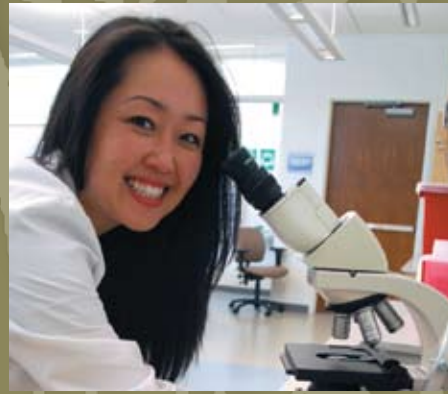




Catalog

2010-2011



www.clackamas.edu

 **CLACKAMAS**
COMMUNITY COLLEGE
Smart.

President's Message



Hello. I'm Joanne Truesdell, the president of Clackamas Community College and a 1982 graduate of the college.

We live in transformative times. Around the globe, we are transforming business, education, health care, government and more. In a changing world, it's important to acquire the education and skills needed to remain competitive. Clackamas Community College can help.

Clackamas offers more than 80 career and technical programs from accounting to nursing to welding. Our new Renewable Energy Systems Technology program will prepare you for work in the growing field of green energy. We also provide a great start toward your bachelor's degree by completing your transfer degree at CCC. We now have three degree partnership/dual enrollment programs with Oregon universities: Oregon State, OIT and Portland State. These partnerships provide a seamless path toward completion of a four-year degree, saving time and money in the process.

As you look through the catalog at the programs and classes we offer, I hope you feel a sense of possibility and excitement. I know from personal experience that you will find a commitment to your success in the staff and instructors at Clackamas. I wish you the very best as you begin your education journey.

Welcome to Clackamas!

Dr. Joanne Truesdell
President, Clackamas Community College
Class of '82

Dates to Remember 2010-2011

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

SUMMER TERM

2010

Classes Begin	Monday, June 21
Independence Day Holiday (College closed).....	Monday, July 5
Eight-week session ends	Thursday, August 12
Eleven-week session ends	Thursday, September 2
Labor Day Holiday (College closed)	Monday, September 6

FALL TERM

2010

Inservice Week	September 20-24
Classes begin	Monday, September 27
Veterans Day Holiday (College closed)	Thursday, November 11
Thanksgiving Holiday (College closed).....	Thurs.-Fri., November 25-26
<i>(Wednesday evening classes, beginning at 4 p.m. or later, are canceled prior to Thanksgiving.)</i>	
Finals week	Mon.-Sat., December 6-11
Term ends	Saturday, December 11
Holiday (College closed).....	Thurs. & Fri., Dec. 23-24
New Year's Day Holiday (College closed)	Friday, December 31

WINTER TERM

2011

Classes begin	Monday, January 3
Martin Luther King Jr. Holiday (College closed)	Monday, January 17
Skills Contest	Thursday, February 24
<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	Mon.-Sat., March 14-19
Term ends	Saturday, March 19
Spring Break.....	March 21-25

SPRING TERM

2011

Classes begin	Monday, March 28
Memorial Day Observance (College closed).....	Monday, May 30
Finals week	Mon.-Sat., June 6-11
GED & Adult High School Diploma Graduation Ceremony	Thursday, June 9
College Certificate & Degree Graduation Ceremony	Friday, June 10
Term ends	Saturday, June 11

Please note: The information in this catalog reflects current programs, requirements, and costs. These are all subject to change, and Clackamas Community College reserves the right to make any necessary revisions in the information contained here without prior notice.

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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

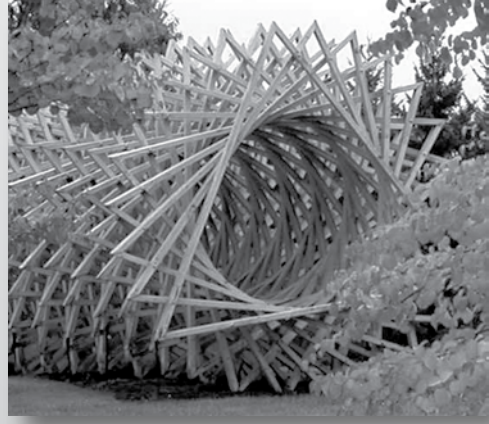
Clackamas Community College is accredited by the Northwest Commission on Colleges and Universities (NWCCU). Programs at Clackamas Community College are approved for the education of veterans.

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 503-594-6357.

The information in this catalog reflects current programs, requirements, and costs as of May 2010. 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.

Getting Started



*We believe students
can grow toward
their full potential
as they experience
the joys of discovery
and participate in
the rigors of study.*



1

Complete an Application for Admission

General Admission

CCC OREGON CITY CAMPUS, REGISTRAR'S OFFICE
ROGER ROOK HALL, RR110
503-594-3379

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.

To apply for admission:

- Go to www.clackamas.edu and click on "Apply to CCC" to apply online or download an application
- Or pick up a paper application at your high school counseling office.

Application materials* can be submitted at the Enrollment Services Centers at any of our campus locations. They can also be mailed/faxed to:

Registrar's Office
Clackamas Community College
19600 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.*

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 Student Success Department. Please note the following special admission programs, requirements and phone extensions for additional information:

**Adult High School Diploma (AHSD)/
General Educational Development (GED)**
503-594-3395

See pages 86-87, Additional Programs & Ways to Earn Credit.

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, 503-594-3395.
- To take high school credit recovery classes at CCC that will transfer back to your high school, contact the Dye Learning Center, 503-594-3399.
- If you are under 18 and want to take college classes while still in high school contact the Registrar's Office, 503-594-6100.
- If you want to earn transferrable college credits for courses you are taking at your high school, contact your high school counselor or the CCC Advanced College Credit coordinator, 503-594-3208.

Degree Partnership Programs

503-594-3379

CCC Degree Partnerships: If your goal is a four-year degree, CCC's degree partnerships can help you get there, saving time and money in the process. We offer degree partnerships, or dual enrollments, at three Oregon universities: Oregon Institute of Technology, Oregon State and Portland State. The application process is easy and starts you on a seamless path to your degree. For information about the degree partnership program at Clackamas Community College, including applications, admissions requirements and more, please visit the Degree Partnerships website at www2.clackamas.edu/degreepartnerships

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 503-594-3379 and ask to update your application to another term.

International Students/ Program for Intensive English (PIE)

International Students 503-594-3379
PIE, 503-594-3241

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

503-594-0690

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 Student Success Center or the Registrar's Office for more information on specific requirements and application procedures. Applications are available at the Student Success Center, the Registrar's Office, or on the CCC web page under the *Health Sciences Department* link.

Nursing

503-594-3379

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 Student Success Center or the Registrar's Office for more information on specific requirements and application procedures. Applications are available at the Student Success Center, the Registrar's Office, or on the CCC web page under the *Health Sciences Department* link.

2

Arrange for Financial Aid

Office of Financial Aid

CCC OREGON CITY CAMPUS, ROGER ROOK HALL, RR110
503-594-6082 or finaid@clackamas.edu

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 Student Financial Services pages on the college website.

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 qualified degree or certificate program must complete their program within 150% of the required credits. 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, 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 any other appropriate charges. 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 503-594-6082, or email: finaid@clackamas.edu, or write to: Student Financial Services Office, Clackamas Community College, 19600 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. Please note that prior year taxes for students (and their parent if applicable) will be needed to complete the FAFSA.

Federal & State Financial Aid Programs

FEDERAL PELL GRANTS

You may be eligible for up to \$5,500 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 receive 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. 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 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 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 subsidized amounts 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 unsubsidized Stafford loans.

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

503-594-6082 or finaid@clackamas.edu

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 Financial Aid Office for a tuition need waiver application at 503-594-6082.

Scholarships

503-594-6082 or finaid@clackamas.edu

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, 503-594-3284.

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.

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.

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 online and at all three campus locations late January through April 30.

PRIVATE SCHOLARSHIPS

A variety of sources offer private scholarships. These scholarships are displayed in the scholarship rack located in the Community Center. For more information on private scholarships, please visit our website at www.clackamas.edu/scholarships

Veterans Benefits

503-594-3422

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 Education Benefits 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 through your CCC student email account for further information.

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

Yes, you may qualify for aid even if you are not enrolled full-time 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 April 30. There is an application that must be completed and returned for you to be considered. Contact the Financial Aid Office at fnaid@clackamas.edu, for more information.

There are also some one-time assistance programs to help students who have special needs. Contact the Financial Aid 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
503-594-3283

CCC HARMONY CAMPUS
503-594-0636

CCC WILSONVILLE CAMPUS
503-594-0944

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 Student Success 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

Student Success Center

CCC OREGON CITY CAMPUS
BILL BROD COMMUNITY CENTER
503-594-3475

CCC HARMONY CAMPUS
503-594-0623

CCC WILSONVILLE CAMPUS
503-594-0944

<http://depts.clackamas.edu/advising>

Students who are new to college should attend a New Student Advising Session after completing their placement testing. This two hour session will review campus resources and degree requirements, and will provide hands-on experience for choosing courses, creating a schedule, and registering for classes. Please visit the website or call for specific information regarding advising sessions.

Students with previous college coursework who are transferring into CCC should schedule an appointment with an advisor by contacting their closest advising office.

Faculty advisors in the academic departments are also available by appointment to provide specific information about your program of study. They can also serve as a mentor. Your faculty advisor's name, e-mail address, phone number and office number are listed on page 101 as well as in the *Schedule of Classes* each term.

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
503-594-6100

In person registration is also available at
our other campus locations:

CCC HARMONY CAMPUS
503-594-0620

CCC WILSONVILLE CAMPUS
503-594-0940

<http://depts.clackamas.edu/advising>

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 online or submit the paper form 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 Student Success 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 at any Enrollment Services Center.

Registration and payment assistance is available at the following locations:

Oregon City Campus:

Enrollment Services Center, Roger Rook Hall
503-503-6100
registrar@clackamas.edu

CCC Harmony Campus:
503-594-0620

CCC Wilsonville Campus:
503-594-0940

6

Pay for Classes

Student Accounts Office

CCC OREGON CITY CAMPUS, ROGER ROOK HALL, RR110
503-594-6068

In person payment is also available at
our other campus locations:

CCC HARMONY CAMPUS
503-594-0620

CCC WILSONVILLE CAMPUS
503-594-0940

2010-2011 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	\$74/credit	\$5/credit
16-18 billing credits	\$1,110	\$75
Above 18 billing credits	\$74/credit	\$5/credit
Out-of-state and international students (except California, Idaho, Nevada and Washington):		
1-15 billing credits	\$219/credit	\$5/credit
16-18 billing credits	\$3,285	\$75
Above 18 billing credits	\$219/credit	\$5/credit
Other fees		
Official transcript		\$10/copy
Additional fee for faxed transcripts		\$15/copy
Nonpayment fee		\$75 maximum
Nonrefundable third party billing fee		\$15
Returned bank item		\$25 each item
Late registration fee		\$50
Payment plan service fee		\$15

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.*

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.

