilities access to college programs and activities, and auxiliary support. Services may include: interpreters for deaf and hearing impaired students, note taking options, proctored testing, taping of printed materials, test readers/writers, campus-based adaptive equipment and training, enrollment assistance, orientations, campus tours by special arrangement, referral assistance, program and career guidance and counseling. DRC also provides faculty/staff consultations. Students requesting services must:

- Arrange to meet with the DRC counselor
- Provide DRC with documentation from a certifying professional that establishes the existence of a current disability and supports the need for accommodations requested
- Personally request accommodations through the DRC counselor

Accessible parking (disabled parking) is available close to each campus building and disabled parking permits are obtained through the Oregon State Department of Motor Vehicles. Students needing temporary disabled parking (two weeks or less) may make arrangements through the Campus Safety Department. A letter from a physician supporting the need for temporary disability parking is required.

Clackamas Community College does not discriminate on the basis of disability or any other protected status in accordance with applicable law. The College's commitment to nondiscrimination applies to curricular activity and all aspects of operation of the college.

Clackamas Community College is specifically dedicated to providing a harassment-free environment for all people with disabilities, as well as a timely and effective provision of services for students with disabilities.

Any disabled student who feels that they have been discriminated against or harassed due to their disability should contact the Disability Resource Center Coordinator.

High-Tech Center for Students with Disabilities

COMMUNITY CENTER, CC140
503-657-6958, ext. 2324

The TACT (Training in Adaptive Computer Technology) Center offers adaptive computer assistance for disabled students. Emphasis is placed on the use of prescriptive, adaptive computer hardware and software for academic coursework and/or vocational training.

Enrollment Services Center

CCC OREGON CITY CAMPUS, ROGER ROOK HALL
503-657-6958, ext. 2262

CCC HARMONY CAMPUS, HARMONY BUILDING, H102
503-657-6958, ext. 3108

The Enrollment Services Center provides information and assistance with admissions, registration, transcript requests, education charges, student ID cards, payment and general financial aid.

Evening Office

**CCC OREGON CITY CAMPUS, COMMUNITY CENTER
BUILDING RECEPTION/SWITCHBOARD AREA**
503-657-6958, ext. 0

Services include general information, contact with Campus Safety for vehicle assistance and walkouts, lost and found access, pick up and drop off area for messages and materials for departments closed evening hours, copy machine and vending machine assistance, and general problem-solving and assistance for students, staff and the public.

Food Service

CCC OREGON CITY CAMPUS, COMMUNITY CENTER

A full-service cafeteria operates in the Community Center. Vending machines are located in the Apprenticeship Training Center, Barlow, Clairmont, Community Center, Family Resource Center, Randall, and at the Harmony and Wilsonville campuses.

A coffee shop operates in the cafeteria and offers specialty coffee drinks.

Honor Society

ΦΘΚ: Phi Theta Kappa
503-657-6958, ext. 2245

The Clackamas chapter of Phi Theta Kappa, the international honor society for students in community colleges, offers students recognition for hard work and ways to contribute to the community.

Students who have completed at least 12 college-level credits and have a 3.5 or better cumulative grade point average are invited to join.

Membership has many benefits, including Phi Theta Kappa scholarships, society publications, and travel to regional and international meetings. They also have the opportunity to wear a gold stole and tassel at graduation, and automatic eligibility to be included on the National Deans' List. Chapter activities are centered around the society's four hallmarks: scholarship, leadership, service and fellowship. Joining Phi Theta Kappa is a mark of distinction. Applications are available in the Student Activities Office.

Instructional Media Services

CCC OREGON CITY CAMPUS, BARLOW HALL, B104
503-657-6958, ext. 2800

Media equipment is provided in all classrooms on campus to assist in the delivery of instructional material. An extensive library of educational video tapes and DVDs are available for instructional support via the closed-circuit TV system in classrooms, by instructor request, and at video viewing carrels for student access. The college is equipped to participate in teleconferencing.

Telecourses are an integral part of the college educational delivery system. Courses are broadcast on local cable television systems and campus video viewing carrels.

Video Viewing Carrels

DYE LEARNING CENTER

These viewing stations may be used to watch telecourses, class video assignments, and other educational video presentations. Stations are not available for recreational use.

Library

CCC OREGON CITY CAMPUS, DYE LEARNING CENTER
503-657-6958, ext. 2288

The library has a collection of over 52,000 items and also offers electronic access to the complete text of more than 3,600 journals, to newspapers, to over 3,000 e-books, to hundreds of websites and to collections at other public, college and university libraries. Librarians assist students in the use of library and Internet resources and also provide formal library instruction. Electronic reference assistance, interlibrary loan, reserve material, periodicals and newspapers are available. Quiet study space and small-group study rooms are provided. Many databases may be accessed from home through the library's web page library.clackamas.edu. The library is available for use by students, faculty, staff and the general public. College users are issued college ID/library cards at Roger Rook Hall. Public users may obtain a library card free of charge at the CCC library circulation desk.

Music

CCC OREGON CITY CAMPUS, NIEMEYER CENTER
503-657-6958, ext. 2434

The Music Department sponsors a number of vocal and instrumental performing groups which are open to the community. Scholarship funds may be available for students who participate in music groups (need not be a music major). Groups include Concert Band, Jazz Ensemble, Chamber Singers, Vocal Jazz Ensemble, Clackamas Chorale (evening), Jazz Combo/Improvisation and Pep Band (pop/blues/rock/R&B). Some ensembles require an audition.

Music MIDI and Audio Recording Studio Labs are available for students to compose, record, print and produce music. Students may also study live sound engineering. The CCC MIDI lab houses 20 state-of-the-art MIDI work stations. The Audio Recording Lab features both analog and digital recording formats. Software includes Finale, Reason, Digital Performer, Pro Tools, Vision, Music Shop, Practica Musica and Band in a Box. The Labs are available to CCC students enrolled in appropriate music classes.

The CCC Music Department is home to the Ed Beach Collection, a library of over 2,200 hours of recorded jazz. The original master tapes are now in the National Archives; this edition of the Collection is the only other edition in existence.

Service Learning Volunteers

CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-657-6958, ext. 2250

The Service Learning program provides volunteer/community service opportunities for CCC students. Service Learning is a two-term program which combines classroom learning with volunteer field experience. College credit is earned for participation in the program and tuition is free.

Speech & Debate: Forensics

CCC OREGON CITY CAMPUS, NIEMEYER CENTER
503-657-6958, ext. 2726

The forensics program—speech and debate—is open to all students and offers opportunities to get involved in local and regional speech activities. The forensics team is traditionally a strong contender among Northwest colleges in both junior and novice competition, and Clackamas offers coaching in all speech events. Talent/Participation Awards and work-study positions are available for qualifying forensics team members.

Student Activities Office

CCC OREGON CITY CAMPUS, COMMUNITY CENTER

503-657-6958, ext. 2245

The Student Activities Office serves as a resource and information center and coordinates student activities on campus. The office provides information on housing, transportation, insurance, student government, special events, clubs, and other programs of interest to students. The office is also the location of the campus Lost & Found.

Student Ambassadors

CCC OREGON CITY CAMPUS, COMMUNITY CENTER

503-657-6958, ext. 2481

Student Ambassadors are chosen each year through an application/interview process. Ambassadors conduct campus tours, represent CCC at college and career fairs, participate in high school visits, host special events, help with New Student Experience, and staff college information booths. In addition, Ambassadors respond to requests for information that come to the college through the web, by phone or mail.

Student Financial Services

CCC OREGON CITY CAMPUS, ROGER ROOK HALL

Financial Aid

503-657-6958, ext. 2745

Financial Aid services provide students with information, applications and required forms (including the Free Application for Federal Student Aid) for federal and state student aid programs, all types of scholarship programs, and the various types of aid and assistance offered by Clackamas Community College. Copies of expense budgets for determining eligibility, sample loan repayment schedules, and requirements for satisfactory academic progress are available. Also see pages 7-9.

Perkins Loans

503-657-6958, ext. 2410

Clackamas Community College offers Perkins Loan funding to students who meet all eligibility criteria. For information on Entrance and Exit Counseling and collection for Perkins loan accounts, contact ext. 2410.

Scholarships

503-657-6958, ext. 5008

The Scholarship Coordinator helps students with information regarding scholarships and provides assistance throughout the application process. Contact the Student Financial Services Office for additional information. Also see page 9.

Student Accounts

503-657-6958, ext. 2253

Student Accounts services provide students with information regarding unpaid tuition amounts owed to the college and education regarding college policy for the payment of tuition. For more information regarding payment and refund of tuition and other charges, see pages 11-12.

Veterans

503-657-6958, ext. 2554

The Veterans Coordinator provides assistance to veterans, spouses and children eligible for veterans educational benefits. See page 9 for details about educational benefits.

Work Study

503-657-6958, ext. 2745

The Work Study program is a federal financial aid program providing part-time employment not to exceed 19 hours per week. The program is based on financial need and available to eligible students who apply early and are enrolled in at least six credits of coursework in a degree or certificate program. Applicants should use the Free Application for Federal Student Aid (FAFSA) to apply for financial aid.

Student Publications

CCC OREGON CITY CAMPUS, ROGER ROOK HALL, RR135

503-657-6958, ext. 2310

Student publications include *The Clackamas Print*, the award-winning student-run newspaper published weekly during the school year, and *Synesthesia*, a literary magazine publishing student creative writing, photography and art. Student contributions are welcome and provide good opportunities for practical experience in writing, photography, illustration, layout, desktop publishing and graphic design. Tuition waivers are available for student editors and the advertising manager of *The Clackamas Print*. For more information and applications, see the journalism instructor.

Testing/Assessment

CCC OREGON CITY CAMPUS, ROGER ROOK HALL, RR136
503-657-6958, ext. 2269

The Testing/Assessment Center offers a variety of testing and assessment services including:

- Placement assessment
- GED (General Educational Development)
- Distance Learning proctored testing
- Make-up exams (by instructor arrangement)
- Computer Science Placement
- Computer Competency Exam
- Oregon Department of Agriculture Exams
- State of Oregon Tax Board Exams

CCC HARMONY CAMPUS, HARMONY BUILDING, H101
503-657-6958, ext. 3108

- Placement assessment
- Make-up exams (by instructor arrangement)
- Computer Science Placement
- Computer Competency Exam

Tutorial Services

CCC OREGON CITY CAMPUS, COMMUNITY CENTER, CC142
503-657-6958, ext. 2324

Tutorial Services provides free individual and small group tutoring to eligible students in most subject areas. Tutors are available by appointment during regular college hours on the Oregon City, Harmony and Wilsonville campuses. Online tutors are also available for Distance Learning classes.

Computer Science & Math

STREETER HALL ACADEMIC COMPUTING LAB
503-657-6958, ext. 2736

Computer Science tutors are available in the Streeter Hall lab for all computer science classes offered at CCC.

For every level of math skill, one or more of the following is available in the lab: math tutors, computers with course-related software and video tapes.

Weight Room

CCC OREGON CITY CAMPUS, RANDALL HALL
503-657-6958, ext. 2291

The CCC weight room facilities are open to students and the public when classes are not scheduled in the room. Equipment includes pyramid weight machines, free weights, exercise bicycles, steppers and rowing machines, as well as spinning bikes, ellipticals, an upper body ergometer and several single station machines.

WorkSkills Center

CCC OREGON CITY CAMPUS, BARLOW HALL, B240
503-657-6958, ext. 5242

<http://depts.clackamas.edu/WorkskillsCenter>

The WorkSkills Center at Clackamas Community College provides a central location on campus where job seekers and dislocated workers can receive:

Services

- Employability assessments
- Assistance with employment plans and basic employability training
- Reading, writing and math check-ups

Workshops

- Career exploration
- What's happening in the world of work
- How do I start a new career?
- Keyboarding and 10-key
- Computer workshops and classes
- Thriving in the Workplace series
- Reading, writing, and math instruction
- Work Force Investment information (worker retraining)

Plus, participants can use our computer lab, printer, fax machine and telephones for any job search related activity.

For more information and eligibility requirements, please call 503-657-6958, ext. 5242, or go to <http://depts.clackamas.edu/WorkskillsCenter>

Writing Center

CCC OREGON CITY CAMPUS
BILL BROD COMMUNITY CENTER, CC140
503-657-6958, ext. 5188, or carolb@clackamas.edu

The Writing Center offers students one-to-one feedback on any writing assignment, for any class or project. Students can get help with any aspect of writing: understanding the assignment, strategies for getting started, grammar and editing, organization, strategies for revising and polishing, considering the audience, citing sources—just about anything that has to do with writing. We can help with scholarship and entrance applications and also résumés. The Writing Center is open weeks 2-10 in fall, winter and spring terms.

Community Resources

The Arts on Campus

CCC OREGON CITY CAMPUS

Alexander Gallery

NIEMEYER CENTER

503-657-6958, ext. 2386

<http://depts.clackamas.edu/art/>

The Alexander Gallery, located in the Niemeyer Center, features exhibits of work by artists of regional, national and international reputation. Lectures and presentations are often offered in conjunction with gallery exhibits.