FREQUENTLY-ASKED QUESTIONS:

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

Come by the Student Success Center in the CCC Community Center and you can get advice and information to help you plan your educational experience. You can also call 503-594-3475 to make an appointment or have questions answered. These services are also available at the CCC Harmony Campus, 503-594-0623, and the CCC Wilsonville Campus, 503-504-0944.

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 Student Success Center at 503-594-3475 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, phone numbers, e-mail addresses and room numbers are located in the registration information section of the *Schedule of Classes* which is published each term.

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 credit 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. 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.

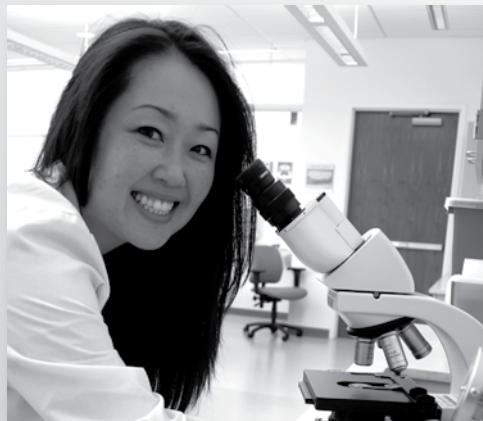
Drop requests are processed via the official college registration request form or the web. Eligibility for a refund is determined by the date that your official request is received. Ceasing to attend class or verbal notification does not constitute an official drop. This refund policy is in effect for all classes, seminars and workshops.

If you have questions, contact the Student Accounts Office at 503-594-6068 or stuaccounts@clackamas.edu. 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.

Degrees, Certificates & Approved Courses



We believe we must foster a climate that is supportive of students and instructors as key components of the learning process.



Transfer and General Studies Degrees

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, see pages 22-23). 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 career technical education and/or other courses that exceed basic skills, workplace readiness, and fundamental technical skills. CCC offers four associate degrees (see page 23 for the Associate of Applied Science 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 Eastern Oregon University, Oregon Institute of Technology, Oregon State University, Portland State University, Southern Oregon University, University of Oregon and Western 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
- All courses must be passed with a “C” or better.
- Establish residency by earning a minimum of 24 credits at CCC.

See pages 16 & 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 (OUS).

Associate of Science Oregon Transfer Degree - Business (ASOT)

The Associate of Science Oregon Transfer Degree - Business degree is a two year degree designed for the student intending to transfer to a four-year college or university within the Oregon University System (OUS) and is pursuing upper division baccalaureate courses in Business. CCC students who have earned the ASOT - Business degree and have 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 page 18 & 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 Science, 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 (OUS).

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 page 20.)

- Establish a cumulative 2.0 GPA at CCC
- Establish residency by earning a minimum of 24 credits at CCC
- Satisfy computer competency requirement. (Computer competency can be satisfied by passing CS-090 or achieving a score of 45 or higher on the Computer Placement Exam.)

PROGRAM OUTCOMES

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

General Education Student Learning Outcomes for AAOT/ASOT Degrees

The AAOT/ASOT transfer degrees at Clackamas Community College are designed to prepare students to succeed after transferring to Oregon University System schools and to attain GPAs comparable to students who begin their education at those institutions. Students who attain these degrees will possess a wide range of knowledge and skills, as described in the categories below.

Student Learning Outcomes

As a result of completing the AAOT/ASOT, students will be able to:

ARTS AND LETTERS

Analyze and form critical responses in subjects such as literature, music, the visual and performing arts; make use of the creative process to enrich their quality of life; critically analyze their values and ethics within the stream of human experience; and engage more fully in local and global issues.

CULTURAL LITERACY

*Students will experience and have access to a variety of diverse perspectives in curriculum and on campus.

INFORMATION LITERACY

*Students will have the opportunity to analyze and evaluate ideas expressed artistically, orally, and in written form; use technology to identify and gather the information required to do so; integrate information from a variety of sources and of various types into a coherent understanding of a complex idea, situation, or problem; learn independently.

MATHEMATICS

Use college-level mathematics to analyze and solve problems, as well as recognize mathematics applications, apply appropriate techniques to arrive at solutions, and accurately interpret and communicate the results.

SCIENCE

Demonstrate basic knowledge in science; apply that knowledge in the process of understanding and analyzing relevant issues; understand, analyze, and critically evaluate scientific data; explain how science investigates and develops explanations of physical phenomena.

SOCIAL SCIENCE

Apply analytical skills to historical and contemporary social phenomena so as to explain, evaluate, and predict human behavior and apply knowledge and experience to achieve an informed sense of self, family, community, and society.

SPEECH/ORAL COMMUNICATIONS

*Use knowledge of various influences on the communication process to create and interpret messages; organize and deliver effective verbal and nonverbal messages for a variety of purposes and settings.

WRITING

Write fluently and revise effectively; use technology to prepare manuscripts and pursue research; write appropriately for a variety of audiences, situations, and academic disciplines; respond to and defend positions on complex ideas, issues, and texts, using sources effectively and ethically.

ASOT students will also be able to:

- Understand and apply micro- and macroeconomic theories and models to individual, group, and societal behavior and choices;
- Recognize and apply business statistical methods and explain how they affect business decision making;
- Prepare letters, reports and memos related to business topics using technology.

**Under revision based on "Outcomes and Criteria for Transferable General Education Courses in Oregon"*

Student Guide 2010-2011
Associate of Arts Oregon Transfer Degree (AAOT)

Requirements	Courses
<i>All courses must be passed with a "C" or better.</i>	
Writing - 8 credits	WR-121 and 122, or 227
Oral Communication/Rhetoric - 1 course	SP-111 or 112
Mathematics - 1 course	MTH-105, 111 or higher
Health & Physical Education 1 or more courses totaling at least 3 credits.	Any combination of courses with a prefix of HPE, HE, PE
Arts & Letters 3 courses from 2 or more disciplines. Each course must be at least 3 credits. GENERAL EDUCATION DISTRIBUTION AREA	Select courses with a prefix of: ASL, FR, GER, RUS, SPN (languages must be 200 level) ART, DMC, 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)
Social Science 4 courses from 2 or more disciplines. Each course must be at least 3 credits. GENERAL EDUCATION DISTRIBUTION AREA	Select courses with a prefix of: ANT, EC, GEO, HST, PS, PSY, SOC, SSC, WS
Science/Math/Computer Science 4 courses from at least 2 disciplines including at least 3 laboratory courses in biological and/or physical science. GENERAL EDUCATION DISTRIBUTION AREA	A. Select three lab courses from the biological and/or physical sciences. 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 B. Select remaining courses with a prefix of: ASC, BI, BOT, CH, CS, ESR, G, GS, MTH, PH, Z
Elective Courses Any college-level course that would bring total credits to 90 credits.	Other courses numbered 100 or above may be used in this area, which may include up to 12 credits of career technical courses. Please refer to the Career Technical Programs, pages 25-84, for a listing of courses that may be included in the 12 credits mentioned above.

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 course descriptions, pages 103-196.

Note: All courses must be 100 level or higher. Courses numbered 180, 199, 280, and 299 and ED-270, 271, and 272, 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 2010-2011

Associate of Arts Oregon Transfer Degree (AAOT)

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

Requirements	Credits/ Courses Required	CCC Courses Completed	Transferred Courses	Credits/ Courses Earned	Credits/ Courses Needed
Writing WR-121 & 122 or 227	8 credits				
Oral Communications/Rhetoric* SP-111 or SP-112	1 course				
Mathematics MTH-105, 111 or higher	1 course				
Health & Physical Education	1 or more courses totaling at least 3 credits				
Arts & Letters* Select 3 courses from 2 or more disciplines	3 courses				
Social Science* Select 4 courses from two or more disciplines.	4 courses				
Science/Math/Computer Science* Select 4 courses from at least 2 disciplines including 3 laboratory courses in biological or physical sciences.	4 courses				
Elective Courses Any college-level course. May include up to 12 credits of career technical courses.	will vary				
	TOTALS				

(Total minimum of 90 credits required.)

Additional Graduation Requirements

- All courses must be passed with a grade of "C" or better.
- Complete a minimum of 90 credits
- Completion of at least 24 credits at CCC
- Establish cumulative GPA of 2.0 or above

Submit a Petition for Graduation form to the Registrar's Office two terms prior to when you expect to graduate.

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 503-594-3475 or email: advising@clackamas.edu for more information.

Note: All courses must be 100 level or higher. Courses numbered 180, 199, 280, and 299 and ED-270, 271, and 272, 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 Guide 2010-2011
**Associate of Science Oregon Transfer Degree-Business
 (ASOT-Business)**

Requirements		Courses
	Writing (8 credits)	WR-121 and 122, or 227 (Must have "C" grade or better)
	Oral Communication/Rhetoric (3 credits)	SP-111 or SP-112 (Must have "C" grade or better)
	Mathematics (12 credits)	MTH-111 or higher, 4 credits of statistics (MTH-243 or MTH-244) are required (Must have "C" grade or better)
	Computer Applications	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	Arts & Letters (Courses used in this area must be at least 3 credits) GENERAL EDUCATION DISTRIBUTION AREA	Select courses with a prefix of: ASL, FR, GER, RUS, SPN (languages must be 200 level) ART, DMC, 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)
Must equal a minimum of 12 credits from at least 2 discipline	Social Science (Courses used in this area must be at least 3 credits) GENERAL EDUCATION DISTRIBUTION AREA	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
Must equal a minimum of 12 credits	Science (Courses used in this area must be at least 3 credits) GENERAL EDUCATION DISTRIBUTION AREA	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
	Business Specific	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 career technical courses. Please refer to the Career Technical Programs, pages 25-84, 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 course descriptions, pages 103-196.

Note: All courses must be 100 level or higher. Courses numbered 180, 199, 280, and 299 and ED-270, 271, and 272, 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 2010-2011
**Associate of Science Oregon Transfer Degree-Business
 (ASOT-Business)**

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 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)	will vary				
<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)	will vary				
<i>Elective Courses and/or University Specific Requirements</i> (Refer to your transfer school for specific university requirements. Up to 12 credits of career technical courses may be used.)	will vary				
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.)

Submit a Petition for Graduation form to the Registrar's Office two terms prior to when you expect to graduate.

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 503-594-3475 or email: advising@clackamas.edu for more information.

Note: All courses must be 100 level or higher. Courses numbered 180, 199, 280, and 299 and ED-270, 271, and 272, 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 2010-2011

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					

- | | |
|---|---|
| <input type="checkbox"/> Complete a minimum of 90 credits | <input type="checkbox"/> Establish cumulative GPA of 2.0 or above |
| <input type="checkbox"/> Completion of at least 24 credits at CCC | <input type="checkbox"/> Meet computer competency requirement |

Submit a Petition for Graduation form to the Registrar's Office two terms prior to when you expect to graduate.

* Satisfy the computer competency requirement by passing CS-090 or achieving a score of 45 or higher on the Computer Placement exam.

** College-level course work may include career 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 103-196.

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, 222, 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-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

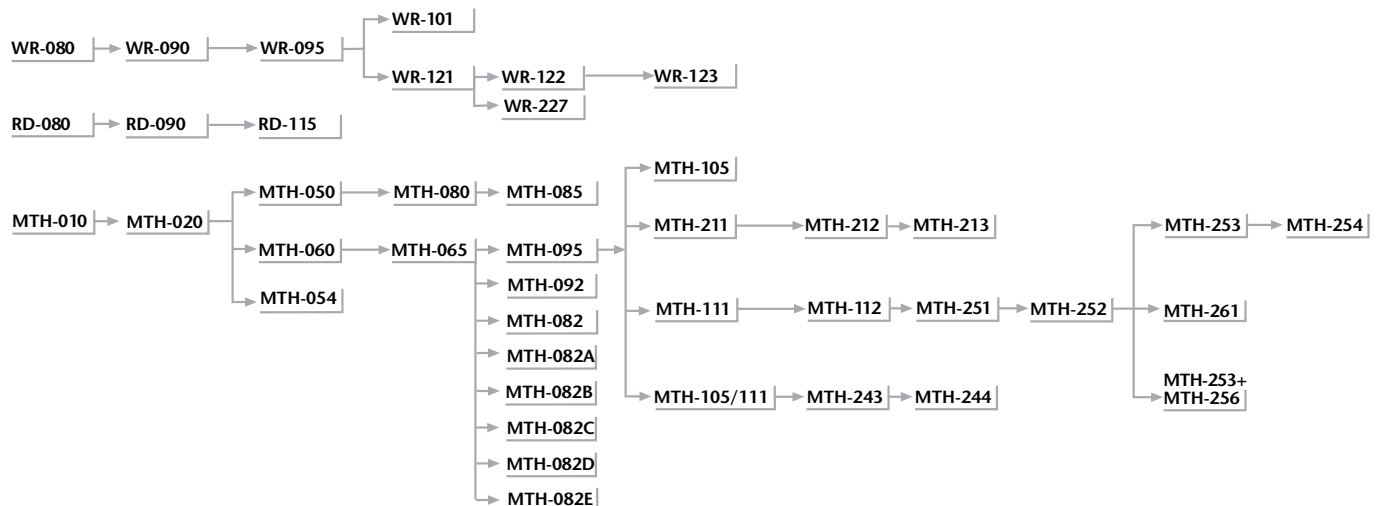
Physical Education/Health

Health: Courses with an HE prefix

Physical Education: Courses with an HPE or PE prefix

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.



Career Technical Degrees and Certificates

The Associate of Applied Science degrees and the Certificates of Completion are career 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 can be a one-year program, a less-than-one-year program or a Career Pathway program and are designed with occupational program outcomes. Career Pathway Certificate of Completion programs are designed to acknowledge a proficiency in a particular technical skill grouping. Please refer to the specific AAS or certificate 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 24 credits for an AAS degree; 12 credits for a Certificate of Completion or Career Pathway Certificate of Completion.

Career Technical programs at Clackamas Community College provide the skills and work experience students 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 setting with the latest equipment.

Work-based programs, such as cooperative work experience, clinicals, practicums, or internships, are an important feature of all CCC Career Technical programs. These special arrangements between CCC and local employers provide students with the opportunity to get related experience in the field of program study while earning credit towards a degree or certificate.

Professional upgrade coursework may be applied towards certificates and degrees, and/or may result in business and industry certification. Students are strongly encouraged to consult with the appropriate department to determine how professional upgrade courses may be applied toward their education plans both at CCC and other institutions.

CCC DEGREES AND CERTIFICATES

CERTIFICATE OF COMPLETION

less than one year

Administrative Office Assistant Training
 Basic Manufacturing Technician
 Career Development Facilitator*
 Child Development Associate*
 Child & Family Studies*
 CNC Machining Technician*
 Entry Level Welding Technician*
 Family Development*
 High Purity Water
 Human Resource Management Essentials*
 Irrigation Technician*
 Limited Electrician Apprenticeship Technologies
 Manual Apprenticeship Trades
 Plant Health Care*
 Professional Truck Driver
 Project Management
 Project Management Leadership & Communication*
 Project Management Tools & Techniques*
 Retail Management
 Supervisory Training
 Utility Trade Preparation: Lineworker**
 Utility Workforce Readiness*
 Wilderness Survival & Leadership*

CERTIFICATE OF COMPLETION

one year

Accounting Clerk
 Administrative Office Assistant
 Business Management
 Clinical Laboratory Assistant
 Collision Repair and Refinishing Technology*
 Computer Support Specialist
 Construction Trades: Apprenticeship
 Corrections
 Crime Analysis
 Dental Assistant
 Early Childhood Education & Family Studies
 Electrician Apprenticeship Technologies
 Electronic Engineering Technology
 Emergency Medical Technology
 Employment Skills Training
 Energy & Resource Management
 Fire Science (Wildland)
 Geographic Information Systems (GIS) Technology
 Gerontology
 Horticulture
 Human Resource Management
 Human Services Generalist
 Juvenile Corrections

Landscape Practices
 Manufacturing Technology
 Marketing
 Medical Assistant
 Microelectronics Systems Technology
 Music Technology
 Network & Microcomputer Specialist
 Occupational Skills Training
 Paraeducator
 Retail Management
 Renewable Energy Technology
 Water & Environmental Technology
 Web Design Specialist
 Welding Technology

ASSOCIATE OF APPLIED SCIENCE DEGREE

Accounting
 Administrative Office Professional
 Automotive Service Technology
 CAD/CAM Technology
 Collision Refinishing and Repair Technology
 Computer Support Specialist
 Construction Trades: General Apprenticeship
 Corrections
 Criminal Justice
 Digital Multimedia Communications
 Early Childhood Education & Family Studies

Electrician Apprenticeship Technologies
 Electronics Engineering Technology
 Emergency Management
 Energy & Resource Management
 Fire Science (Wildland)
 Horticulture
 Human Services Generalist
 Landscape
 Manufacturing Technology
 Marketing & Management
 Microelectronics Systems Technology
 Network & Microcomputer Specialist
 Nursing
 Project Management
 Renewable Energy Technology
 Retail Management
 Water & Environmental Technology
 Web Design & Development Specialist
 Welding Technology

+ Career Pathway Certificate of Completion

** Pending State Approval

See pages 25-84 for program information.

See www2.clackamas.edu/pathways for more information about Career Pathways at Clackamas Community College.





Career Technical



We believe that our educational role is not only to teach environmental principles, but also to model appropriate environmental behaviors.



Career Technical Programs

The following chart lists CCC Career Technical degrees and certificates according to the Oregon Department of Education Career Learning Areas, www.ode.state.or.us. Oregon's Career Learning Areas (CLA) are six broad groupings of instructional areas, comprised of related careers, which provide context for academic, technical, and career learning. CLA help students gain a deeper and broader view of their career interests and the expectations required for employment and postsecondary training and education. See page 28 for an alphabetical listing of the following Career Technical programs.

ODE CAREER LEARNING AREA	Certificates of Completion			Degrees
	● Career Pathway	■ less than one year	■ one year	▲ AAS
AGRICULTURE, FOOD AND NATURAL RESOURCE SYSTEMS • 29				
Horticulture AAS				p. 29
Horticulture Certificate			p. 29	
Irrigation Technician Certificate	p. 31			
Plant Health Care Certificate	p. 31			
Landscape AAS				p. 31
Landscape Practices Certificate			p. 32	
Water & Environmental Technology AAS				p. 33
Water & Environmental Technology Certificate			p. 33	
High Purity Water Certificate		p. 34		
ARTS, INFORMATION AND COMMUNICATIONS • 35				
Computer Support Specialist AAS				p. 35
Computer Support Specialist Certificate			p. 35	
Digital Multimedia Communications AAS				p. 36
Music Technology Certificate			p. 38	
Web Design & Development Specialist AAS				p. 39
Web Design Specialist Certificate			p. 40	
BUSINESS AND MANAGEMENT • 41				
Accounting AAS				p. 41
Accounting Clerk Certificate			p. 42	
Administrative Office Professional AAS				p. 42
Administrative Office Assistant Certificate			p. 43	
Administrative Office Assistant Training Certificate		p. 43		
Business Management Certificate			p. 44	
Marketing & Management AAS				p. 44
Marketing Certificate			p. 45	
Project Management AAS				p. 45
Project Management Certificate		p. 46		
Project Management Leadership & Communication Certificate	p. 46			
Project Management Tools & Techniques Certificate	p. 47			
Retail Management AAS				p. 47
Retail Management Certificate			p. 48	
Retail Management Certificate		p. 49		
Supervisory Training Certificate		p. 49		
HEALTH SCIENCES • 50				
Clinical Laboratory Assistant Certificate (limited entry)			p. 50	
Dental Assistant Certificate (limited entry)			p. 51	
Emergency Medical Technology Certificate			p. 52	
Gerontology Certificate			p. 52	
Medical Assistant Certificate (limited entry)			p. 53	
Nursing AAS (limited entry)				p. 54
HUMAN RESOURCES • 57				
Corrections AAS				p. 57
Corrections Certificate			p. 58	
Juvenile Corrections Certificate			p. 58	

ODE CAREER LEARNING AREA	Certificates of Completion			Degrees
	● Career Pathway	■ less than one year	■ one year	▲ AAS
Criminal Justice AAS				p. 59
Crime Analysis Certificate			p. 59	
Early Childhood Education & Family Studies AAS				p. 60
Early Childhood Education & Family Studies Certificate			p. 60	
Child Development Associate Certificate	p. 61			
Child & Family Studies Certificate	p. 62			
Family Development Certificate	p. 62			
Emergency Management AAS				p. 62
Human Resource Management Certificate			p. 63	
Human Resource Management Essentials Certificate	p. 63			
Human Services Generalist AAS				p. 63
Human Services Generalist Certificate			p. 63	
Career Development Facilitator Certificate	p. 64			
Paraeducator Certificate			p. 65	
INDUSTRIAL AND ENGINEERING SYSTEMS • 66				
Automotive Service Technology AAS				p. 66
CAD/CAM Technology AAS				p. 67
Collision Repair and Refinishing Technology AAS				p. 68
Collision Repair and Refinishing Technology Certificate		p. 68		
Construction Trades, General Apprenticeship AAS (limited entry)				p. 69
Construction Trades, General Apprenticeship Certificate (limited entry)			p. 69	
Manual Trades Apprenticeship Certificate (limited entry)		p. 69		
Electrician Apprenticeship Technologies AAS (limited entry)				p. 70
Electrician Apprenticeship Technologies Certificate (limited entry)			p. 70	
Limited Electrician Apprenticeship Technologies Certificate (limited entry)		p. 70		
Electronics Engineering Technology AAS				p. 70
Electronics Engineering Technology Certificate			p. 70	
Energy & Resource Management AAS				p. 71
Energy & Resource Management Certificate			p. 71	
Utility Trade Preparation: Lineworker*			p. 72	
Utility Workforce Readiness Certificate	p. 73			
Fire Science (Wildland) AAS				p. 73
Fire Science (Wildland) Certificate			p. 73	
Wilderness Survival and Leadership Certificate	p. 74			
Geographic Information Systems (GIS) Technology Certificate			p. 75	
Manufacturing Technology AAS				p. 75
Manufacturing Technology Certificate			p. 75	
Basic Manufacturing Technician Certificate		p. 77		
CNC Machining Technician Certificate	p. 77			
Microelectronics Systems Technology AAS				p. 78
Microelectronics Systems Technology Certificate			p. 78	
Network & Microcomputer Specialist AAS				p. 79
Network & Microcomputer Specialist Certificate			p. 79	
Professional Truck Driver Certificate		p. 80		
Renewable Energy Systems Technology AAS				p. 80
Renewable Energy Systems Technology Certificate			p. 80	
Welding Technology AAS				p. 81
Welding Technology Certificate			p. 81	
Entry Level Welding Technician Certificate	p. 82			
ADDITIONAL PROGRAMS • 83				
Employment Skills Training Certificate		p. 83		
Occupational Skills Training Certificate		p. 83		