Students participate in the design and installation of these exhibitions. Receptions, lectures and presentations are open to the public and often provide an opportunity to meet the artists.

The Alexander Gallery and the art events that accompany exhibitions are supported by the Alexander Endowment for Art Excellence, Clackamas Community College Foundation, the Margaret Thiele Petti Endowment and the Regional Arts and Culture Council.

Pauling Gallery

LINUS PAULING SCIENCE CENTER

503-657-6958, ext. 2386

The Pauling Gallery features art exhibits of student work. The annual student show occurs during the spring term and showcases the best student work of the year. Receptions and presentations are open to the public and provide an opportunity to meet the artists.

CCC Campus

503-657-6958, ext. 2333

The College has assembled a permanent collection of original art by contemporary Northwest artists. Acquisition is ongoing and directed by the Cultural Arts Committee and the Art Department. Displays may be viewed at the Art Center, Barlow Hall, Bill Brod Community Center, DeJardin Hall, Dye Learning Center, Gregory Forum, Family Resource Center, McLoughlin Hall, Niemeyer Center, CCC Wilsonville Campus, Randall Hall, Rook Hall, Streeter Hall and outdoor pedestrian spaces.

Theatre

CCC OREGON CITY CAMPUS, NIEMEYER CENTER

503-657-6958, ext. 2725

The Theatre Department produces one full-length play and several student-directed theatre projects each term. Workshop courses focus on the production of theatre for public performance, and everyone in the community is welcome to participate. The department also offers lecture courses which encompass technique, theory, and philosophy of theatre arts. College credit is available for each production, and students in need of financial assistance may qualify for tuition waivers or work-study.

CCC Foundation

CCC OREGON CITY CAMPUS, BARLOW HALL, B233

503-657-6958, ext. 2402

The Clackamas Community College Foundation is a charitable, non-profit corporation dedicated to raising friends and funds for the college. The Foundation board of directors is a group of business and civic leaders who serve as community ambassadors for the college and its students. Through various fund drives, estate giving, and special events, the Foundation raises money that provides scholarships and grants for students, grants for instructional innovation, and buildings and equipment to strengthen college programs.

Community Education

CCC HARMONY CAMPUS

503-657-6958, ext. 3230

Clackamas Community College offers a variety of adult and continuing education programs at more than 100 locations throughout the college district. These programs are designed to respond to community needs and interests and are scheduled at convenient times and locations. Classes, times, locations and fees are listed in the *Schedule of Classes* mailed quarterly to district residences and businesses. Both credit and noncredit classes are available, including a senior study group and international travel opportunities.

Clackamas works closely with local school districts to sponsor community school offerings. Community schools offer local residents of all ages a variety of community-based programs.

For more information, contact the CCC Community Education Office or one of the following local Community Education/School offices:

Canby Community School	503-266-2086
Estacada Community School	503-630-8523

Continued

Gladstone Community School	503-650-2570
Molalla Community School	503-829-2359
N. Clackamas Community Ed./Milwaukie	503-353-6091
Oregon City Community School	503-785-8520
West Linn Parks & Recreation	503-557-4700

Clackamas also offers learning opportunities at local senior centers, care centers and retirement homes. For more information, contact 503-657-6958, ext. 3109.

Community Recreation/Facilities

CCC OREGON CITY CAMPUS, RANDALL HALL
503-657-6958, ext. 2291

The college hosts several annual events including CCC Takedown Wrestling Tournament, youth baseball and softball camps, volleyball clinics and soccer camps.

Outdoor facilities at CCC include a jogging/walking trail, six tennis courts, a track, softball/baseball fields and soccer fields. Most are available for rent when not scheduled for instructional purposes or college athletics. The weight room is open year-round when classes are not scheduled (excluding holidays). Call the Physical Education/Health Office for specific facility use arrangements, hours and reservation rates.

Driver Education

CCC HARMONY CAMPUS/OIT METRO CENTER
503-657-6958, ext. 3413

The Driver Education program offers 30 hours of classroom instruction and 12 hours of in-car instruction/observation in a dual controlled vehicle. In addition to the program offered on campus, Clackamas Community College offers driver education to high school students throughout Clackamas, Multnomah, and Washington counties. Contact your local community school for information about the Driver Education program offered in your area.

English as a Second Language/ Program for Intensive English

CCC OREGON CITY CAMPUS, DYE LEARNING CENTER
503-657-6958, ext. 2503

CCC HARMONY CAMPUS, HARMONY BUILDING, H105B
503-657-6958, ext. 3117

Clackamas Community College offers English as a Second Language (ESL) and Program for Intensive English (PIE) instruction for residents of the community and international students. Both credit and noncredit classes are offered.

Facility Use

CCC OREGON CITY CAMPUS, GREGORY FORUM
503-657-6958, ext. 2494

CCC HARMONY CAMPUS, HARMONY BUILDING, H102
503-657-6958, ext. 3146

The community is invited to hold meetings, programs or special events at Clackamas. Rental fees will be based on current rental rates and/or services required. Call for further information.

Healthcare Professional Development

CCC OREGON CITY CAMPUS
503-657-6958, ext. 2428

The Healthcare Professional Development (HPD) courses are designed to provide professional upgrades for the healthcare professional. HPD classes can be scheduled by both open enrollment and by private contract. Healthcare courses are also offered for community/private citizen groups. They may be taught off campus for both health care and non-related healthcare industries.

PROFESSIONAL UPGRADE COURSES

The following courses are designed to upgrade professional skills and maintain or upgrade current certification/licensure.

- HPD-009 CPR-Initial (0.6 ceu)
- HPD-009 CPR-Renewal (0.4 ceu)
- HPD-009 EMT-Oregon Intermediate Bridge (5.6 ceu)
- HPD-009 Pain Management for Healthcare Professionals (0.6 CEU)
- HPD-009 Pain Management for Nurses (0.6 ceu)
- HPD-130 Advanced Cardiac Emergencies (1 credit)
- Microscopy for Medical Assistant/Clinical Lab Assistant (2CEU)

John Inskip Environmental Learning Center

CCC OREGON CITY CAMPUS
503-657-6958, ext. 2644

The John Inskip Environmental Learning Center (ELC) is a 3.5 acre site located in the northwest corner of the CCC campus off Beaver Creek Road. Newell Creek bubbles to life here, then flows to the Willamette River through the 1800-acre Newell Creek watershed, the largest intact greenspace in the south metro area.

The ELC offers a shared space for wildlife habitat and environmental education for children, families and adults. Our programs include outreach and on-site programs for students in kindergarten through sixth grade, as well as adult and youth community education covering a variety of environmental topics.

We offer professional development workshops for K-12 teachers and administrators.

Haggart Astronomical Observatory

CCC OREGON CITY CAMPUS
503-657-6958, ext. 5665 (LOOK)

<http://depts.clackamas.edu/haggart>

Haggart Astronomical Observatory is a public observatory operated by volunteer amateur astronomers under the auspices of the CCC Science Department. The Observatory houses a 24" reflector telescope and is open to the public by arrangement. To schedule a viewing session, please call ext. 5665 or send e-mail to: lookup@clackamas.edu. For additional information, please visit the Observatory's website at <http://depts.clackamas.edu/haggart>.

Astronomy courses are offered at CCC through the Science Department; see the listings under General Science and Physics in a current *Schedule of Classes*.

Workforce Development Services

CCC OREGON CITY CAMPUS, COMMUNITY CENTER, CC100
503-657-6958, ext. 2316

Workforce Development Services can assist those who are unemployed, looking for a job, preparing for a career change, or need to upgrade skills.

Workforce Development Services are provided through a federally funded reemployment program. Some services require the participant to meet eligibility and program guidelines. Services include:

- Employment services—job leads, job placement assistance
- Full-service career center
- Job search workshops
- Labor market information
- Career and skills assessment
- Computer classes and computer lab
- Vocational training and skills upgrading
- On-the-job training

Business Resources

Anyone involved in business or industry in Clackamas County will find many valuable services at CCC. In addition to regular business courses offered on the main campus, the college offers customized training, seminars, workshops and other business services at CCC satellite locations.

Business Development Center

CCC HARMONY CAMPUS
7736 S.E. HARMONY ROAD, MILWAUKIE
503-656-4447 or bizcenter@clackamas.edu

Clackamas Community College, in partnership with the U.S. Small Business Administration and the Oregon Department of Economic and Community Development, offers services to current and prospective small business owners and managers.

Contact the Business Development Center (SBDC) for:

GREENHOUSE: A comprehensive 20-week program for new and startup businesses consisting of class lectures and discussions, guest speakers, peer networking and individual business counseling.

SMALL BUSINESS MANAGEMENT I, II, III: A three-year program for owners and managers of established businesses to strengthen management skills through individual counseling, practical application and monthly class meetings.

Continued

WORKSHOPS/SEMINARS: Practical, low-cost training in a variety of areas of interest to small business owners and managers.

BUSINESS COUNSELING: Free individual business counseling (including financial advising and loan application assistance) with professional staff. Call 503-656-4447 for an appointment.

RESOURCE CENTER: Books, periodicals, videos and computers with business software and Internet access are available to assist with market research, feasibility studies or business skills development.

Online links, statewide training schedules and other valuable small business resources available 24/7.

Career & Employer Resource Center

**CCC OREGON CITY CAMPUS
BILL BROD COMMUNITY CENTER**

503-657-6958 ext. 2232 or career@clackamas.edu

<http://depts.clackamas.edu/career>

The mission of the Career & Employer Resource Center (CERC) is to provide staffing solutions for businesses and organizations and to provide career, employment and training for individuals.

- On-the-job training options
- Recruitment services
- Internships

Customized Training & Development Services

**CCC HARMONY CAMPUS
7616 S.E. HARMONY ROAD, MILWAUKIE
503-657-6958, ext. 3676**

Customized Training & Development Services offers training customized to meet the specific needs of local businesses and public agencies.

Our training specialists can provide the following:

- A partnership focused on the client's business success
- Customized training programs, degrees and certificates to meet business and industry needs
- Flexible scheduling
- Instruction by facilitators experienced in teaching working adults
- Permanent records with college credit and continuing education units (CEUs)
- Training needs assessment

Customized Training & Development Services delivers training programs in:

- Communication skills and customer service
- Computer software applications
- Diversity and English as a Second Language
- Human resource development and consulting
- Leadership
- Manufacturing, CAD/CAM and technical training
- Quality and productivity improvement
- Workplace basics and assessment services
- *Train the Trainer*



Smart Choice

College Mission Statement



The Banyan Tree

is our symbol of organizational strength. Like the Banyan Tree, whose branches grow into the ground to become new trunks, the college is continuously growing into a stronger, healthier organization through the personal commitment and initiative of each student and staff member.

Our **Purpose** is creating lifetime opportunities for success through responsive education.

Our **Mission/Philosophy** is to serve the people of the college district with high quality education and training opportunities that are accessible to all students, adaptable to changing needs, and accountable to the community we serve.

Our **Code of Ethics** calls all of us to perform our jobs in a way that fosters personal growth and academic excellence, recognizes the inherent goodness of all people, models personal and academic integrity, respects diversity, and shows concern for the needs and feelings of others.

CLACKAMAS COMMUNITY COLLEGE

This is the Clackamas Mission.

PURPOSE STATEMENT:

“Creating lifetime opportunities for success through responsive education.”

CODE OF ETHICS

Clackamas Community College is dedicated to personal growth and academic excellence. Each member of the college community—students and staff alike—shall strive to:

- recognize the inherent goodness of all people and honor the humanity that joins us;
- practice personal and academic integrity, respecting the dignity, rights, and property of all persons;
- encourage diversity, striving to learn from differences in people, ideas, and opinions;
- demonstrate concern for others, their feelings and their needs, and treat them as we wish to be treated ourselves.

MISSION

The mission of Clackamas Community College is to serve the people of the college district with quality education and training opportunities:

- as a two-year college accredited by the Northwest Association of Schools and Colleges;
- as a publicly supported, community-based organization, governed by a locally-elected Board of Education;
- through programs and courses in professional-technical, liberal arts and sciences (college transfer), basic skills, adult interest, and custom-designed courses and support services;
- within available resources from student tuition and fees, local property taxes, state funds, and additional resource development activities (i.e., state and federal grants, individual and corporate gifts, etc.).

PHILOSOPHY

The college’s mission is implemented with a commitment to being accessible, adaptable, and accountable.

The college endeavors to be accessible by:

- maintaining an open door admissions policy;
- keeping tuition and fees as low as possible and maintaining financial aid programs;
- informing our public about available programs and services;
- encouraging student success through appropriate course placement, effective instructional strategies, recognition of diversity of learning styles, and commitment to student support;
- surmounting the geographical, physical, educational, psychological, and financial barriers that exist for district citizens;
- encouraging free and open exchange of thoughts and ideas;
- welcoming students and staff of diverse backgrounds and cultures.

The college endeavors to be adaptable by:

- asking district citizens, businesses and other community groups what programs and services are needed;
- maintaining flexibility in planning, budgeting, programming and staffing practices so that resources can be shifted as needs change;
- cooperating with other organizations to respond to common challenges;
- maintaining instructional and student support programs which recognize the diversity of learning and cultural styles;
- building productive partnerships with business and industry.

The college endeavors to be accountable by:

- maintaining appropriate standards of performance for all programs, courses and services;
- involving citizens in the budget process, the planning process, and in program development and review;
- conducting regular performance reviews for all college staff members;
- continuing efforts to make the most effective use of college resources;
- evaluating the effectiveness of educational programs and services by measuring student outcomes.

Continued

VALUES

In order to ensure quality service to our community and students and a fulfilling work environment for our staff, we subscribe to the following institutional values:

VALUES PERTAINING TO OUR COMMUNITY

Central Value: The college staff holds the institution in trust for the citizens of the district. We believe that:

- our service and instruction shall always strive to meet the highest standards;
- the college exists in a dynamic environment which encourages innovation, self-evaluation, and continuous improvement;
- the preservation of the college in the pursuit of its mission must take priority over individual concerns while safeguarding the rights and dignity of staff or students;
- academic freedom and the free exchange of ideas are essential elements of the college.

VALUES PERTAINING TO OUR STUDENTS

Central Value: The college exists to enable students to earn a college education, to prepare for the world of work, and to learn how to learn. We believe that:

- students can grow toward their full potential as they experience the joys of discovery and participate in the rigors of study;
- all students possess inner resources which can be developed and refined;
- students have the right to enroll in classes appropriate to their ability levels;
- students must take an active role in their own learning to make their educational experiences meaningful;
- students should respect the diversity and dignity of all persons.

VALUES PERTAINING TO OUR STAFF

Central Value: All college personnel must contribute to and support the educational mission of the college. We believe that:

- every staff member is a problem solver, with the right and the responsibility to identify and resolve issues they encounter on the job;
- staff members must develop and maintain a strong interest in the growth of students and the community we serve;
- effective communication and cooperation among staff members is necessary to fulfill the college mission;
- staff members are responsible for seeking opportunities for continued professional growth;

- the college is responsible for providing professional development opportunities for staff;
- each staff member is entitled to fair and honest treatment by the college.

VALUES PERTAINING TO DIVERSITY

Central Value: The college is committed to building awareness of cultural diversity on our campus and in our community. We believe in:

- respecting the inherent right of all persons to live with dignity and freedom;
- respecting individual rights of expression;
- setting a standard for the larger community by promoting tolerance, communication, and understanding among people with differing beliefs, color, gender, cultures, and backgrounds;
- encouraging affirmative action for students and staff;
- providing opportunities (curriculum development, art exhibits, theatrical presentations, special events) for increasing our awareness of cultural differences and personal life-style preferences within our college and the community.

VALUES PERTAINING TO THE ENVIRONMENT

Central Value: The college accepts responsibility as a steward of the environment. In all areas of the college's operations, we will be proactive in protecting the environment. Our educational role is not only to teach environmental principles but also to model appropriate environmental behaviors. To implement our role, we will:

- encourage students and staff to practice behaviors which are consistent with the preservation of a clean and safe environment;
- minimize the creation of waste, and repair, reuse, and recycle materials whenever possible;
- provide facilities that are safe and free from environmental hazards;
- use the most energy efficient systems available in the physical operation of the college and make energy conservation a priority when planning new facilities and retrofitting existing facilities;
- purchase earth-friendly products whenever feasible, and consider environmental effects when we plan investments in buildings, equipment, maintenance, and repairs;
- maintain a landscape that provides opportunities for environmental awareness, learning, and enjoyment by using the most environmentally compatible methods available for upkeep;
- evaluate our own performance through formal audits and by listening carefully to the observations of employees and others on ways we can improve.

VALUES PERTAINING TO DECISION-MAKING

Central Value: The college maintains an open and inclusive organizational structure which enables all members of staff to participate in the decision-making process. We believe that:

- institutional direction is driven by information received from the staff, the students, and the community;
- all employees should have a clear understanding of how they are connected to the decision-making process;
- we achieve a balance of decentralized and centralized decision-making;
- we maintain a dynamic and continuous organizational audit with the goal of continuous improvement.
- we are flexible and able to develop contingency plans to adjust to a changing environment;
- we are constantly in the process of defining and dispelling ambiguity but are able to accept a certain amount of uncertainty;
- we are constantly seeking direction from the community in policy and curriculum development.

VALUES PERTAINING TO INSTRUCTION

Central Value: Instruction is central to the mission of the college. We must foster a climate that is supportive of students and instructors as key components of the learning process. We seek to develop and maintain opportunities, resources, and strategies that support flexible, responsive instruction to meet diverse and changing student needs in a rapidly evolving educational environment. To accomplish an effective strategic plan for instruction, we recognize the core values that guide our choice of opportunities, and we outline our current priorities as future guides for action. We value:

- local departmental autonomy and academic freedom as indicative of a supportive environment for teaching;
- response to a changing student profile that emphasizes learner-centered teaching, personalized instruction, and a variety of teaching and learning styles;

- diversity in instructional programs and offerings that educate the whole student;
- leadership of faculty, together with staff and students, in instructional planning;
- interdisciplinary and college-wide sharing, communication, and teamwork;
- challenging students and encouraging lifetime learning and responsible citizenry;
- improved student access and success through annual planning and sound student placement;
- appropriate use of technology in support of instructors and instruction;
- innovation, risk-taking, and dissent in the pursuit of quality instruction;
- a focus on quality rather than growth;
- balancing productivity with the need for faculty and curricular development time;
- continued development of connections between Clackamas Community College and our educational and business partners;
- maintaining a climate that supports “us” rather than “us/them.”

Purpose, Mission, Philosophy, Code of Ethics, and Values updated and adopted by the CCC Board of Education, December 1994.

Instructional Values adopted by the VISIONS Group, May 1996.

The Clackamas Guarantee

COLLEGE TRANSFER

Clackamas Community College will refund the tuition of any CCC graduate for any transfer course work passed at CCC with a “C” grade or better, if that earned course credit does not qualify for transfer to an Oregon public college or university within two years of graduation from Clackamas.

PROFESSIONAL/TECHNICAL EDUCATION

Clackamas Community College will provide tuition-free skill training of up to 16 credits to any graduate of an Associate of Applied Science degree program in professional technical studies judged by the employer as lacking in technical job skills normally expected of an entry-level employee.

SPECIAL CONDITIONS:

Professional/Technical Studies

Degree

- The graduate must have earned an Associate of Applied Science degree in a college-recognized professional technical program as indicated on the student transcript.

Employment

- The employment must be full-time and the job must be certified by the college Career and Employer Resource Center as directly related to the graduate’s program of study.
- Initial date of employment of the graduate must be within one year after graduation.
- The employer must certify in writing that the employee is lacking specific job entry-level skills, and must specify the area(s) of skills deficiency within six months of the graduate’s initial employment.

Retraining

- Skill retraining will be limited to 16 credits and to enrollment in courses regularly offered by CCC.
- The skill retraining must be completed within one academic year.
- The employer, graduate, college counselor and the appropriate department chairperson will develop an educational plan which specifies the courses constituting the credit hours of further retraining.
- Failure, withdrawal, or audit of a retraining course counts toward the 16 credit limit.
- The graduate or the employer will pay the cost of fees, books, supplies, uniforms, and other related costs. The college will waive tuition.

TUITION REBATE

Clackamas Community College will freeze tuition rates for students who graduate from CCC within three years of their beginning term. Any tuition increase levied by the college during those three years will be refunded to the student upon graduation.

SPECIAL CONDITIONS:

Qualifications

A student must:

- complete all degree course work at CCC
- graduate within three successive years of initial enrollment
- apply for tuition rebate within one year after graduation

General guidelines (no exceptions to the following)

- A student must earn the degree within three successive years of initial enrollment at CCC.
- Any refund is determined solely on the amount of tuition increase imposed after the initial term of the three successive years. For students whose residency changes during their enrollment, the rebate will be based on the tuition paid for each term. No rebate will be made for tuition paid towards the residency differential.
- A tuition refund cannot be claimed for any term during which a student received financial aid or direct sponsorship for tuition, except loans.
- All course work for a degree must be completed at CCC. (Transfer students do not qualify.)
- The refund applies only to the first 93 credits needed to complete a degree program.
- Only one refund per student is allowed.
- Application for a refund must be made within one year of the student’s graduation date.

For further information

Call Clackamas Community College Registrar’s Office at 503-657-6958, ext. 2262.

2005-2006 STATISTICS:**HEADCOUNT**

Headcount	25,029
Full-time students	1,792
Part-time students	13,499
Non-credit students	9,738
Full-time Equivalence	7,917
Average age, all students	32 years
Average age, full-time students	26 years
Females	11,921 (48%)
Males	11,911 (47%)
Racial/ethnic minorities in student body	14.23%
Students receiving financial aid	2,758
Average amount of aid per student	\$3,487
Total amount of aid received	\$9,617,441
Degrees/certificates awarded	738
Graduation rate (2002 cohort)	18%
Transfer rate (2002 cohort)	36%

For more information on these and other college statistics, contact the Research Office at 503-657-6958, ext. 2313.

CCC at a Glance

Numbers reflect 2005-06 data unless otherwise noted.

SERVICE AREA

CCC District: All of Clackamas County except Lake Oswego, Sandy, Damascus, and Boring school districts.

District Population: estimated – County 361,300 (April 1, 2005)
District (76.5%) = 272,531

ENROLLMENT

2005-06 Head count: 25,029

2005-06 Full-time Equivalence: 7,917

PROGRAMS

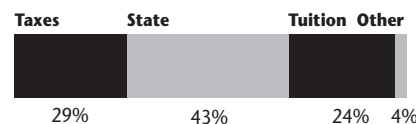
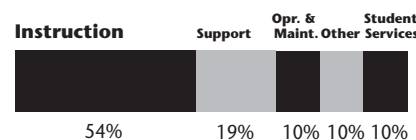
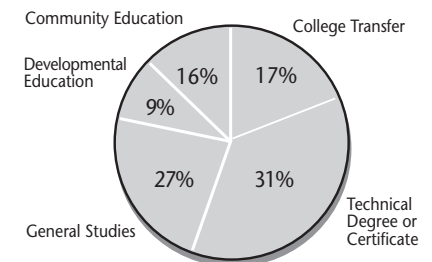
Professional/Technical: CCC offers one-year Certificate of Completion and two-year Associate of Applied Science degree programs in 49 professional/technical career areas and General Studies.

College Transfer: CCC offers the two-year Associate of Arts Oregon Transfer degree, completion of which allows the student to meet the general education requirements of the baccalaureate degree program, and have junior standing for the purposes of admission and registration, at any Oregon University System (OUS) institution.

Literacy/Basic Skills: CCC offers individualized instruction in basic academic and study skills, including Adult High School Diploma, GED, ESL, Alternative Schools, Life & Career Options, and Young Parent Opportunity Program.

Community Education: CCC offers credit and non-credit personal interest and enrichment courses through district community schools at more than 100 locations.

Business Training: CCC offers contracted employee training through the Customized Training & Development Services program and assistance to small businesses through the Business Development Center.