* Pending State Approval

Career Technical Programs

Accounting.....	41	High Purity Water	34
Accounting Clerk	42	Horticulture.....	29
Administrative Office Assistant.....	43	Human Resource Management.....	63
Administrative Office Assistant Training	43	Human Resource Management Essentials.....	63
Administrative Office Professional.....	42	Human Services Generalist	63
Automotive Service Technology.....	66	Irrigation Technician.....	31
Basic Manufacturing Technician	77	Juvenile Corrections.....	58
Business Management	44	Landscape.....	31
CAD/CAM Technology.....	67	Landscape Practices.....	32
Career Development Facilitator	64	Manufacturing Technology	75
Child Development Associate	61	Marketing.....	45
Child & Family Studies.....	62	Marketing & Management	44
Clinical Laboratory Assistant.....	50	Medical Assistant.....	53
CNC Machining Technician.....	77	Microelectronics Systems Technology.....	78
Collision Repair and Refinishing Technology	68	Music Technology	38
Computer Support Specialist	35	Network & Microcomputer Specialist	79
Construction Trades, General Apprenticeship.....	69	Nursing.....	54
Corrections.....	57	Occupational Skills Training.....	83
Crime Analysis	59	Paraeducator.....	65
Criminal Justice.....	59	Plant Health Care	31
Dental Assistant.....	51	Professional Truck Driver.....	80
Digital Multimedia Communications.....	36	Project Management.....	45
Early Childhood Education & Family Studies.....	60	Project Management Leadership & Communication.....	46
Electrician Apprenticeship Technology.....	70	Project Management Tools & Techniques.....	47
Electronics Engineering Technology.....	70	Renewable Energy Systems Technology.....	80
Emergency Management.....	62	Retail Management.....	47
Emergency Medical Technology.....	52	Supervisory Training	49
Employment Skills Training.....	83	Utility Trade Preparation: Lineworker*	72
Energy & Resource Management.....	71	Utility Workforce Readiness.....	72
Entry Level Welding Technician	82	Water & Environmental Technology	33
Family Development	62	Web Design & Development Specialist.....	39
Fire Science (Wildland)	73	Web Design Specialist	40
Geographic Information Systems (GIS) Technology.....	75	Welding Technology.....	81
Gerontology.....	52	Wilderness Survival and Leadership	74

* Pending State Approval

Agriculture, Food and Natural Resources Systems

- 29 Horticulture AAS Degree**
 - Horticulture Certificate
 - Irrigation Technician Career Pathway Certificate
 - Plant Health Care Career Pathway Certificate
- 31 Landscape AAS Degree**
 - Landscape Practices Certificate
- 33 Water & Environmental Technology AAS Degree**
 - Water & Environmental Technology Certificate
 - High Purity Water Certificate

Horticulture

▲ Associate of Applied Science Degree

■ Certificate

In keeping with the college mission, the Horticulture Department provides quality education and training for industry and community members. Course offerings in greenhouse, landscape, environmental education, and nursery management integrate technical knowledge, critical thinking, practical skills, and environmental stewardship.

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 Land-care 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, shrub, or 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, 503-594-3295 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. The horticulture advisor will work with individual students in order to obtain the most recent transfer information.

OSU TRANSFER COURSES

COURSE		CREDITS
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-091	Computers for New Users II	2
HOR-111	Horticulture Practicum/Fall	6
HOR-122	Greenhouse Crops-Potted Plants	3
	or HOR-224 Landscape Installation	3
HOR-226	Plant Identification/Fall	3
MTH-050	Technical Mathematics I	3-4
	or MTH-065 Algebra II (or higher level of math)	
WINTER TERM		CREDITS
HOR-130	Plant Propagation Theory	3
	or HOR-131 Tree & Shrub Pruning/Winter	3
HOR-132	Pesticide Selection & Use	6
HOR-133	Horticulture Practicum/Winter	2
HOR-222	Horticultural Computer Applications	3
HOR-227	Plant Identification/Winter	

Agriculture, Food and Natural Resources Systems

Horticulture continued...

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	3-4
<i>Minimum credits required for certificate</i>		58-60

HORTICULTURE ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM

		CREDITS
CS-091	Computers for New Users II	2
HOR-111	Horticulture Practicum/Fall	6
HOR-122	Greenhouse Crops-Potted Plants or HOR-224 Landscape Installation	3
HOR-226	Plant Identification/Fall	3
MTH-050	Technical Mathematics I or MTH-065 Algebra II (or higher level of math)	3-4

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 or HOR-280 Horticulture/CWE or HOR-282 Horticulture/CWE	6
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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	3-4
— —	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
<i>Minimum credits required for degree</i>		92-95

HORTICULTURE PROGRAM ELECTIVES

COURSE		CREDITS
HOR-114	Garden Design	1
HOR-122	Greenhouse Crops—Potted Plants	3
HOR-123	Landscape Maintenance	3
HOR-130	Plant Propagation Theory	3
HOR-131	Tree & Shrub Pruning/Winter	3
HOR-134	Herb Growing & Gardening	1
HOR-142	Greenhouse Crops—Bedding Plants	3
HOR-144	Basic Pruning	1
HOR-145	Turf Installation & Maintenance	3
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-216	Integrated Pest Management	2
HOR-220	Plant Propagation/Fall	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

Irrigation Technician

● Career Pathway Certificate

The Irrigation Technician program provides instruction for design, installation, repair, upgrade, maintenance, monitoring and programming of irrigation systems for landscapes, nurseries, golf courses, parks or agriculture. This pathway certificate is associated with the Horticulture certificate and AAS degree programs.

PROGRAM OUTCOMES

Successful completion of this program should provide students with the necessary skills to design, install, maintain, troubleshoot, repair and program irrigation systems.

CAREERS

Career opportunities may include working as an Irrigation Technician in nurseries, greenhouses, parks, golf courses, landscapes or production agriculture.

For information contact Elizabeth Howley, Horticulture advisor, 503-594-3295 or ehowley@clackamas.edu

IRRIGATION TECHNICIAN CAREER PATHWAY CERTIFICATE

WINTER TERM

HOR-231	Irrigation/Drainage Design	3
HOR-281	Horticulture/CWE	
	or HOR-280 Horticulture/CWE	
	or HOR-282 Horticulture/CWE	6

SPRING TERM

HOR-140	Soils & Fertilizers	3
HOR-147	Marketing Water Efficient Landscaping	1
HOR-240	Irrigation/Drainage Practices	3
<i>Minimum credits required for certificate</i>		16

Plant Health Care

● Career Pathway Certificate

The Plant Health Care program provides instruction for monitoring and identifying pests, selecting and utilizing appropriate control measures and evaluating their effectiveness. Course work is offered through evening classes and on-the-job training. This pathway certificate is associated with the Horticulture Certificate and AAS programs.

PROGRAM OUTCOMES

Successful completion of this program should provide students with the skills necessary to work in the green industry as Plant Health Care Technician or Pest Control Specialist. The program also provides the knowledge to pass the Oregon State Department of Agriculture Pesticide Applicator licensing exams.

CAREERS

Career opportunities may include working as a Plant Health Care Technician or Pest Control Specialist in nurseries, greenhouses, parks, golf courses, landscape management, or production agriculture.

For information contact Elizabeth Howley, Horticulture advisor, 503-594-3295 or ehowley@clackamas.edu

PLANT HEALTH CARE CAREER PATHWAY CERTIFICATE

FALL TERM		CREDITS
HOR-235	Weed Identification	2
HOR-236	Insect Identification	2
WINTER TERM		
HOR-216	Integrated Pest Management	2
HOR-237	Disease Identification	2
SPRING TERM		
HOR-132	Pesticide Selection & Use	3
HOR-281	Horticulture/CWE	
	or HOR-280 Horticulture/CWE	
	or HOR-282 Horticulture/CWE	6
<i>Minimum credits required for certificate</i>		17

Landscape

▲ 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, arborium 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. Following the course offerings in the order listed is encouraged unless otherwise advised by the Horticulture advisor. The program includes a cooperative work experience class and working with a horticultural employer.

Agriculture, Food and Natural Resources Systems

Landscape continued...

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, 503-594-3295 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. The Horticulture advisor will work with individual students in order to obtain the most recent transfer information.

LANDSCAPE ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM	CREDITS
HOR-111 Horticulture Practicum/Fall	6
HOR-224 Landscape Installation	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	3-4
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 21)	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	
or HOR-280 Horticulture/CWE	
or HOR-282 Horticulture/CWE	6

LANDSCAPE ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM	CREDITS
HOR-123 Landscape Maintenance	
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	3
HOR-237 Disease Identification	
or HOR-239 Tree Climber Training	2
HOR-238 Landscape Business Operations	3
SPRING TERM	
HE-252 First Aid/CPR	3
HOR-147 Marketing Water Efficient Landscaping	1
HOR-240 Irrigation & Drainage Practices	
or HOR-213 Computer-Aided Landscape Design	3
HOR-243 Tree & Shrub Pruning	
or HOR-245 Advanced Landscape Design	3
HOR-247 Hardscape Installation	3
<i>Minimum credits required for degree</i>	98-102

Landscape Practices

■ Certificate

The Landscape Practices certificate is 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 Landscape Network (PLANET). This accreditation provides students with enhanced opportunities to follow national PLANET 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. Following the course offerings in the order listed is encouraged unless otherwise advised by the Horticulture advisor. The program includes 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.

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, 503-594-3295 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. The Horticulture advisor will work with individual students in order to obtain the most recent transfer information.

LANDSCAPE PRACTICES CERTIFICATE

FALL TERM	CREDITS
HOR-224 Landscape Installation	3
HOR-225 Principles of Arboriculture or HOR-226 Plant Identification/Fall	3
HOR-229 Basic Landscape Design or HOR-123 Landscape Maintenance	3
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 or HOR-230 Equipment Operation & Maintenance	3
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	3
HOR-280 Horticulture/CWE	3
<i>Minimum credits required for certificate</i>	42-43

Water & Environmental Technology

▲ Associate of Applied Science Degree

■ Certificate

* Professional Upgrade

The Water & Environmental Technology program provides career 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, 503-594-3149 or jlewis@clackamas.edu

WATER & ENVIRONMENTAL TECHNOLOGY CERTIFICATE

FALL TERM	CREDITS
CH-104 Introductory Chemistry	
or CH-221 General Chemistry	5
MTH-082A Wastewater Math I	1
MTH-082B Waterworks Math I	1
WQT-110 Wastewater Operations I	3
WQT-111 Waterworks Operations I	3
WR-101 Communication Skills: Occupational Writing or WR-121 English Composition	3-4
— — Human Relations requirement (see page 21) (Recommended: PSY-101)	3

Agriculture, Food and Natural Resources Systems

Water & Environmental Technology continued...

WINTER TERM

BL-204	Elementary Microbiology	4
MTH-082C	Wastewater Math II	1
MTH-082D	Waterworks Math II	1
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 57-58

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	
or BA-131	Introduction to Business Computing	3-4
HE-252	First Aid/CPR	3
— —	General elective (any college-level course)	3-4

Minimum credits required for degree 93-98

WATER & ENVIRONMENTAL TECHNOLOGY SUGGESTED GENERAL ELECTIVES

COURSE		CREDITS
BA-101	Introduction to Business	4
PS-203	U.S. Government: State & Local Institutions	4
PSY-240	Interpersonal Awareness & Growth	4
SOC-206	Institutions & Social Change	4
SP-111	Public Speaking	4

PROFESSIONAL UPGRADE COURSES

The following courses are designed to upgrade professional skills and in some cases assist in preparation for state certification examinations.

COURSE		CEU/CREDITS
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

High Purity Water

■ Certificate

* Professional Upgrade

A less-than-one-year program. The High Purity Water 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. Based on student demand WQT-125 and WQT-135 may be offered biannually.

PROGRAM PREREQUISITE

MTH-065 Algebra II must be completed prior to fall term entry.

PROGRAM OUTCOMES

Program outcomes for the High Purity Water 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, 503-594-3149 or jlewis@clackamas.edu

HIGH PURITY WATER CERTIFICATE

FALL TERM		CREDITS
WQT-245	Instrumentation & Control	4
WINTER TERM		
MTH-082E	Math for High Purity Water	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

Arts, Information and Communications

- 35** *Computer Support Specialist AAS Degree*
 - *Computer Support Specialist Certificate*
- 36** *Digital Multimedia Communications AAS Degree*
- 38** *Music Technology Certificate*
- 39** *Web Design & Development Specialist AAS Degree*
 - *Web Design Specialist Certificate*

Computer Support Specialist

▲ *Associate of Applied Science Degree*

■ *Certificate*

The Computer Support Specialist program prepares students for a variety of technical support careers including help desk, training, and design 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 in addition to specific hardware and software configurations. Cooperative work experience (CWE) is supervised real-world experience 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-095 Algebra III. 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.

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, 503-594-3170 or dcarino@clackamas.edu

COMPUTER SUPPORT SPECIALIST CERTIFICATE

FALL TERM		CREDITS
CS-121	Computer Applications	
or BA-131	Introduction to Business Computing	3-4
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	Introduction to Networking	3
CS-227	PC Hardware & Repair I	4
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3-4
SPRING TERM		
BA-101	Introduction to Business	
or BA-103	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 21) (Recommended: BA-285 or PSY-101)	3-4
<i>Minimum credits required for certificate:</i>		47-51

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

FALL TERM		CREDITS
CS-121	Computer Applications	
or BA-131	Introduction to Business Computing	3-4
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	Introduction to Networking	3
CS-240W	Operating Systems II: Windows	3
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3-4
SPRING TERM		
ART-225	Computer Graphics I	3
CS-133VB	Visual Basic.NET I	3
CS-135I	Advanced Web Design	3
CS-140U	Operating Systems I: Linux/UNIX	3
CS-280	Computer Science/CWE	3

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

FALL TERM		CREDITS
BA-101	Introduction to Business	
or BA-103	Business Strategies for Computer Consultants	3-4
CS-133S	Web Application Development I	3
CS-135DB	Advanced Database	3
— —	Human Relations requirement (see page 21) (Recommended: BA-285 or PSY-101)	3-4
— —	Focus Area	4-6

Continued

Arts, Information and Communications

Computer Support Specialist continued...

WINTER TERM

CS-195	Multimedia for the Web	3
CS-227	PC Hardware & Repair I	4
CS-275	Database Design	3
— —	PE/Health requirement (see page 21)	1
— —	Focus Area	4-6

SPRING TERM

CS-133VA	Visual Basic for Applications	3
CS-135S	Advanced Spreadsheet	3
CS-280	Computer Science/CWE	6
— —	Focus Area	4-6

Minimum credits required for degree 93-103

ADDITIONAL COURSES FROM FOCUS AREA

Complete all courses from one of the following Focus Areas

APPLICATION SUPPORT

COURSE		CREDITS
ART-226	Computer Graphics II	3
BT-220I	Desktop Publishing I: InDesign	
or BT-177	Microsoft Project	
or CS-125P	Computer Publishing	3
CS-289I	Web Server Administration: Internet Information Server	3
— —	Computer Support Specialist program elective	3

WEB/DATABASE PROGRAMMING

COURSE		CREDITS
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

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

PROGRAMMING

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

COMPUTER SUPPORT SPECIALIST PROGRAM ELECTIVES

Complete 3-4 credits from the following: Any computer science course not already listed in the program numbered 125 or above, except for CS-178. Note: Student may not take more than 6 credits of CWE in any one term.

Digital Multimedia Communications

▲ Associate of Applied Science Degree

The Digital Multimedia Communications (DMC) degree is designed to successfully prepare students for careers in the expanding fields of digital media productions and communications.

PROGRAM OUTCOMES

Upon successful completion of the Digital Multimedia Communications degree at Clackamas, students are prepared for a variety of entry level positions in various media fields. Students attain knowledge and learn skills to seek careers in creative and support professions within such media industries as film and video, writing for media, graphic design, production, broadcast journalism, web design, and music and sound production. Students will also receive initial preparation to transfer to advanced degrees in their fields of study.

CAREERS

Some of the careers available in media include: production designer, art department coordinator, camera operator, writer (general, film and documentary), editor, visual effects production, multimedia producer, sound mixer and recordist, boom operator, post production sound design, duplication, music composer, looping and Foley, mobile location recording, voice-over work, audio for interactive multimedia, steadicam operator, assistant editor, weblog contributor, broadcast journalist, podcast writer and production, script supervisor and continuity, videographer, production assistant, graphic artist, photographer (still), location assistant, storyboard artist, art assistant, web designer, electronic news gatherer, web radio program editor, live sound engineer, broadcast reporter and other emerging opportunities.

For more information contact the Art Department office, 503-594-3034.

DIGITAL MULTIMEDIA COMMUNICATIONS ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM		CREDITS
ART-115	Basic Design: Two Dimensional Design	4
DMC-100	Introduction to Media Arts	3
LIB-101	Introduction to Library Research	1
WR-121	English Composition	4
— —	PE/Health requirement (see page 21)	1

WINTER TERM

DMC-104	Digital Video Editing	4
J-211	Mass Media & Society	
or SP-212	Mass Media & Society	4
MTH-065	Algebra II (or higher level of math)	4
SP-100	Basic Speech Communication	
or PSY-101	Human Relations	3

SPRING TERM		CREDITS
CS-120	Survey of Computing	4
DMC-190	Digital Multimedia Communications Portfolio Project I	1-4
— —	Focus Area courses	6-8
— —	Digital Multimedia Communications program electives	3-4

SUMMER TERM		CREDITS
DMC-280	Digital Multimedia Communications/CWE	3

DIGITAL MULTIMEDIA COMMUNICATIONS ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
HUM-233	Electronic Culture	
or SSC-233	Electronic Culture	4
MUS-146	Entertainment Law & New Media	3
— —	Focus Area courses	3-6
— —	Digital Multimedia Communications program electives	3-7

WINTER TERM		CREDITS
— —	Humanities program electives	10
— —	Focus Area courses	6-13

SPRING TERM		CREDITS
DMC-191	Digital Multimedia Communications Portfolio Project II	
or DMC-192	Digital Multimedia Communications Portfolio Project III	3-4
— —	Focus Area course	3-4
— —	Digital Multimedia Communications program electives	10-12
<i>Minimum credits required for degree</i>		90-114

ADDITIONAL COURSES FROM FOCUS AREA

Complete all courses from one of the following Focus Areas

GRAPHIC DESIGN

COURSE	CREDITS
ART-106 Animation & Motion Graphics I or DMC-106 Animation & Motion Graphics I	3
ART-115 Basic Design: Two Dimensional Design	4
ART-116 Basic Design: Color Theory & Composition	4
ART-131 Drawing or ART-132 Drawing or ART-133 Drawing	4
ART-221 Flash Animation: Design & Techniques	3
ART-225 Computer Graphics I	3
ART-226 Computer Graphics II	3
ART-262 Digital Photography & Photo-Imaging	3
CS-195 Multimedia for the Web	3

WEB DESIGN

COURSE	CREDITS
ART-116 Basic Design: Color Theory & Composition	4
ART-221 Flash Animation: Design & Techniques	3
ART-227 Computer Graphics III	3
ART-262 Digital Photography & Photo-Imaging	3
BA-103 Business Strategies for Computer Consultants	3
CS-125H HTML & Web Site Design	3
CS-135I Advanced Web Design	3
CS-195 Multimedia for the Web	3

BROADCAST JOURNALISM

COURSE	CREDITS
ENG-230 Documentary & Experimental Filmmaking or DMC-230 Documentary & Experimental Filmmaking	4
J-216 Reporting	4
J-220 Introduction to Broadcast Journalism	4
J-221 Broadcast Journalism	4
J-222 Advanced Broadcast Journalism	4

FILM STUDIES

COURSE	CREDITS
DMC-205 Directing for Film & Video	4
DMC-264 Digital Filmmaking	4
DMC-265 Advanced Digital Filmmaking	4
ENG-105 Introduction to Drama	4
ENG-195 American Film or DMC-195 American Film	4
ENG-295 Revolutionary Film or DMC-295 Revolutionary Film	4
WR-262 Introduction to Screenwriting	4

VIDEO PRODUCTION

COURSE	CREDITS
ART-106 Animation & Motion Graphics I or DMC-106 Animation & Motion Graphics I	3
DMC-104 Digital Video Editing	4
DMC-205 Directing for Film & Video	4
DMC-242 Field Recording & Sound Design for Media	1
DMC-247 Music, Sound & Moviemaking or MUS-247 Music, Sound & Moviemaking	3
DMC-264 Digital Filmmaking	4
DMC-265 Advanced Digital Filmmaking	4
ENG-230 Documentary & Experimental Filmmaking or DMC-230 Documentary & Experimental Filmmaking	4
MUS-145 Introduction to Digital Sound, Video & Animation	3
WR-262 Introduction to Screenwriting	4

AUDIO & SOUND ENGINEERING

COURSE	CREDITS
DMC-147 Music, Sound, and Moviemaking or MUS-147 Music, Sound, and Moviemaking	1
DMC-242 Field Recording & Sound Design for Media	1
MUS-101 Music Fundamentals	3
MUS-107 Introduction to Audio Recording I	3
MUS-108 Introduction to Audio Recording II	3
MUS-109 Introduction to Audio Recording III	3
MUS-148 Live Sound Engineering	3

MUSIC & SOUND FOR MEDIA

COURSE	CREDITS
DMC-242 Field Recording & Sound Design for Media	1
DMC-247 Music, Sound, and Moviemaking or MUS-247 Music, Sound, and Moviemaking	3
MUS-101 Music Fundamentals	3
MUS-107 Introduction to Audio Recording I	3
MUS-141 Introduction to the Music Business	3
MUS-142 Introduction to Electronic Music I	3
MUS-143 Introduction to Electronic Music II	3
MUS-144 Introduction to Electronic Music III	3
MUS-145 Introduction to Digital Sound, Video & Animation	3

Continued

Arts, Information and Communications

Digital Multimedia Communications continued...