BUDGET**GENERAL FUND RESOURCES 2005-06****GENERAL FUND EXPENDITURES****ENROLLMENT BREAKDOWN BY STUDENT INTENT****CCC Interim President**

Dr. Joanne Truesdell

Board of Education

Ron Adams

Jean Bidstrup

Chuck Clemans

Carlotta Collette

Judy Ervin

Chuck Scott

Ross Smith



Smart Choice

Faculty & Administration

**CLACKAMAS COMMUNITY COLLEGE
BOARD OF EDUCATION**

	Term ends
Chuck Scott	2007
Ron Adams	2007
Judy Ervin	2009
Chuck Clemans	2007
Carlotta Collette	2009
Jean Bidstrup	2009
Ross Smith	2009

**CLACKAMAS COMMUNITY COLLEGE
INTERIM PRESIDENT**

Dr. Joanne Truesdell

FACULTY & ADMINISTRATION

- Acord, Donna (2003)**
Dean, Extended Learning Center
B.S. University of Oregon
M.S. Stanford University
- Andersen, David (1997)**
Art
M.F.A. Brigham Young University
- Anderson, Craig (2007)**
Manufacturing/Engineering Technology
A.S. Oregon Technical Institute
B.S. Oregon State University
M.S.M. Multnomah Seminary
- Anderson, Janet (1990)**
English
A.S., A.D.N., R.N. Clark College
B.A. University of California
M.A. Portland State University
- Arata, Charles (1994))**
Operations Manager, Campus Services
A.G.S. Clackamas Community College
- Arter, David B. (1986)**
Physical Science
B.A. University of California
Ph.D. University of Illinois
- Ashbaugh, Richard (1990)**
Criminal Justice
B.S. Parsons College
M.A. Western Seminary
- Austen, Wayne (1987)**
Auto Body
A.S. Portland Community College
State of Oregon Vocational Certification
- Austin, Joe (2004)**
Dean, Chief Information Officer
B.S. University of Redland
- Bachmann, Anne B. (2000)**
English as a Second Language
B.A. Portland State University
M.A. Portland State University
- Baker, Nancy C. (1987)**
Skills Development
B.A. Indiana University
M.A. University of Oregon
- Baratto, Stefan (2000)**
Mathematics
B.G.S. University of Michigan
M.S. University of Oregon
- Bello, Chippi (1997)**
Enrollment Services Operations Manager
B.S.W. Brigham Young University, Hawaii
M.S. Ed. Portland State University
- Bjerre, Irma C. (2000)**
International Education
B.A. University of Nevada
M.A. University of Nevada
- Blessman, David G. (1998)**
Counseling
B.S. Portland State University
M.S.Ed. Portland State University
- Bohach, John (2004)**
Automotive
Master Medium Technician
Professional Technical Teacher License
- Bown, Jennifer P. (2003)**
Life Science
B.S. University of Nevada, Reno
M.S. University of Nevada, Reno
- Bradbury, Sue (2006)**
Nursing
B.S.N. Keuka College
M.S.N. University of Phoenix
- Bradley, David A. (1999)**
Automotive Programs
A.G.S. Clackamas Community College
- Brennan, Kelly J. (1996)**
Forensics, Speech
A.A./A.S. Clackamas Community College
B.S. Portland State University
M.A. Washington State University
Ph.D. Capella University
- Briare, William V. (1996)**
Dean, Humanities & Social Science Division
B.S. University of Nevada
M.A. Mt. Angel Seminary
- Brodnicki, Nora E. (1999)**
Art
B.A. Hartwick College
M.A. Syracuse University
M.F.A. State University of New York
- Brown, Melinda Jo (1992)**
Student Activities
A.A. Clackamas Community College
B.S. Oregon State University
M.S.T. Portland State University
- Brown, Stephen (1980)**
Physics
B.S. U.S. Merchant Marine Academy
M.S. Portland State University
- Bryant-Treerise, James L. (1998)**
English
B.A. University of California
M.A. Claremont Graduate School
- Burnell, Carol (2004)**
English
B.A. San Francisco State University
M.A. Portland State University
- Caldera, Sue (2004)**
Welding/Manufacturing
Welding Certificate, Mt. Hood Community College
- Cannon, Barbara (2006)**
Nursing
B.S.N. Montana State University
M.N. Oregon Health Science University
- Carey, Kimberly (2005)**
Director, Administrative Computing & Database
B.S. University of Idaho
- Carino, Debra A. (2001)**
Computer Science
B.A. Boston University
M.S. California State University
- Chapman, Dennis (2006)**
Dean, Human Resources
B.A. Williams College
J.D. Antioch School of Law
- Chatkupt, Terry (2006)**
Art Media/Gallery
B.S. Skidmore College
B.F.A. California Institute of the Arts
M.F.A. California Institute of the Arts
- Christensen, Kathryn (2006)**
Business
B.S. Portland State University
M.B.A. Marylhurst University
- Christophersen, Kristin A. (2000)**
Sociology
B.S. Portland State University
M.S. Portland State University
- Clem, Pam (2007)**
Customized Training & Development
B.S. Eastern Oregon University
M.S. Eastern Oregon University
- Cline, Lonnie (1981)**
Music
B.M.E. Idaho State University
- Coffey, Amanda L. (1998)**
English
B.A. Virginia Commonwealth University
M.F.A. Arizona State University
- Cook, C. LeRoy (2003)**
Drafting Technology
B.S. University of Montana
M.H.R.O.D. University of San Francisco
- Cornelius, Trista G. (2002)**
English
B.A. Pacific University
M.A. Portland State University

Corona, Maria (2006)

Dental
A.S. Santa Barbara City College
Certified Dental Assistant
EFDA, EFODA and Radiology Certificate

Cross, Douglas B. (2001)

Computer Science
B.S. University of Oregon
M.S. University of Oregon
M.S. California State University, Hayward

Curry, Merlin (2001)

Emergency Medical Technology
Oregon EMT-Paramedic
A.G.S. Clackamas Community College

Darris, M. Dean (1994)

Political Science
B.S. Portland State University
M.S. Portland State University
Ph.D. Berne University, West Indies

Davis, Ryan M. (2006)

English
B.S. Western Oregon State College
M.A. Mississippi State University

DeFontes, Gale (1979)

Manager, Facilities and Information/Switchboard/Evening Office
A.S. Clackamas Community College
B.A. Marylhurst University

DelGatto, Robert (2003)

Manufacturing

DeSau, Carol (2001)

Bookstore
B.A. Portland State University

DeVenney, Jean E. (1999)

Counseling
B.S. Southern Oregon State College
M.S. Portland State University

Dickinson, James (1980)

Astronomy
B.S. Oregon State University
M.S. Portland State University

Dierdorff, William (2006)

Interim Vice President of College Services
B.S. Oregon State University
M.B.A. Portland State University
Ed.D. Portland State University

Dodge, Trevor (2004)

English
B.A. University of Idaho
M.A. Illinois State University

Dodson, Carol D. (2001)

Nursing
B.S. Sonoma State University
M.S. Oregon Health Sciences University

Donelson, Anne (1998)

Director/Public Affairs
B.S. Portland State University

Drebin, Diane (1998)

Dean, Enrollment Services Division
B.A. Marylhurst University
M.S. Portland State University

Durham, Linda (1996)

Skills Development
B.A. Whittier College, California
M.S. Ed. Oregon State University

Eaton, Leonard G. (2001)

Computer Science
B.S. Oregon State University
M.Ed. Portland State University

Erekson Varga, Amy (2006)

Annual Fund Manger
B.A. Willamette University
M.A. Santa Clara University

Espino, Richard (1999)

Life Science
A.A. Clackamas Community College
Doctor of Chiropractic, Western States Chiropractic College

Fallon, Kathleen S. (2001)

English as a Second Language
B.S. Oregon State University
M.A. Oregon State University

Fiskum, Paul K. (1976)

Physical Education
B.S. Oregon College of Education
M.S. Portland State University

Flippo, Ida (1997)

Criminal Justice
B.S. Southern Oregon State College
M.A.T. Willamette University

Flowers, Jackie (1997)

History
B.A. Appalachian State University
B.A. University of Tennessee
M.A. University of South Carolina
Ph.D. University of South Carolina

Ford, Loren (1984)

Psychology
B.A. California State University,
Long Beach
M.A. California State University,
Long Beach

Francis, Eden A.R. (2003)

Chemistry
A.A.S. Cottey College
B.S. Linfield College
M.S. University of Oregon

Frank, William W. (1998)

Customized Training & Development
B.A. University of California
M.S. Eastern Washington University

Giltz, R. Scott (1996)

Dean, Technical Career Education
Division
State of Oregon Vocational Certification
A.A.S. Clackamas Community College

Godfrey, Jan A. (1992)

Dean
B.A. Fresno State College
M.S.W. Portland State University

Goldstein, Alice (2000)

English as a Second Language
A.B. Stanford University
M.A. Portland State University
J.D. University of California, Berkeley

Grabill, Jr., James R. (2002)

English
B.F.A. Bowling Green State University
M.A. Colorado State University
M.F.A. Colorado State University

Gray, Kate (1992)

English
B.A. Williams College
M.F.A. University of Washington

Griffiths, Fayne (2006)

Director of Student Financial Services
B.A. George Fox University
M.B.A. George Fox University

Grimaldi, Hugo (1997)

Business
B.S. Loyola University of Los Angeles
M.B.A. University of Portland

Grossmann, Sandra J. (1998)

Psychology
B.A. Metropolitan State College
M.S. Portland State University

Hall, Adam L. (1998)

Mathematics
B.S. Portland State University
M.S. Portland State University

Halliday, Karen L. (2000)

Library
B.A. University of Washington
M.S. University of Washington
M.L.S. University of Washington

Hamel, Nicolas N. (1999)

Physical Science
B.S. Oregon State University
Ph.D. Portland State University

Hamm, Paula L. (2001)

Education
B.A. Marylhurst College
M.A. University of Illinois

Hanson, Catherine (2001)

Skills Development
B.A. Eastern Oregon University
M.S. Portland State University

Harber, Renee (2004)

Horticulture
B.S. Ball State University
Ph.D. Oregon State University

Harlow, Franklin I. (1977)

Speech
B.S. Southern Oregon State College
M.A. University of Northern Colorado

- Hartsock, Donald G. (1988)**
Philosophy
B.A. Colorado State University
M.A. Colorado State University
M.A. University of Allahabad, India
- Hatfield, R. Dale (1994)**
Business
B.S. Oregon State University
M.B.A. University of Portland
- Hearing, Sylvia J. (1998)**
Customized Training & Development
B.A. Portland State University
M.B.A. City University
- Helbig, Ronald E. (1992)**
Building Construction
State of Oregon Vocational Certificate
A.S. Clackamas Community College
- Herman, Brenda (1987)**
Mathematics/Computer Science
B.A. Lenoir Rhyne College, North Carolina
M.S. University of North Carolina
- Holcomb, David (200)**
Director, Bookstore
B.S. Marylhurst University
M.B.A. Marylhurst University
- Hoover, Sarah (2004)**
Geology
B.S. North Carolina State University
M.S. University of Oregon(2004)
- Howley, Elizabeth A.M. (1983)**
Horticulture
A.S. Stockbridge School of Agriculture
B.S. University of Massachusetts
- Humbert, Ligaya (2006)**
Director of Fiscal Services
B.A. University of the East
M.B.A. George Fox University
- Jackson, Jr., James E. (1991)**
Director/Health/Physical Education/
Athletics
Title 9 Coordinator
B.S. U.S. Naval Academy
B.A. University of Iowa
M.S.T. Portland State University
- Jackson, Mary Jo (1998)**
Director, Enrollment Services Special Projects
B.S. University of Oregon
M.S. Portland State University
- Jones, Michael L. (1988)**
Drafting Technology
A.S. Chemeketa Community College
- Jones, Thomas G. (1986)**
Small Business Development Center
A.A. Brookdale City College,
New Jersey
B.A. Thos. A. Edison College of
New Jersey
M.S. Marylhurst College
Ph.D. Walden University
- Junquera-Santana, Henry (2004)**
Foreign Language
B.A. San Diego State University
M.A. San Francisco State University
M.B.A. National University
- Kaskowitz, Louis (2006)**
Mathematics
B.A. Humboldt State University
M.S. Portland State University
- Keala, Kelly (2004)**
Drafting
B.S. University of Utah
- Keeler, Robert (1997)**
Anthropology
B.A. University of North Carolina
M.A. Idaho State University
Ph.D. University of Oregon
- Ketchum, Ken R. (2000)**
Automotive Technology
A.G. Portland Community College
A.A.S. Portland Community College
Vocational Education Teaching Degree,
Portland Community College
- Kop, Barry (2005)**
Life Science
B.S. University of Oregon
B.A. University of WA.S.hington
Doctor of Chiropractic, Western States Chi-
ropractic College
- Korfhage, Julie (2003)**
Drafting
A.S. Clackamas Community College
- Krause, Tina (2007)**
Customized Training & Development
A.A. Diablo Valley College
B.A. California Lutheran University
M.A. California Lutheran University
- Kyser, Carrie L. (2001)**
Mathematics
B.S. Eastern Michigan University
M.S. Cleveland State University
- LaForce, Matthew (2006)**
Water Environmental
B.S. Cortland College
M.S. University of Idaho
Ph.D. University of Idaho
- Landauer, Edwin G. (1988)**
Engineering Sciences
B.S. Portland State University
M.S.T. Portland State University
M.S. Montana State University
M.S. University of Central Florida
- Laugle, Thomas N. (1990)**
Apprenticeship/Wildland Fire/ESH
A.A. Clackamas Community College
A.A.S. Portland Community College
B.A. Marylhurst University
- Leach, William W.**
Dean, Campus Services
B.A. California State College Stanislaus
- Leuck, Jay (2003)**
Automotive
A.S. Southwestern Oregon Community
College
B.S. OIT
- Lewandowski, Kurt L. (1990)**
Mathematics
B.S. Southern Utah State College
M.S. Oregon State University
- Lewis, Alice (2003)**
Speech
A.A. Seattle Central Community College
B.A. Portland State University
M.A. Portland State University
- Lewis, Eric W. (1993)**
Psychology
B.A. California State Fullerton
Ph.D. University of Nevada
- Lewis, John C. (1982)**
Water Quality Technology
B.S. Portland State University
M.S. University of Idaho
- Locke, Wesley M. (1998)**
Manufacturing Technology
A.S. Clackamas Community College
- Lockwood, Rick (2005)**
Automotive
A.A. College of Sequoias
ASE Master Tech, L1
- Lund, Dena (1978)**
Purchasing Assistant Administrator
A.A. Clackamas Community College
B.S. Concordia University
- Mach, Susan (1997)**
English
B.A. Pacific University
M.A. Boston University
- Mackey, Terry K. (1998)**
Library
B.A. University of Montana
M.L.S. Indiana University
- Marks, Brenda A. Inglis (1995)**
Skills Development
B.S. Oregon State University
M.S. University of North Texas
Ed.D. Oregon State University
- Martineau, James B. (2001)**
Health/Physical Education
B.S. Southern Oregon University
M.S. Western Oregon University
- Martinez, Guadalupe (2000)**
Counseling
B.A. Oregon State University
M.A.I.S. Oregon State University
- Martini, Karen J. (1999)**
Director of Development
B.S. Portland State University
- Mattson, Michael W. (1996)**
Manufacturing Technology
B.S. Purdue University
M.A. Oregon State University