DIGITAL MULTIMEDIA COMMUNICATIONS PROGRAM ELECTIVES

COURSE		CREDITS
BA-101	Introduction to Business	4
BA-120	Project Team Tools	3
BA-124	Negotiation: Project Management	3
BA-223	Principles of Marketing	4
CS-125P	Computer Publishing	3
CS-125R	Podcasting	3
DMC-180	Digital Multimedia Communications Internship	1-12
DMC-191	Digital Multimedia Communications Portfolio Project II	3
DMC-192	Digital Multimedia Communications Portfolio Project III	4
DMC-194	Introduction to Film	4
DMC-296	Adaption: Literature into Film	4
ENG-194	Introduction to Film	4
ENG-279	Focused Drama Study	1
ENG-296	Adaption: Literature into Film	4
J-134	Photojournalism	4
J-218	Editing & Design	4
J-226	Newspaper Production	4
MUS-130	Music Media: Sex, Drugs, Rock & Roll	1
MUS-230	Music Media: Sex, Drugs, Rock & Roll	4
SP-112	Persuasive Speaking	4
SP-150	Competitive Platform Speaking	4
SP-167	Parliamentary Procedure	4
TA-101	Appreciation of Theatre Arts	4
TA-102	Appreciation of Theatre Arts	4
TA-103	Appreciation of Theatre Arts	4
TA-111	Fundamentals of Technical Theatre	4
TA-112	Fundamentals of Technical Theatre	4
TA-113	Fundamentals of Technical Theatre	4
TA-141	Acting I	4
TA-142	Acting II	4
TA-143	Acting III	4
WR-122	English Composition	4
WR-123	English Composition	3
WR-222	English Composition	4
WR-227	Technical Report Writing	4
WR-240	Creative Writing: Nonfiction	4
WR-241	Creative Writing: Fiction	4
WR-242	Creative Writing: Poetry	4
WR-245	Advanced Poetry Writing	4
WR-246	Advanced Creative Writing: Editing & Publishing	4
WR-247	Advanced Playwriting	4
WR-249	Publishing on Land and Online	1
WR-263	Advanced Screenwriting	4
WR-268	Script Analysis	4
WR-269	The Art of Dialog	4

HUMANITIES PROGRAM ELECTIVES

Additional selected humanities electives must be from the following list of prefixes and courses not already used in the degree: ANT, ART, DMC, EC, ENG, GEO, HST, J, MUS, PS, PSY, SOC, SSC, WR, WS

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, 503-594-3340 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	3-4
— —	Music Technology program basics	3-4
— —	Music Technology program electives	2-4
WINTER TERM		
MTH-050	Technical Mathematics I	
— or MTH-065	Algebra II (or higher level of math)	3-5
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
— —	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	Communication Between the Sexes	
— or SP-140	Introduction to Intercultural Communication	
— or SP-218	Interpersonal Communication	3-4
— —	Music Technology program basics	3
— —	Music Technology program electives	2

Minimum credits required for certificate

50-60

MUSIC TECHNOLOGY PROGRAM BASICS

Complete nine credits from the following:

COURSE		CREDITS
MUP-100	Individual Lessons: 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	Group Piano: Piano for Pleasure	1
MUS-132	Group Piano: Piano for Pleasure	1
MUS-133	Group Piano: Piano for Pleasure	1
MUS-134	Group Voice: Anyone Can Sing	1
MUS-135	Group Voice: Anyone Can Sing	1
MUS-136	Group Voice: Anyone Can Sing	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	4

MUSIC TECHNOLOGY PROGRAM ELECTIVES

Complete six credits from the following:

COURSE		CREDITS
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
MUS-101	Music Fundamentals	3
MUS-102	Music Fundamentals	3
MUS-103	Music Fundamentals	3
MUS-105	Music Appreciation	3
MUS-130	Music & Media: Sex, Drugs, Rock & Roll	1
MUS-131	Group Piano: Piano for Pleasure	1
MUS-132	Group Piano: Piano for Pleasure	1
MUS-133	Group Piano: Piano for Pleasure	1
MUS-134	Group Voice: Anyone Can Sing	1
MUS-135	Group Voice: Anyone Can Sing	1
MUS-136	Group Voice: Anyone Can Sing	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	4

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 real-world 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 is an open program. 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, 503-594-3170 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	
	or BA-131 Introduction to Business Computing	3-4
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	Introduction to Networking	3
CS-240W	Operating Systems II: Windows	3
WR-121	English Composition	4

Continued

Arts, Information and Communications

Web Design & Development Specialist continued...

SPRING TERM

ART-227	Computer Graphics III	3
ART-262	Digital Photography & Photo-Imaging	3
CS-135I	Advanced Web Design	3
CS-140U	Operating Systems I: Linux/UNIX	3
CS-280	Computer Science/CWE	3

WEB DESIGN & DEVELOPMENT SPECIALIST ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM CREDITS

BA-103	Business Strategies for Computer Consultants	3
CS-133S	Web Application Development I	3
CS-135DB	Advanced Database	3
WR-122	English Composition	4
— —	Human Relations requirement (see page 21) (Recommended: BA-285 or PSY-101)	3-4

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: Internet Information Server	3
WR-227	Technical Report Writing	4
— —	PE/Health requirement (see page 21)	1

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 98-100

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 real-world experience that supplements the academic classroom environment.

PROGRAM PREREQUISITES

The Web Design Specialist program prepares students for technical positions related to web and graphic design. This multidisciplinary program incorporates classes from computer science, English, 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 real-world employment that supplements the academic classroom environment.

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, 503-594-3170 or dcarino@clackamas.edu

WEB DESIGN SPECIALIST CERTIFICATE

FALL TERM CREDITS

ART-115	Basic Design: Two Dimensional Design	4
CS-121	Computer Applications	
or BA-131	Introduction to Business Computing	3-4
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	Introduction to Networking	3
CS-240W	Operating Systems II: Windows	3
WR-121	English Composition	4

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 21) (Recommended: BA-285 or PSY-101)	3-4

Minimum credits required for certificate: 48-50

Business and Management

- 41** *Accounting AAS Degree*
 - *Accounting Clerk Certificate*
- 42** *Administrative Office Professional AAS Degree*
 - *Administrative Office Assistant Certificate*
 - *Administrative Office Assistant Training Certificate*
- 44** *Business Management Certificate*
- 44** *Marketing & Management AAS Degree*
 - *Marketing Certificate*
- 45** *Project Management AAS Degree*
 - *Project Management Certificate*
 - *Project Management Leadership & Communication Career Pathway Certificate*
 - *Project Management Tools & Techniques Certificate*
- 47** *Retail Management AAS Degree*
 - *Retail Management Certificate*
 - *Retail Management Certificate*
- 49** *Supervisory Training Certificate*

See also, **Human Resources** *Human Resource Management, Human Resource Management Essentials, page 63.*

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, book-keeper, data-entry clerk, financial staff accountant, cost accountant and general office clerk.

For information contact Joan Ryan, 503-594-3077 or joanr@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	4

WINTER TERM

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

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 21)	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-228	Computerized Accounting	3
BA-248	Auditing	3
BA-280	Business/CWE	3

Minimum credits required for degree 92

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

Business and Management

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 program 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 Joan Ryan, 503-594-3077 or joanr@clackamas.edu

ACCOUNTING CLERK CERTIFICATE

FIRST TERM		CREDITS
BA-101	Introduction to Business	4
BA-104*	Business Math	3
BA-211 or BA-111	Financial Accounting I General Accounting I	4
WR-121	English Composition	4
SECOND TERM		
BA-131	Introduction to Business Computing	4
BA-156	Business Forecasting	3
BA-177	Payroll Accounting	3
BA-212 or BA-112	Financial Accounting II 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
<i>Minimum credits required for certificate</i>		51

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 Office Professional

▲ Associate of Applied Science Degree

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, 503-594-3076 or tanyap@clackamas.edu

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

FALL TERM		CREDITS
BA-101	Introduction to Business	4
BA-131	Introduction to Business Computing	4
BT-121	Data Entry	1
BT-122	Keyboard Skillbuilding	2
BT-124	Business Editing I	3
WINTER TERM		
BA-111 or BA-211	General Accounting Financial Accounting I	4
BT-125	Business Editing II	3
BT-160	Word I	3
CS-135S	Advanced Spreadsheet	3
— —	Administrative Office Professional program electives	3
SPRING TERM		
BA-228	Computerized Accounting	3
BT-161	Word II	3
BT-172	Introduction to Microsoft Outlook	2
BT-216	Office Procedures	4
WR-121	English Composition	4

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

FALL TERM		CREDITS
BA-218	Personal Finance	3
BA-226	Business Law	4
BA-285	Human Relations in Business	4
BT-262	Integrated Projects	4

WINTER TERM		
BA-104	Business Math	3
BA-205	Solving Communication Problems with Technology	4
BA-206	Management Fundamentals	4
— —	PE/Health requirement (see page 21)	1
— —	Administrative Office Professional program electives	3

SPRING TERM		
BA-224	Human Resource Management	4
BA-280	Business/CWE	3
BT-271	Advanced Business Projects	4
— —	Administrative Office Professional program electives	4

Minimum credits required for degree 91

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

ADMINISTRATIVE OFFICE PROFESSIONAL PROGRAM ELECTIVES

Students must select ten (10) credits from the following list of electives:

COURSE		CREDITS
BA-212	Financial Accounting II	4
BA-223	Decision Making with Accounting Information	4
BA-225	Business Report Writing	3
BA-240	Governmental Accounting	4
BT-173	Introduction to Microsoft Powerpoint	2
BT-177	Microsoft Project	3
CS-125H	HTML & Web Site Design	3
CS-135DB	Advanced Database	3

Administrative Office Assistant

■ Certificate

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, 503-594-3076 or tanyap@clackamas.edu

ADMINISTRATIVE OFFICE ASSISTANT CERTIFICATE

FALL TERM		CREDITS
BA-104*	Business Math	3
BA-131	Introduction to Business Computing	4
BT-121	Data Entry	1
BT-122	Keyboarding Skillbuilding	2
BT-124	Business Editing I	3
WR-121	English Composition	4

WINTER TERM		
BA-285	Human Relations in Business	4
BT-125	Business Editing II	3
BT-160	Word I	3
CS-135S	Advanced Spreadsheet	3
— —	Any BA/BT course not already included in the Administrative Office Assistant program	4

SPRING TERM		
BA-111	General Accounting I	
or BA-211	Financial Accounting I	4
BA-280	Business/CWE	3
BT-161	Word II	3
BT-172	Introduction to Microsoft Outlook	2
BT-216	Office Procedures	4

Minimum credits required for certificate 50

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

Administrative Office Assistant Training

■ Certificate

A less-than-one-year program. This is a targeted job training program designed for those seeking new career opportunities in administrative office support positions. This program covers two-thirds of the required curriculum for the Administrative Office Assistant (one-year) certificate program.