- Mayer, Lillian M. (1992)**
Life Science
B.A. California State University
M.A. California State University
- Maynard, Karen (2004)**
Medical Assistant/Health Science
Oregon EMT- Intermediate
- McAlpine, Jeffrey (2007)**
English
B.S. Willamette University
M.A. Portland State University
- McFarland, Patricia G. (2000)**
History
B.A. University of Southern Mississippi
M.A. University of Southern Mississippi
Ph.D. Louisiana State University
- McHone, Keoni (2004)**
PE/Cross Country Coach
B.S. Western Oregon University
M.S.Ed. Western Oregon University
- McIlveen, Patricia J. (1998)**
Family/Human Services
B.S. Western Michigan University
M.Ed. Florida Atlantic University
Ed.D. Portland State University
- Meuser, Ellis (2004)**
Skills Development
B.Th. Northwest Christian College
M.S. Western Oregon University
- Miller, David W. (1998)**
International Education
B.A. University of Montana
B.A. Portland State University
M.A. Portland State University
- Miller, Nick (2003)**
Automotive Technology
A.A.S. Clackamas Community College
- Mills, David J. (2001)**
Music
A.A. Mt. Hood Community College
B.S. Westminster College
M.M.E. Lewis & Clark College
- Mingo, Andrew (2004)**
English
B.A. University of Nevada
M.F.A. San Diego State University
- Mitchell, Maureen G. (2002)**
Dean, Health Sciences Division
R.N. Algonquin
R.N. Ottawa Civic Hospital
B.Sc.N. Brandon University
- Molatore, Dominic (1985)**
Computer Science
B.S. Oregon State University
B.S.C.S. Portland State University
- Moller, Steffen A. (1998)**
Dean, Business, Math & Sciences Division
B.A. Union College
M.A. Andrews University
- Morris, Sarah (2004)**
Nursing
B.S.N. Oregon Health Science University
M.S. University of Portland
- Mount, David B. (1992)**
English
B.A. California State University
M.A. University of California,
Los Angeles
- Munro, Suzanne L. (1998)**
English as a Second Language
B.A. Westmont College
M.A. Fuller Theological Seminary
M.A. San Francisco State University
- Nelson, Bruce A. (1998)**
Horticulture
B.A. University of Pennsylvania
M.S. Washington State University
- Nelson, Robert J. (1990)**
Horticulture
B.S. University of Idaho
M.S. University of Idaho
- Nelson, Tracy (2004)**
HPE/Head Women's Soccer Coach
B.S. University of Portland
M.Ed. Portland State University
- Nielsen, Lisa (2003)**
Skills Development
B.A. University of Oregon
MEd. Pennsylvania State University
- Nolan, Sarah (2006)**
Catalog Librarian
B.A. University of Washington
M.S. Simmons College
- Nopp, Catherine (2004)**
Director/Workforce Development
B.A. Washington State University
M.A. Washington State University
- Nordstrom Hull, Rhonda (2003)**
Mathematics
A.S. Clackamas Community College
B.S. Oregon State University
M.S. Portland State University
- Ogden, Rebecca (1996)**
Skills Development
B.S. Portland State University
M.S. Southern Oregon State College
- O'Toole, Gayle (1983)**
Customized Training & Development
B.S. Arizona State University
M.A. Antioch University
- Page, Fran (2006)**
Education & Human Services
B.S. University of Oregon
M.S. University of Oregon
Ph.D. University of Oregon
- Parini-Runge, Shelly (2006)**
Dean of College Advancement/Executive
Director Foundation
B.A. Arizona State University
- Patrick, Tanya (1994)**
Business
B.A. California State University
M.S.T. Portland State University
- Pearson, Kirk (1986)**
Director, Campus Services
- Ponce, Joanna (2004)**
ESL / Vocational
B.A. San Francisco State University
Ed.M. Oregon State University
- Recker, Kelley (2006)**
Nursing
A.A.S. Clackamas Community College
- Redder, Judy (2006)**
Curriculum & Reporting Operations Manager
B.A. Marylhurst University
M.S. Portland State University
- Reilly, Nicole L. (2002)**
Nursing
B.S.N. Clemson University
M.N. University of Washington
- Rhoden, Josh (2006)**
Physical Education
A.A. Clackamas Community College
B.A. Pacific University
M.A. Pacific University
- Roberts, Joseph (2007)**
Director, Utility Training Alliance/Energy
Resource Management
B.A. St. Mary's College
M.S. Ed. Portland State University
- Robinson, Robin A. (1989)**
Physical Education
B.S. Willamette University
M.A.T. Lewis and Clark College
- Robuck, Chris (2005)**
Dean, Business Office/Controller
B.S. University of Montana
M.B.A. Western State College of Colorado
- Rose, Brian (2005)**
Music
- Rueb, Richard (1995)**
Life Science
B.S. University of South Dakota
M.S. Rutgers University
- Ryan, Joan S. (1994)**
Business
B.S. Southern Oregon State University
M.S. Oregon State University
M.B.A. Oregon State University
- Sager, Don (1988)**
Supervisor/Campus Services
- Sanchez, Camilo (2005)**
Skills Development
B.A. Mexico State
- Schlessman, Heather (2005)**
Nursing
B.S.N. William Jewell College
M.S. University of Missouri, Kansas City

- Schneider, Karen T. (2001)**
Nursing
Nursing Diploma, St. Vincent School
of Nursing
B.S.N. Oregon Health Sciences University
M.S. University of Portland
- Seaman, Lynn (1988)**
Business
B.S. Oregon State University
Ed.M. Oregon State University
- Shackelford, Alan M. (2002)**
Economics
B.S. Portland State University
M.S. Portland State University
- Shea, Tim (1998)**
Small Business Development Center
A.A. Santa Barbara City College
B.S. Portland State University
M.B.A. Portland State University
- Simmons, Bruce (2006)**
Mathematics
B.S. Duke University
M.S. University of Minnesota
- Sims, Casey (2004)**
Counseling
B.A. Willamette University
M.S. Portland State University
- Smith, Kathleen (1992)**
Executive Assistant to the President
A.S. Clackamas Community College
- Smith, Michelle J. (2002)**
Nursing
B.S.N. University of Portland
M.S. University of Portland
- Smith, Vicki (2006)**
Major Gift Officer
- Smith-English, David (1995)**
Theatre
B.A. Lewis & Clark College
M.A.T. Lewis & Clark College
- Sprehe, Tara (2001)**
Registrar
B.A. University of Oregon
M.S. Miami University
- Stone, Karen A. (1983)**
Director/Customized Training
& Development Services
B.A. Stanford University
M.S. Marylhurst
- Strickland, Christina (1983)**
Life Science
A.S. Umpqua Community College
B.S. Oregon State University
M.S. Texas Women's University
- Karen Stubblefield (1977)**
Director/Human Resources
Section 504 Coordinator
- Taylor, Kathleen A. (1991)**
Mathematics
B.S. University of Portland
M.A.T. University of Portland
- Thorn, Carol A. (2002)**
Nursing
B.S.N. Oregon Health Sciences University
M.S. University of Portland
- Toebben, Brad (2006)**
Religion
B.S. University of Missouri
M.A. Katholieke Universiteit Leuven (Louvain)
S.T.L. Katholieke Universiteit Leuven (Louvain)
- True, J. Rick (1995)**
Art
B.A. University of New Mexico
M.F.A. Portland State University
- Truesdell, Joanne (2006)**
Interim President
A.A. Clackamas Community College
B.S. Portland State University
M.B.A. University of Portland
Ed.D. Oregon State University
- Tuffli, Theresa A. (1982)**
Dean, Wilsonville Campus/Harmony Campus
A.S. Clackamas Community College
B.A. George Fox College
M.B.A. George Fox College
- van der Bijl, Baldwin (1978)**
Vice President, Instructional Services
BA - University of California
MS - California State University
- Wakeling, Thomas W. (1999)**
Music
B.S. Portland State University
M.S.E. University of Portland
- Wand, Helen (2004)**
Clinical Lab Assistant
B.S. Marylhurst University
- Wanner, Paul J. (1992)**
Manufacturing Technology
A.A. Clackamas Community College
State of Oregon Vocational Certificate
- Ward, David W. (2001)**
Drafting Technology
A.S. Clackamas Community College
A.A. Clackamas Community College
Oregon Department of Education Certificate
- Waters, William (2004)**
Business
B.S. Portland State University
M.B.A. University of Oregon
- Whitten, Christopher (2006)**
Theatre
B.S. Western Oregon University
- Widerburg, Allen (1987)**
English
B.A. University of Utah
M.A. Portland State University
- Wiggins, Patricia (2007)**
English as a Second Language
A.A. Columbia College
B.S. University of Missouri
M.A. Portland State University
- Wilebski, Yvonne M**
Skills Development
B.S. University of Oregon
M.S.W. Portland State University
- Wilhelm, Roni (1997)**
Workforce Services Operations Manager
- Williams, David (2006)**
Welding
A.A.S. Portland Community College
- Williams, Molly (1980)**
English as a Second Language
B.A. Lewis & Clark College
M.A. Portland State University
- Wolfson, Ellen (1985)**
Counseling
B.S. Portland State University
M.S.W. Portland State University
- Woods, Kathleen M. (1983)**
Physical Education
B.S. Oregon State University
M.Ed. Oregon State University
- Wynia, Marilyn A. (1979)**
Physical Education
B.S. Oklahoma State University
M.A. Oklahoma State University
- Yannotta, Mark A. (1998)**
Mathematics
B.S.E. Southeast Missouri State
M.A. University of Missouri
- Zuelke, William (1997)**
Dean, Counseling/Career Planning/Student Activities
B.A. Gonzaga University
M.Div. Weston School, Cambridge, MA
M.S. Loyola College



Smart Choice

Glossary, Maps, Index

Glossary of terms

Associate of Arts, Oregon Transfer (AAOT)

The Associate of Arts Oregon Transfer Degree is a standardized, two-year curriculum that guarantees junior standing for the purpose of registration upon admission to a four-year, Oregon public university.

Associate of Applied Science (AAS)

The Associate of Applied Science degree is a highly specialized set of classes that prepare students for specific career fields.

Associate of General Studies (AGS)

The Associate of General Studies is a two year degree designed to provide flexibility and uses a variety of college level course work to meet degree requirements.

Academic Evaluation

The Academic Evaluation is an assessment of a student's progress in satisfying the requirements of an certificate or degree. Students can access an Academic Evaluation through CougarTrax, which should be used in consultation with an Academic Advisor.

Articulation Agreements

A written contract between two schools in which course equivalencies are agreed to by both.

Associated Student Government (ASG)

Refers to the Associated Student Government of Clackamas Community College. It is the governing body of CCC students. The president and vice-president are elected by the student body; senators and other officers are determined by a selection process. ASG operates under a constitution designed to promote student activities which stimulate social, physical, moral and intellectual life on campus.

Associate of Science, Oregon Transfer – Business (ASOT)

The Associate of Science Oregon Transfer Degree - Business is a two year program designed for students intending to transfer to an Oregon public university majoring in business.

Audit

An audit allows you to attend class without responsibility for a grade. Audit carries no credit and does not contribute towards full-time student status. Audited courses do not meet full-time status required for Veterans or Social Security benefits, Financial Aid and athletic eligibility. Registration, tuition, fees and attendance standards for audited courses are the same as for credit courses.

Campuses

CCC offers classes and services at a number of campuses and satellite locations. Please see the campus maps in this catalog or the college website for locations and contact information.

Catalog

Each academic year has a new catalog. The catalog describes all the courses offered at CCC and what programs are available.

Certificate of Completion

A form of recognition awarded by a community college for meeting minimum occupational course or curriculum requirements.

Challenge Exam

See "Credit by Examination."

Coadmission

Coadmission is designed to allow students to be admitted at multiple institutions during the same term. This allows students to use financial aid for credits taken at both institutions while offering them greater flexibility when choosing their courses. Student services are available to students at both institutions, varying by coadmission agreement.

Computer Competency

Computer competency is required for an AGS degree. Students may demonstrate computer competency by earning a sufficient score on the Computer Placement Assessment.

Cooperative Work Experience

The Co-op program offers students the opportunity to earn college credit by working in a job directly related to their program of study. Co-op offers expanded learning experiences through exposure to actual work situations, organizational relationships, equipment and techniques that cannot be duplicated in the classroom. For more information call 503-657-6958, ext. 2273 or 2232, or stop by CC129.

Corequisite

A second, related course in which a student must be simultaneously enrolled, in addition to the primary course.

CougarTrax

This is the on-line registration and student information system. Admitted, currently enrolled or returning students can search for classes, add and drop classes, view account information and grades, pay for charges, view and print their financial aid award, and much more.

Course

A subject or an instructional subdivision of a subject, usually offered during a single term.

Course Registration Number/Synonym

A six-digit course registration number is needed for each registered course. It may change from term-to-term whereas the course number remains the same.

Credit

A unit of measure granted by the state for instructional hours taken.

Credit by Examination

Credit by Examination allows a student to earn credit for most courses by passing an examination (“challenge exam”) prepared by the department which offers the course. Please see an Academic Advisor for eligible courses and additional information.

Credit for Prior Learning

Credit for Prior Learning awards credits for learning acquired outside of college through a standardized review process. Please see a Counselor for more information.

Enrollment Verification

Enrollment Verifications are accessible through CougarTrax and are provided by The National Student Clearinghouse (NSC), our authorized agent for providing enrollment and degree verifications. Enrollment Verifications can be presented to health insurance agencies, housing authorities, consumer product companies, and banks, as well as many other agencies requesting proof of enrollment or degree completion. Please note that you may need to order an official transcript if you need your GPA or grades reported.

Free Application for Federal Student Aid (FAFSA)

To apply for financial aid, students need to complete and submit this application as early as possible. This application can be completed two ways: paper/pen and on the web at www.fafsa.ed.gov. Financial Aid Financial assistance for students enrolled at least half time (6 credits). It helps cover school expenses which include tuition, fees, books, supplies and some living expenses.

Full-Time

Carrying a credit load of at least 12 credits.

GPA

Grade Point Average is based on the number of credits attempted, the grades received and grade points assigned.

Grading Option

Grading options may include letter grade (A-F), Pass/No Pass (P/NP), and Audit (X).

Graduation

Students may graduate at the end of any term (Fall, Winter, Spring, or Summer), indicating that they have completed the program requirements. Students must petition to graduate by deadlines published in the Schedule of Classes.

Graduation Ceremony

Formal graduation activities are held at the end of Spring term. Students who have graduated from previous terms are invited to participate in the Spring term commencement ceremony. Participating in the ceremony is not required for graduation.

Honor Roll

Students achieving a term GPA of 3.5 or better based on nine or more credits graded (A-F). Recognition will be noted on student transcripts.

Incomplete

An incomplete may be given by an instructor when a student’s work has been satisfactory but the student has a small amount of work to make up.

Instructor Consent

Written permission from the course instructor, granted prior to enrollment

Letter Grade (A-F)

A grading option that impacts a student’s GPA and credit load.

Major

A major implies that a specific field of study has been chosen such as accounting or nursing.

Online Advisor

An electronic advising service that provides information on all Oregon Community Colleges. Students can obtain important information and request assistance from Academic Advisors at the different community colleges. The Web address for this site is www.oregoncomcolleges.org

Open Entry/Open Exit

Some courses may be entered at any time before the last day of the eighth week of the term, and exited any time after completing course requirements.

Oregon Transfer Module (OTM)

The OTM is documentation on a student’s transcript that they have met a subset of common general education requirements. It is designed for students who wish to transfer to an Oregon University System (OUS) school or another Oregon community college.

Part Time

Carrying a credit load of 6 -11 credits.

Pass/No Pass (P/NP)

A grading option that does not affect a student's GPA but credits count towards part or full-time status if a passing grade is earned.

Petition to Graduate

Submission of this form notifies the College that a student intends to graduate. This form should be turned in at least two terms prior to graduation. The Registrar's Office will then complete and mail out an academic evaluation, identifying the courses that have been completed and the courses that are still required for the degree or certificate.

Placement Tests

A basic assessment that is used to determine your skills in writing, reading and math. It is designed to ensure your success by helping us to place you at the appropriate course levels. Students may also take the Computer Placement Assessment for placement into computer science courses as well as determine computer competency.

Prerequisite

A requirement that must be satisfied before a student may enroll in a particular course. The Schedule of Classes indicates whether a course has a prerequisite under each course title.

Recommended

A suggested competence that will enhance a student's classroom success.

Repeat Course Notification Form

A form filed by a student after repeating a course. This allows for recalculation of the student's GPA using the most recent grade but does not remove notation of the previous grade on the student's transcript.

Residency requirement

To establish residency, students must earn a minimum of 12 credits at CCC for a certificate of completion or a minimum of 24 credits at CCC for an associate's degree.

Satisfactory Academic Progress

Completion of at least 50% of your enrolled credits and a term GPA of 2.0 or greater. See pages 180-181 of this catalog for additional information.

Schedule of Classes

A publication created each term that tells which courses are being offered, where they meet, what time they meet and who teaches them. The *Schedule of Classes* is available in print version, electronic version through the college homepage and through CougarTrax.

Special Admissions Programs

Some programs of study, such as Nursing, have additional admission requirements. A listing of these programs is located in the catalog.

Scholarships

A financial aid award that does not have to be repaid. Scholarships are generally made based on an applicant meeting certain eligibility criteria.

Student ID Number

A 7-digit identification number assigned to all students upon application or initial registration at Clackamas Community College.

Term

CCC is on a quarter calendar with each quarter being referred to as a term. The college year is divided into four terms or quarters: summer, fall, winter, and spring.

Transcript

A copy of a student's permanent record that lists the courses and grades received by the student taken at a particular institution.

Transfer Credit Evaluation

A student-initiated request to have credits from other regionally accredited colleges/universities evaluated towards a degree or certificate to be earned at CCC.

Transfer Courses

Those courses which will transfer to a four-year college or university. See the college catalog or the *Schedule of Classes* for course number definitions or see your advisor.

Tutor

A tutor is a student who has the necessary skills or understanding of a subject that gives additional needed assistance to another student outside of the formal classroom environment. Tutoring is free to CCC students.

Variable Credit

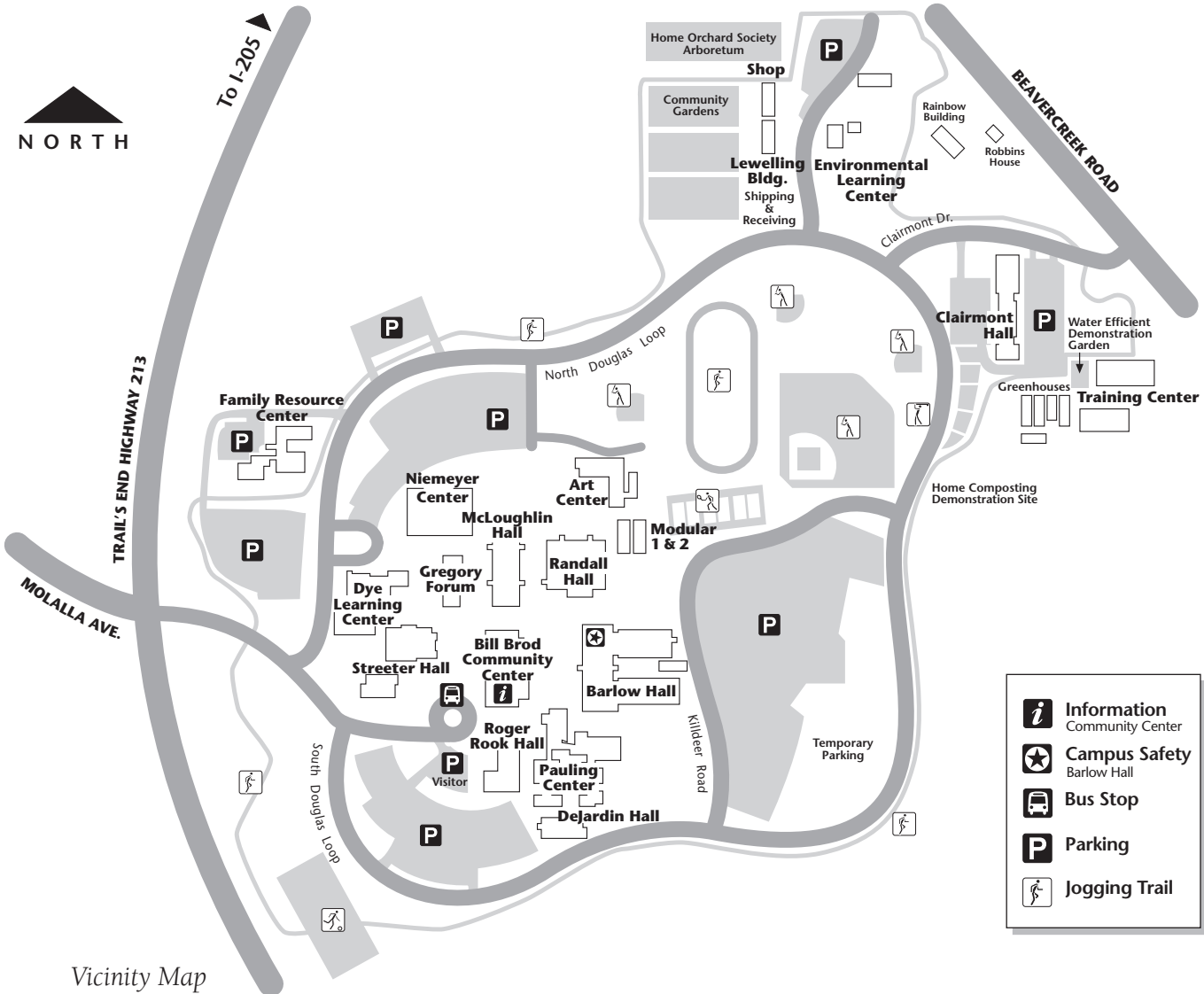
Some courses are offered as individualized learning for which a range of credits may be earned.

Waive/Substitute Form

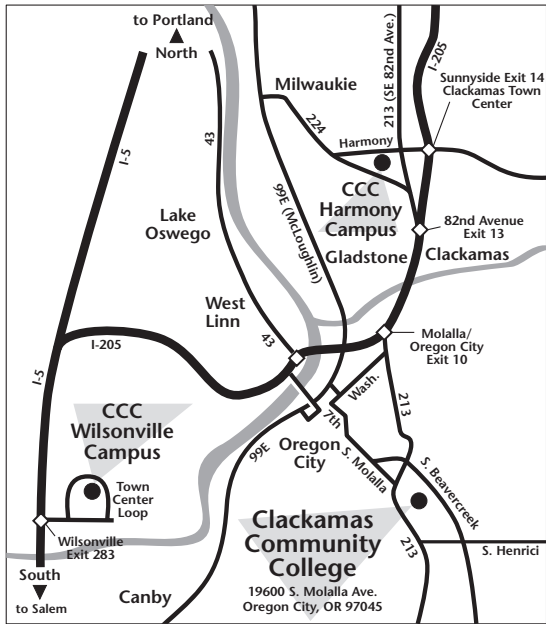
Approval of this request allows a student to have a course waived or substituted for a certificate or associate degree requirement. This is initiated by the student and approval must be granted by the appropriate Department Chair and Dean.

Work Study Program

A financial aid program which is based on need, providing for part-time on-campus employment during the school terms, not to exceed 19 hours per week.