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 such as administrative assistant, office manager, or legal or medical office assistants.

For information contact Tanya Patrick, 503-594-3076 or tanyap@clackamas.edu

Business and Management

Administrative Office Assistant Training continued...

ADMINISTRATIVE OFFICE ASSISTANT TRAINING CERTIFICATE

COURSE		CREDITS
BA-104	Business Math	3
BA-111	General Accounting I	4
BT-122	Keyboard Skillbuilding	2
BT-124	Business Editing I	3
BT-125	Business Editing II	3
BT-160	Word I	3
BT-161	Word II	3
BT-172	Introduction to Microsoft Outlook	2
BT-216	Office Procedures	4
CS-135S	Advanced Spreadsheet	3
<i>Minimum credits required for certificate</i>		30

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 program 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, 503-594-3074 or daleh@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	4
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
<i>Minimum credits required for certificate</i>		55

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

Marketing & Management

▲ Associate of Applied Science Degree

This degree focuses on developing marketing skills along with providing leadership and entrepreneurship training. This program is designed to enhance skills and employability for students that desire a career path in marketing and management as well as those who choose the entrepreneurial path.

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, 503-594-3074 or daleh@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	4
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 with Technology	4
BA-211	Financial Accounting I	4
BA-226	Business Law I	4
BA-238	Sales	4

**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 21)	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	3
<i>Minimum credits required for degree</i>		96

* 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.

Marketing

■ Certificate

This certificate focuses on technical marketing skills in areas such as need identification, product and service development, determining price, communicating information to potential customers, and distributing the products to customers.

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, 503-594-3074 or daleh@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	4
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 with Technology	4
BA-211	Financial Accounting I	4
BA-226	Business Law I	4
BA-238	Sales	4
BA-280	Business/CWE	3
<i>Minimum credits required for certificate</i>		49

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

Project Management

▲ Associate of Applied Science Degree

Upon completion of the two-year Project Management Associate of Applied Science (AAS) Degree program, students with appropriate work experience are qualified to sit for the national certification examination in project management and to earn 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 advanced program outcome skills include project and business design, budgeting and scheduling, team management, project management, and project evaluation.

CAREERS

Careers may include project manager, project leader, project scheduler, and cost estimator. Potential job titles include project administration, project controller, project coordinator, deputy project manager, or junior project manager.

For information contact Kathy Christensen, 503-594-3072 or kathc@clackamas.edu

Business and Management

Project Management continued...

PROJECT MANAGEMENT ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

FALL TERM		CREDITS
BA-120	Project Management Fundamentals	3
BA-122	Teamwork: Project Management	3
BA-131	Introduction to Business Computing	4
WR-121	English Composition	4
WINTER TERM		
BA-111	General Accounting	4
BA-123	Leadership and Motivation: Project Management	3
BA-125	Risk Management: Project Management	3
BT-177	Microsoft Project	3
SPRING TERM		
BA-101	Introduction to Business	4
BA-124	Negotiation: Project Management	3
BA-126	Project Management Workshop	3
BA-217	Budgeting for Managers	3
CS-135S	Advanced Spreadsheet or any BA/BT course not already used in Project Management program	3

PROJECT MANAGEMENT ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
BA-205	Solving Communication Problems with Technology	4
BA-223	Principles of Marketing	4
BA-285	Human Relations in Business	4
MTH-065	Algebra II	4
WINTER TERM		
BA-206	Management Fundamentals	4
BA-226	Business Law	4
BA-280	Business/CWE	3
SP-111	Public Speaking	4
— —	PE/Health requirement (see page 21)	1
SPRING TERM		
BA-225	Business Report Writing	3
BA-268	Applied Project Demonstration	6
BA-281	Business/CWE	3
— —	Any BA/BT course not already used in Project Management program	3
<i>Minimum credits required for degree</i>		90

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 interpersonal 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 to gain 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, 503-594-3072 or kathc@clackamas.edu

PROJECT MANAGEMENT CERTIFICATE

COURSE	CREDITS	
BA-120	Project Management Fundamentals	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 Leadership & Communication

● Career Pathway Certificate

This program is designed for students with prior project management experience who want to build their interpersonal skills, including effective approaches to leadership and motivation, group dynamics, conflict, power, and organizational behavior. This program also provides a solid grounding in effective written and oral communication techniques, including meeting management, presentations, reports and correspondence. Since project managers typically spend over 80 percent of their time interfacing with people—communicating—these skills are critical to successful project management.

For information contact Kathy Christensen, 503-594-3072 or kathc@clackamas.edu

**PROJECT MANAGEMENT LEADERSHIP & COMMUNICATION
CAREER PATHWAY CERTIFICATE**

COURSE		CREDITS
BA-122	Teamwork: Project Management	3
BA-123	Leadership & Motivation: Project Management	3
BA-124	Negotiation: Project Management	3
BA-205	Solving Communication Problems with Technology	4
BA-285	Human Relations in Business	4
SP-111	Public Speaking	4
<i>Minimum credits required for certificate</i>		21

Project Management Tools & Techniques

● *Career Pathway Certificate*

This program is designed for students with prior project management experience and good interpersonal skills who want to develop their technical competencies in project management. It provides a foundation in fundamental project processes such as initiation, planning, execution, monitoring and control, and closing. The program also focuses on management techniques, such as project management. The software programs, Microsoft Project and Excel, are employed for project estimating, scheduling, tracking, and analysis. This program provides the tools and techniques required for successful project management.

For information contact Kathy Christensen, 503-594-3072 or kathc@clackamas.edu

**PROJECT MANAGEMENT TOOLS & TECHNIQUES
CAREER PATHWAY CERTIFICATE**

COURSE		CREDITS
BA-120	Project Management Fundamentals	3
BA-125	Risk Management: Project Management	3
BA-126	Project Management Workshop	3
BA-162	Procurement for Managers	3
BA-217	Budgeting for Managers	3
BT-177	Microsoft Project	3
CS-135S	Advanced Spreadsheet	3
<i>Minimum credits required for certificate</i>		21

Retail Management

▲ *Associate of Applied Science*

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 Joan Ryan, 503-594-3077 or joanr@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**	3-4
— —	Any BA/BT/HD course not already in the Retail Management program	1
WINTER TERM		
BA-111	General Accounting I	
or BA-211	Financial Accounting I**	4
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
SPRING TERM		
BA-217	Budgeting for Managers	3
BA-224	Human Resource Management	4
SP-111	Public Speaking	4
— —	Any BA/BT/HD course not already in the Retail Management program	4

Business and Management

Retail Management continued...

RETAIL MANAGEMENT ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
BA-249	Retailing	3
BA-251	Supervisory Management	3
HE-261*	Community CPR	1
SP-140	Intercultural Communication**	4
— —	Any BA/BT/HD course not already in the Retail Management program	3
WINTER TERM		
BA-112	General Accounting II	4
or BA-212	Financial Accounting II**	
BA-226	Business Law 1**	4
EC-200	Introduction to Economics	4
or EC-201	Principles of Economics: MICRO**	4
with EC-202	Principles of Economics: MACRO (8)**	
SP-105	Listening**	4
SPRING TERM		
BA-124	Negotiation: Project Management	3
BA-238	Sales	4
BA-261	Consumer Behavior	4
BA-280	Business/CWE	3
— —	Any BA/BT/HD course not already in the Retail Management program	1
<i>Minimum credits required for degree</i>		90-92

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

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

***Will accept WR-123 or WR-222 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-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-111	College Algebra	5
WINTER TERM		
BI-102	General Biology**	4
MTH-243	Statistics I**	4
WR-122	English Composition**	4
SPRING TERM		
WR-227	Technical Report Writing***	4
— —	Science elective*	4

* Contact the Lead Retail Management instructor or the Marylhurst advisor (harpenter@marylhurst.edu) for the current list of approved science electives.

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 Joan Ryan, 503-594-3077 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
<i>Minimum credits required for certificate</i>		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 Joan Ryan, 503-594-3077 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	Communication Skills: Occupational Writing	
or WR-121	English Composition	3-4

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 45-46

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

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, 503-594-3074 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	4
	Minimum credits required for certificate	23

Health Sciences

- 50 *Clinical Laboratory Assistant Certificate*
- 51 *Dental Assistant Certificate*
- 52 *Emergency Medical Technology Certificate*
- 52 *Gerontology Certificate*
- 53 *Medical Assistant Certificate*
- 54 *Nursing AAS Degree*

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

PROGRAM REQUIREMENTS AND PREREQUISITES

Students who wish to apply to the CLA program should inquire about an application in May prior to the start of the fall cohort. The CLA applications can be downloaded at our website, obtained by contacting the Allied Health Department at the Harmony campus, or the Enrollment Services Center and/or the Student Success Department at the Oregon City campus. To determine the availability of applications and the appropriate deadlines for the CLA cohort, please visit the Nursing and Allied Health website at <http://depts.clackamas.edu/healthsciences>

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. Prior to formal acceptance into the CLA program, students must meet appropriate placement scores in reading, writing, and math by either taking the placement exams or by providing proof of a comparable assessment. Prior to the beginning of the program, students will need to provide proof of a recent physical examination by a licensed healthcare provider and proof of immunizations. All CLA students will be required to complete a criminal history background check and drug testing as arranged by the Allied Health Department at an appropriate organization. Curriculum prerequisites and requirements may be subject to change. In order to assure students have the most current information, please review the department website.

PROGRAM OUTCOMES

Upon successful completion of the program, students should be eligible to sit for the National Credentialing Agency (NCA) for Laboratory Personnel's phlebotomy examination and/or the American Medical Technologist (AMT) Certified Medical Laboratory Assistant (CMLA) examination and will be qualified 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 Allied Health Department at the Harmony campus, or from the Enrollment Services Center or the Student Success Center at the Oregon City campus, or <http://depts.clackamas.edu/healthsciences>

For continuing education opportunities for healthcare providers see Healthcare Professional Development (HPD) page 158.