Vicinity Map



Clackamas Community College Campus Map

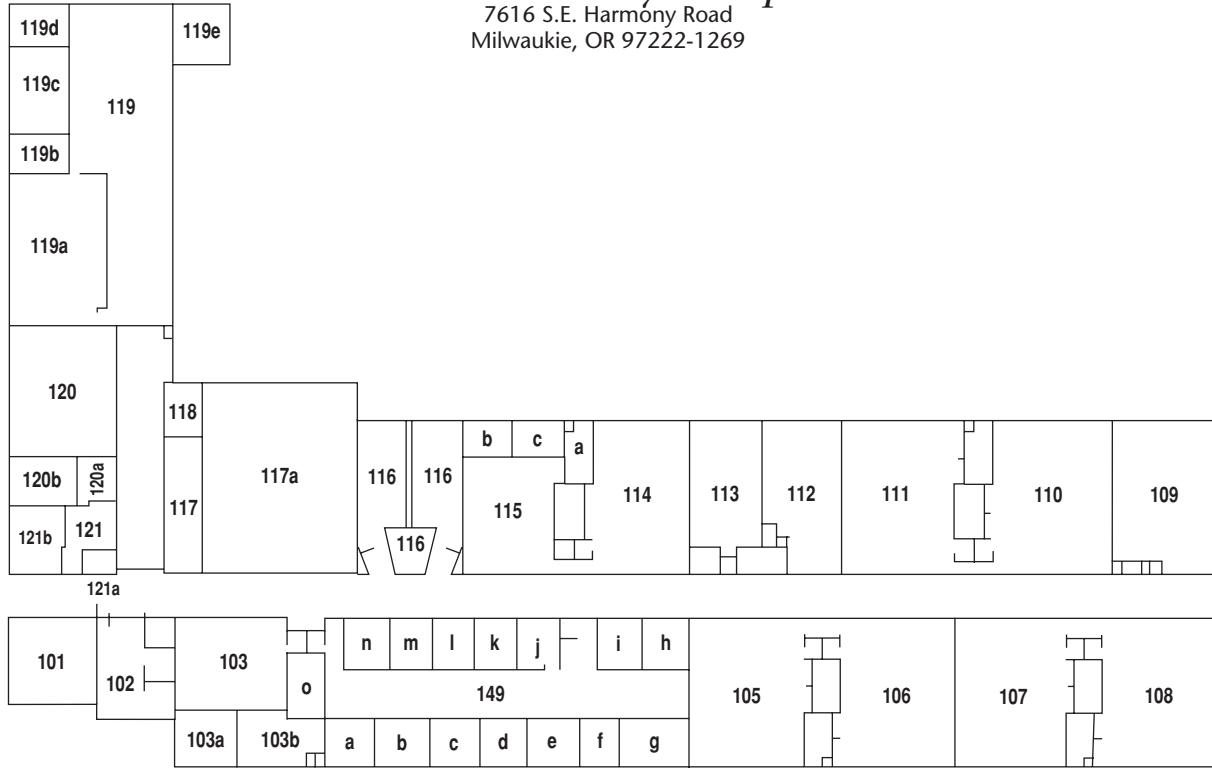
Clackamas Community College
19600 South Molalla Avenue
Oregon City, OR 97045-7998

CCC Harmony Campus
7616 S.E. Harmony Road
Milwaukie, OR 97222

CCC Wilsonville Campus
29353 Town Center Loop E
Wilsonville, OR 97070

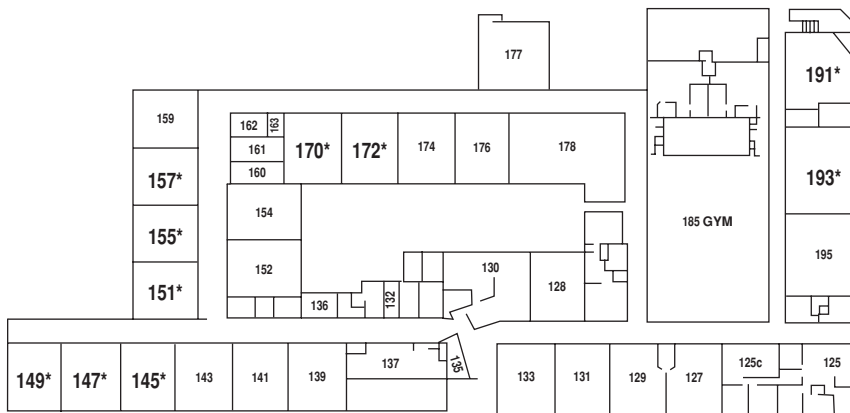
CCC Harmony Campus

7616 S.E. Harmony Road
Milwaukie, OR 97222-1269



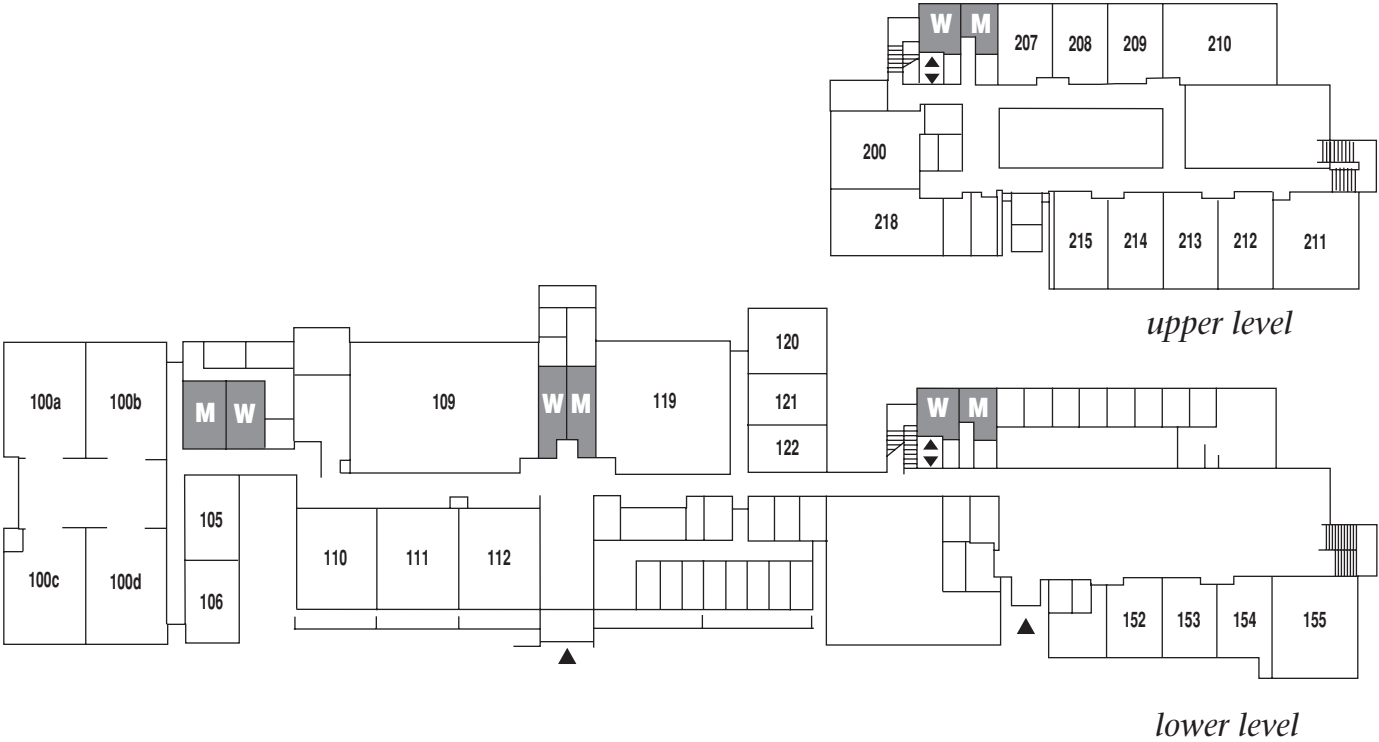
OIT Portland East (Metro Center)

7736 S.E. Harmony Road
Milwaukie, OR 97222-1269



Note: Rooms marked with an * are used for CCC classes.

CCC Wilsonville Campus
29353 Town Center Loop E
Wilsonville, OR 97070



A

A.A. Oregon Transfer Degree (AAOT)..... 14, 16-17, 78, 212
 A.S. Oregon Transfer Degree - Business (ASOT)14, 18-19, 78, 212
 AAOT Degree. *See A.A. Oregon Transfer Degree*
 Absences 178
 Academic Advising/Advisors..... 186
 Academic Intervention. *See Satisfactory Academic Progress*
 Academic Regulations..... 177-184
 Accounting A.A.S. Degree..... 25
 Accounting Clerk Certificate 25
 Accreditation (credentials)..... 4
 ACT/SAT Scores 10
 Adding & Dropping Classes 178
 Additional Programs & Ways to Earn Credit 71-76
 Administration 205-210
 Administrative Medical Office Assistant Certificate 26
 Administrative Office Assistant Certificate
 (less than one year program)..... 26
 Administrative Office Assistant Certificate 27
 Administrative Office Professional A.A.S. Degree..... 27
 Admission 6-7
 Adult Basic Education 91
 Adult High School Diploma (AHSD) 6, 72, 96
 Advanced College Credit 74
 Advanced Placement (AP) 75
 Advising & Counseling Center 10-11
 AGS Degree. *See Associate of General Studies*
 Alexander Gallery..... 193
 Alternative Programs 72-75
 Ambassadors (student) 191
 American Assoc. of Medical Assistants' Endowment 55
 American Assoc. of Medical Assistants (AAMA)..... 55
 American Dental Association (ADA) 37
 American Sign Language 99-100
 Anthropology 93
 Application for Admission..... 6-7
 Apprenticeships..... 72
 Art..... 94-96
 Art Gallery (Alexander) 193
 Art Gallery (Pauling Center)..... 193
 Art on Campus..... 193-195
 Art Programs 94-96
 Art Transfer Options..... 84

Arts & Letters Transfer Options..... 79-80, 85
 Arts and Sciences. *See also Science* 96
 ASOT Degree. *See A.S. Oregon Transfer Degree - Business*
 Assessment/Testing Center 10, 192
 Associate of Applied Science (AAS) 21
 Associate of General Studies (AGS)..... 14, 178
 Associated Student Government..... 186
 Athletics 186
 Attendance 178
 Audit..... 180
 Automotive Service Technology..... 92
 Automotive Service Technology A.A.S. Degree,
 Internship Program..... 28
 Awards (need-based) 7-9

B

Basic Skills Development..... 72-74
 Basic Skills for College Success..... 73
 Biology 103-104
 Board of Education..... 203, 206
 Bookstore 186
 Botany..... 105
 Bridges Program 73
 Building Construction Technology 103
 Business Administration 100-103
 Business Computer Lab..... 188
 Business Development Center 195
 Business, General Transfer Options 82
 Business Management. *See Marketing & Management*
 Business Management Certificate..... 29
 Business Services 195
 Business Technology..... 105-106

C

CAD/CAM. *See also Computer-Aided Drafting/
 Computer-Aided Manufacturing (CAD/CAM)*
 Calendar (school) 2
 Calendar (terms/quarters)..... 180
 Campus Map..... 215
 Campus Tours 187
 Canceled Classes 12
 Career and Employment Resource Center 187
 Career Development Facilitator Certificate,
 Professional Upgrade 29

- Career Information 187
- Cashier's Office 11-12
- Catalogs (other colleges and universities) 11
- CCC at a Glance 203
- CCC Foundation 193
- CCC Transfer Options 77-88
- CCC/PSU Co-Admission 6
- Certificates of Completion 21
- Challenge Exam 179
- Chemistry 110
- Child Care 187, 194
- Citizenship 111
- Clackamas Guarantee 202
- Clinical Laboratory Assistant 113
- Clinical Laboratory Assistant Certificate 30
- Clubs 187
- Co-Admit Program/CCC/PSU 6
- Co-op Student Tutors 188
- College Counselors 187
- College Credit Alternatives 74, 179
- College Mission Statement 197-204
- Collision Refinishing Technology A.A.S. Degree 31-32
- Collision Repair 91
- Collision Repair Technology A.A.S. Degree 32
- Collision Repair/Refinishing 91-92
- Collision Repair/Refinishing Technology Certificate 31
- Commission on Accreditation of Allied Health Education .. 55
- Communication Transfer Options 85
- Communication/Speech. *See Journalism, Speech Therapy, Technical Communication*
- Community Education 193
- Community Recreation/Facilities 194
- Community Services 193
- Computer Application Specialist Certificate, A.A.S. Degree 33-34
- Computer Labs 187
- Computer Competency 212
- Computer Resources 187-192
- Computer Science 113-116
- Computer Science & Math Tutors 192
- Computer Science Transfer Options 82
- Computer Science Workshops 116
- Computer-Aided Drafting 106
- Computer-Aided Drafting/ Computer-Aided Manufacturing (CAD/CAM) A.A.S. Degree 32
- Computer-Aided Manufacturing. *See also Computer-Aided Drafting/Computer-Aided Manufacturing (CAD/CAM)* .. 32-33
- Continuing Education Units (CEUs) 179
- Co-op Student Tutors 188
- Cooperative Work Experience 117, 188
- Corequisite 212
- Corrections A.A.S. Degree 37
- Corrections Certificate 36
- Counseling. *See Advising & Counseling Center*
- Course 213
- Course Descriptions 89-176
- Course Descriptions Prefixes 90
- Course Equivalency 10
- Courses (repeating) 180
- Courses That Do Not Transfer 90, 179
- Coursework, Evaluating Prior 10
- Credit 213
- Credit by Examination (Challenge Exam) 179
- Credit for Prior Learning 75
- Credit Limit 179
- Crime Analysis 35
- Criminal Justice 111-113
- Criminal Justice A.A.S. Degree 35-36
- Criminal Justice Transfer Options 82
- Customized Training & Development Services 196
- D**
- Dates to Remember 2
- Degrees, Certificates & Approved Courses 13-22
- Degrees & Certificates 14
- Dental Assistant 118-119
- Dental Assistant Certificate 37-38
- Design Transfer Options 84-85
- Directory Information 182
- Disability Resource Center 188
- Distance Learning Correspondence 75
- Drafting 107-110
- Drafting for the Disabled 38-39
- Drafting Technology A.A.S. Degree, Professional Upgrade 38-39
- Drafting Technology Lab 188
- Drafting Technology/Architectural A.A.S. Degree 39-41
- Driver Education 194

E

Early Childhood Education	119
Early Childhood Education & Family Studies Certificate, A.A.S. Degree	40-41
Economics	119
Education	120-121
Educational Plan	10-11, 14, 78
Education Transfer Options	83, 88
Electrical Engineering	121
Electronic Engineering Tech., OIT Transfer Courses	42
Electronic Publishing Certificate	41
Electronics Systems Technology	121-122
Electronics Systems Technology Certificate, A.A.S. Degree, Professional Upgrade	41
Emergency Management A.A.S. Degree	42
Emergency Medical Technology	122
Emergency Medical Technology Certificate	42
Emergency Medical Technology -Paramedic A.A.S. Degree	43
Employment Skills Training	129
Employment Skills Training Certificate	43-44
Energy & Resource Management	125-126
Energy & Resource Management Certificate, A.A.S. Degree	44
English	123
English as a Non-Native Language	125
English as a Second Language	127-129, 194
Environmental Learning Center (ELC)	195
Enrollment Services	189
Environmental Learning Center (ELC)	195
Environmental Safety & Health	127
Environmental Science	129
Environmental Studies Transfer Options	81, 83
Equal Opportunity Statement. <i>See Table of Contents</i>	
Ethnic Studies Transfer Options	86
Evening Office	189
Evening/Weekend Transfer Degree Offerings	75
Exams (final)	180
Exercise Science. <i>See Physical Education/Exercise Science</i>	

F

Facility Use/Reservations	194
Facts & Figures	203
Faculty & Administration	205-210
Faculty Advisors	10-11

Family Educational Rights & Privacy Act (FERPA)	182
Family Resource Center (FRC)	187
Family Studies. <i>See also Early Childhood Education</i>	137
Family/Human Services. <i>See Education or Human Services</i>	
Federal College Work-Study	8, 191
Federal Parent Loans to Undergrads	8
Federal Pell Grants	8
Federal Perkins Student Loans	8, 191
Federal Stafford Student Loans	8
Federal Supplemental Education Opportunity Grants	8
Fees	11-12
Final Exams	180
Financial Aid	7-9, 191
Fire Science (Wildland)	130-132
Fire Science (Wildland) Certificate, A.A.S. Degree	45-46
Food & Nutrition <i>See also Nutrition & Food Management</i> ..	130
Food Services (cafeteria)	189
Foreign Students. <i>See International Studies</i>	
Forensics. <i>See Communication/Speech</i>	
Foundation (CCC)	193
French	130
Full-Time	213

G

Gallery, Alexander	193
Gallery, Pauling Center	193-195
Gardening. <i>See Horticulture</i>	
General Education Approved Courses	15
General Educational Development (GED)	6, 73, 133
General Engineering	132-133
General Science	135
General Studies	15
General Studies Degree	14
Geographic Information Systems	134-135
Geographic Information Systems (GIS) Technician Certificate, A.A.S. Degree	46
Geography	133
Geology	132
German	133-134
Gerontology Certificate	47
Gerontology Specialist Certificate, Professional Upgrade	47
Getting Started	5-12
Glossary, Index, Maps	211-224
Glossary of Terms	212

- Gold Card (seniors) 12
- GPA 213
- Grades 179
- Graduation 181
- Graduation, Petition for 181
- Greenhouse. *See Horticulture*
- Greenhouse Program. *See Business Development Center*
- Guarantee, Clackamas 202
- ## H
- Haggart Astronomical Observatory 195
- Handicap Student Services. *See Disability Resource Center*
- Harmony Campus 216
- Health 137-138
- Health & Physical Education Transfer Options 84-86
- Healthcare Professional Development 141, 194
- High School Diploma 6, 72
- High School Scholarships 9
- High School Students 6, 74
- High Tech Center (TACT) 189
- History 142
- Honors Chapter (Phi Theta Kappa Honor Society) 193
- Honors, Honor Roll 180
- HOPE Scholarship 8
- Horticulture 138-140
- Horticulture Certificate, A.A.S. Degree 48-49
- Horticulture, Landscape. *See Landscape*
- Horticulture, OSU Transfer Agreement 48
- Human Development & Career Planning 135-137
- Human Resource Management Certificate 49-50
- Human Services A.A.S. Degree 50-51
- Human Services/Gerontology 141-142
- Humanities Inquiry 142-144
- ## I
- ID Cards 183
- Incomplete 180
- Industrial Technology (Apprenticeship) A.A.S. Degree 51
- Information, Student Directory 182
- In-State Tuition 12
- Instructional Media Services 190
- Instructor Consent 213
- International Students 7
- ## J
- Job Placement 187
- John Inskeep Environmental Learning Center (ELC) 195
- Journalism 145
- Journalism Transfer Options 85
- Juvenile Corrections Certificate 51
- ## L
- Landscape Certificate, A.A.S. Degree 52-53
- Law Enforcement. *See Criminal Justice, Corrections*
- Library 145, 190
- Life & Career Options Program 73
- Lifetime Learning Tax Credit (HOPE) 8
- Loans. *See also Financial Services, Student Financial Services* 191
- Lost & Found 189, 191
- ## M
- Mail Registration 6
- Manufacturing Technology 146-148
- Management, Business. *See Business, Marketing & Management*
- Manufacturing Engineering Technology
(OIT Transfer Courses) 53
- Manufacturing Technology Certificate, A.A.S. Degree,
Professional Upgrade 53-54
- Marketing & Management A.A.S. Degree 54-55
- Marketing Certificate 54
- Maps Campus 215-217
- Math & Computer Labs 187-188
- Math & Computer Science Tutors 192
- Mathematics 148-150
- Mathematics Transfer Options 82
- Mechanical Engineering Technology 146
- Medical Assistant 7, 145-146
- Medical Assistant Certificate 55-56
- Medical Transfer Options 85, 88
- Microcomputer App. *See Network & Microcomputer Specialist*
- Microelectronics Systems Technology 165
- Microelectronics Systems Technology Certificate,
A.A.S. Degree, Professional Upgrade 56-57
- Mission Statement 198, 199
- Music 153-157, 190
- Music Labs 188
- Music Performance 150-153

Music Technology Certificate.....	57-58
Music Transfer Options	84

N

National Accrediting Agency for Clinical Laboratory	30
Natural Resources Transfer Options.....	81, 87
Need-Based Financial Aid.....	7
Network & Microcomputer Specialist Certificate, A.A.S. Degree.....	58-59
New Students	6-7
No Child Left Behind Act of 2002	62
Northwest Automotive Trades Association.....	28
Nursing.....	7, 157,158
Nursing A.A.S. Degree.....	59-61

O

Occupational Skills Training.....	158
Occupational Skills Training Certificate	61-62
Off Campus Locations	215-217
Office Administration. <i>See Business Administration</i>	
Office Specialist Training Program	75
OIT Portland East (Metro Center).....	216
OIT Transfer Courses, Manufacturing Engineering Tech.....	53
Online Advisor	213
Online Classes.....	75
Open Entry/Open Exit	213
Oregon Certified Nursery Professional Exam.....	48
Oregon Department of Forestry.....	45
Oregon Health Sciences University.....	59
Oregon Institute of Technology (OIT)	33, 42, 53, 57
Oregon Landscape Contractors License Exam	48, 52
Oregon State Board of Nursing.....	59
Oregon State Opportunity Grants.....	8
Oregon State University.....	48, 52
Oregon Transfer Associate of Arts Degree (AAOT).....	14
Ornamental Horticulture. <i>See Horticulture</i>	
OSU Transfer agreement.....	48, 52
Out-of-State Tuition.....	12

P

Pacific Northwest Wildfire Coordinating Group	45
Paraeducator Certificate.....	62
Paramedic	42-43
Parent Loans to Undergraduate Students (PLUS).....	7, 8

Parking.....	215
Pass/No Pass.....	180
Pauling Gallery.....	193
Pell Grants.....	7, 8
Perkins Student Loans	8, 191
Personal Rights & Privileges	181-183
Pharmacology.....	159
Phi Theta Kappa Honor Society.....	189-192
Philosophy	160
Phone Registration	11
Physical Education	158-159
Physics	159
Placement Assessment	10
Placement Test.....	214
Political Science.....	162
Prerequisites.....	10
Prior Coursework.....	10
Probation & Dismissal. <i>See Satisfactory Academic Progress</i>	
Professional Technical.....	23-70
Professional/Technical Certificate of Completion	21
Professional/Technical Programs.....	24
Professional Upgrade, Drafting Technology	38-39
Professional Upgrade, Electronic Systems Technology ...	41-42
Professional Upgrade, Manufacturing Technology	53-54
Professional Upgrade, Microelectronics Systems Tech....	56-57
Professional Upgrade, Retail Management	64
Professional Upgrade, Supervisory Training.....	66
Professional Upgrade, Water & Environmental Tech	66-67
Professional Upgrade, Water/High-Purity Production ...	67-68
Professional Upgrade, Welding Technology	69-70
Program for Intensive English. <i>See English as a Second Lanuage</i>	
Program for Intensive English (PIE).....	160, 194
Project Management A.A.S. Degree.....	63-64
Project Management Certificate	63
PSU/CCC Co-Admission Program	6
PSU Transfer Agreement, Paraeducator.....	63
Psychology	162-163
Public Astronomical Observatory	195

R

Reading. <i>See also Reading/Study Skills</i>	164
Real Estate	164
Recommended	214
Refund Policy	12

- Registrar's Office. *See also Enrollment Services* 6, 11, 189
- Release of Information..... 182
- Religious Studies 163
- Repeating Courses 180
- Residency Requirements..... 11
- Retail Management A.A.S. Degree..... 65
- Retail Management Certificate, Professional Upgrade..... 64
- Russian..... 164
- S**
- SAT/ACT Scores 10
- Satisfactory Academic Progress..... 180
- Schedule of Classes 214
- Scholarships 9, 191
- Science Transfer Options 86
- Senior Citizen Tuition Benefit 12
- Service Learning Volunteers..... 190
- Short-Term Training, Manufacturing Technology..... 53
- Short-Term Training, Welding Technology..... 70
- Small Business Management 164
- Social Science Inquiry 168-170
- Social Science Transfer Options 87
- Social Security Number 181
- Sociology..... 165-166
- Soloman Amendment Disclosure..... 183
- Spanish 167-168
- Special Admissions 6-7
- Special Programs 6-7, 75
- Speech..... 166-167
- Speech & Debate Forensics 190
- Speech/Communication. *See Communication/Speech*
- Sports & Clubs..... 186-187
- Stafford Student Loans 8
- State, Federal Student Aid 8
- Streeter Hall Computer Lab..... 188
- Student Accounts 191
- Student Activities Office 191
- Student Ambassadors 191
- Student, Community & Business Resources 185-196
- Student Financial Services..... 191
- Student Government (ASG)..... 186
- Student ID Cards..... 183
- Student Information 181
- Student Loans 8
- Student Publications..... 191
- Student Services & Activities..... 186
- Student Tutors 188
- Study Skills 122, 158
- Supervisory Training Certificate, Professional Upgrade..... 66
- T**
- TACT (Train in Adaptive Computer Technology)..... 189
- Tax Credits for Education (Hope & Lifetime) 8
- Technical Physics. *See also Physics* 159
- Telecourses..... 75
- Term..... 214
- Telephone Registration 11
- Testing/Assessment Center 10, 192
- Theatre Arts..... 170-171
- TOEFL Scores 7
- Toyota "T-Ten" Internship Program..... 28
- Training in Adaptive Computer Technology (TACT)..... 188
- Transcripts..... 181, 214
- Transfer Course Work..... 78
- Transfer Credits..... 6
- Transfer Information..... 77-88
- Transfer Sample Courses 81-88
- Transfer Steps 78
- Tri-City Alternative Programs 73
- Tri-Met 215
- TTY/TDD Telephone Number. *See left page footer*
- Tuition & Fees..... 11-12
- Tuition-Need Waivers 8
- Tutorial Services 188, 192
- U**
- Umpqua Community College..... 28
- Under-Age Students 6
- Utility Education Training Alliance (UETA) 44
- Utility Workforce Readiness Certificate..... 66
- V**
- Variable Credit..... 214
- Veteran/Reservist Benefits 9, 191
- Vicinity Map..... 215
- Video Viewing Carrels 193

W

Wait List (Classes)	178
Water & Environmental Technology.....	173-174
Water & Environmental Technology Certificate, A.A.S. Degree, Professional Upgrade	66-67
Water/High-Purity Production Certificate, Professional Upgrade	67-68
Web Address. <i>See right page footers</i>	
Web Design & Development Specialist A.A.S. Degree ...	68-69
Web Design Specialist Certificate.....	68
Weekend/Evening Transfer Degree Offerings	75
Weight Room	193
Welding Technology.....	171-173
Welding Technology Certificate, A.A.S. Degree, Professional Upgrade	69-70
Wilsonville Campus	217
Women's Studies.....	176
Wordprocessing. <i>See Business Administration, Business Technology, Computer Science</i>	
Workforce Development Services	195
Work-Study (Federal).....	8, 191
Writing.....	174-175

Y

Young Parent Opportunity Program	74
--	----

Z

Zoology	176
---------------	-----