For information contact Helen Wand, 503-594-0694 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	3-4
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
CLA-125	Introduction to Clinical Research	2
PSY-101	Human Relations	3
SP-100	Basic Speech Communication	
or SP-111	Public Speaking	
or SP-218	Interpersonal Communication	3-4
<i>Minimum credits required for certificate</i>		48-52

Current First Aid and Healthcare Provider level CPR (AHA or ASHI) are required during practicums and must be taken prior to the first term practicum. All CLA students will be required to complete a criminal history background, provide proof of immunization, and students will be asked to take a drug test as arranged by the department.

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 term.

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.

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).

PROGRAM REQUIREMENTS AND PREREQUISITES

Students who wish to apply to the CCC Dental Assistant (DA) program are welcome to apply for our fall cohort. The DA applications may be downloaded at our website or obtained by contacting the Allied Health Department at the Harmony campus or the Enrollment Services Center and/or the Student Success Department at the Oregon City campus. To determine the availability of applications and the appropriate deadlines for each cohort, please visit the Nursing and Allied Health website at <http://depts.clackamas.edu/healthsciences>

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. Prior to formal acceptance into the DA program, students must meet appropriate placement scores in reading, writing, and math by either taking the placement exams or by providing proof of a comparable assessment. Prior to the beginning of the program, students will need to provide proof of a recent physical examination by a licensed healthcare provider and proof of immunizations. All DA students will be required to complete a criminal history background check and drug testing as arranged by the Allied Health Department at an appropriate organization. Students will participate in unpaid, supervised externships in the dental care settings. Curriculum prerequisites and requirements may be subject to change. In order to assure students have the most current information, please review the department website.

PROGRAM OUTCOMES

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

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 Student Success Center, or <http://depts.clackamas.edu/healthsciences>

For continuing education opportunities for healthcare providers see Healthcare Professional Development (HPD) page 158.

For information contact Maria Corona, 503-594-0693 or mariac@clackamas.edu

DENTAL ASSISTANT CERTIFICATE

FIRST 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
WR-101 or WR-121	Communication Skills: Occupational Writing English Composition	3-4
SECOND 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
THIRD TERM		
DA-106	Clinical Procedures III	2
DA-130	Clinical Practicum III	8
DA-145	Dental Office Procedures	2
MTH-050 or MTH-065	Technical Mathematics I Algebra II	3-4
PSY-101	Human Relations	3
<i>Minimum credits required for certificate</i>		<i>49-51</i>

Current Healthcare Provider level CPR (AHA or ASHI) are required during practicums and must be taken prior to the first term practicum. All DA students will be required to complete a criminal history background, provide proof of immunization, and students will be asked to take a drug test as arranged by the department.

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 over three consecutive terms.

Health Sciences

Emergency Medical Technology

■ Certificate

Emergency Medical Technicians (EMTs) give immediate care to critically ill or injured people in the prehospital 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, immunizations, and drug testing will 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 CCC Emergency Medical Technology (EMT) certificate program includes the required Oregon and national EMT-Basic certification.

PROGRAM OUTCOMES

The EMT program is designed to 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 EMT certificate can lead to a career as a paramedic if a student wishes to continue their studies and completes the requirements for an AAS-EMT (Associate of Applied Science - EMT) degree at an accredited institution.

For continuing education opportunities for healthcare providers see Healthcare Professional Development (HPD) page 158.

For information contact the EMT program director at 503-594-0696 or department at 503-594-0690 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	4

SPRING TERM

BI-233	Human Anatomy & Physiology III	4
CJA-203	Crisis Intervention	3
EMT-107	EMT Rescue	3
EMT-108	Emergency Response Patient Transportation	2
EMT-109	Emergency Response Communication/Documentation	2
SOC-205	Social Stratification & Social System	4
<i>Minimum credits required for certificate</i>		58

Current Healthcare Provider level CPR (AHA or ASHI) are required; criminal history background check, proof of immunization, and students will be asked to take a drug test as arranged by the department.

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 Yvonne Smith 503-594-3207 or yvonne@clackamas.edu

GERONTOLOGY CERTIFICATE

FALL TERM		CREDITS
CS-120	Survey of Computing	4
GRN-181	Issues in Aging	3
HS-154	Community Resources	3
WR-101	Communication Skills: Occupational Writing	3-4
or WR-121	English Composition	3-4
— —	Gerontology program electives	3
WINTER TERM		
GRN-182	Aging & the Body	3
GRN-184	Aging & the Individual	3
MTH-050	Technical Mathematics I	3-4
or MTH-065	Algebra II	3-4
— —	Gerontology program elective	3

SPRING TERM

GRN-183	Death & Dying	3
GRN-280	Gerontology/CWE	6
HS-170	Preparation for Field Experience in Human Services	3
PSY-101	Human Relations	
or BA-285	Human Relations in Business	3-4
— —	Gerontology program elective	3-4
<i>Minimum credits required for certificate</i>		46-50

Current CPR certificates are 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.

Medical Assistant

■ Certificate

Medical assistants function as members of the healthcare delivery team and perform administrative, clinical and transdisciplinary functions. The CCC Medical Assistant (MA) 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 & REQUIREMENTS

Students who wish to apply to the medical assistant program are welcome to apply for our fall cohort. The MA applications may be downloaded at our website or obtained by contacting the Allied Health Department at the Harmony campus or the Enrollment Services Center or the Student Success Department at the Oregon City campus. To determine the availability of applications and the appropriate deadlines for each cohort, please visit the Nursing and Allied Health website at <http://depts.clackamas.edu/healthsciences>

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. Prior to formal acceptance into the MA program, students must meet appropriate placement scores in reading, writing, and math by either taking placement exams or by providing proof of previous college course work. Prior to the beginning of the program, students will need to provide proof of a recent physical examination

by a licensed healthcare provider, required immunizations, AHA Healthcare Provider CPR, First Aid, and have completed WR-101 or WR-121, and SP-100, SP-111, or SP-218. All MA students will be required to complete a criminal history background check and drug testing as arranged by the Allied Health Department at an appropriate organization. MA students will also be required to participate in unpaid, supervised externships in the ambulatory care setting.

Curriculum prerequisites and requirements may be subject to change. In order to assure students have the most current information, please review the department website.

Application packets with admission procedures and requirements are available at the Harmony campus in the Allied Health Department, or at the Oregon City campus in the Enrollment Services Center or the Student Success Center, or at <http://depts.clackamas.edu/healthsciences>

PROGRAM OUTCOMES

Upon successful completion of the program, students should be eligible to sit for the American Association of Medical Assistants National Certification exam, CMA, or the RMA American Medical Technologist National Certification Exam. Students should 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, and phlebotomy.

For continuing education for healthcare providers see Healthcare Professional Development page 158.

For information contact Karen Maynard, 503-594-0695 or kmaynard@clackamas.edu

MEDICAL ASSISTANT PREREQUISITES FOR 2010-2011

The following prerequisites must be completed prior to the start of the student's cohort. Curriculum prerequisites and requirements may change yearly. To see prerequisites or requirements for the 2010-2011 cohort year, please review the department website.

COURSE		CREDITS
SP-100	Basic Speech Communication	
or SP-111	Public Speaking	
or SP-218	Interpersonal Communication	3-4
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3-4

MEDICAL ASSISTANT CERTIFICATE

FIRST 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

Continued

Health Sciences

Medical Assistant continued...

SECOND 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	4
PSY-101	Human Relations	3

THIRD 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 54-57

Current First Aid and Healthcare Provider level CPR (AHA or ASHI) are required during practicums and must be taken prior to the first term. All MA students will be required to complete a criminal history background, provide proof of immunization, and take a drug test as arranged by the department.

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 over three consecutive terms.

Individuals who have been found guilty of a felony or pleaded guilty to a felony may not be eligible for clinical practicum placement or eligible to take the Certified Medical Assistant (CMA) exam. Direct questions to: AAMA Certification Department, 20 N. Wacker Dr., Suite 1575, Chicago IL 60606, or certification@aama.ntl.org or phone 608-228-2262. For the Registered Medical Assistant exam (RMA), direct questions to www.amt1.com or phone 800-275-1268.

Nursing

▲ Associate of Applied Science Degree

NURSING ASSISTANT OPTIONS

Clackamas Community College offers a Nursing Assistant course that will prepare students to perform routine nursing assistant tasks in the sub-acute settings as well as the community. Students who complete this course are eligible to take the state certification exam for nursing assistants. In addition, the college offers a Certified Nursing Assistant 2-Acute course that will prepare students to perform routine nursing assistant tasks in the acute care settings. While these courses are not required for entry into the nursing program at Clackamas Community College, it is recommended for those who are interested in pursuing a career in nursing. Both courses are approved by the Oregon State Board of Nursing.

NURSING PROGRAM

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 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. The application is a two-step process. Students must submit application to the Registrar's Office by the deadline. Qualified applicants will progress to the interview/essay portion of the application process. 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 healthcare provider, immunizations, criminal history background check, and urine drug testing are required prior to clinical experience in the first term of the program. 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 with 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.

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

For continuing education for healthcare providers see Healthcare Professional Development page 158.

NURSING APPLICATION REQUIREMENTS

Students are eligible to be considered for admission to the nursing program after completing 30 credit hours of the Prerequisite/Required Preparatory courses listed below. **BI-231 (Human Anatomy/Physiology I) must be completed and math competency must be demonstrated by the end of Fall Term 2010 to be considered for admission into the nursing program.**

A total of 45 credit hours of the Prerequisite/Required Preparatory courses must be completed prior to the start of the first term of the nursing program.

- Minimum Prerequisite/Required Preparatory Course credits to apply: 30
- Prerequisite/Required Preparatory Course credits prior to starting NRS course work during first term of nursing program: 45

Completion of all Prerequisite/Required Preparatory courses must be with a letter grade of "C" or better. Plus and minus grades will not be factored into the GPA calculations. If a course has been taken more than once, the most recent grade received will be the course considered. Application to the nursing program requires a minimum GPA of 3.0 for all completed Prerequisite/Required Preparatory courses.

NURSING PREREQUISITES/REQUIRED PREPARATORY COURSES

COURSE		CREDITS
BI-231	Human Anatomy/Physiology I	4
BI-232	Human Anatomy/Physiology II	4
BI-233	Human Anatomy/Physiology III	4
CS-120	Survey of Computing	4
FN-225	Nutrition	4
MTH-095	Algebra III	4
PSY-215	Introduction to Developmental Psychology	4
WR-121	English Composition	4
WR-122	English Composition	4
— —	Humanities, Social Science, or Natural Science	9

- Students may need to take elective credits in order to meet the 45 credit hour prerequisite minimum required for entry into the nursing program.
- At least six credits must come from Social Sciences
- See list below for approved prerequisite/elective courses

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

NURSING ASSOCIATE OF APPLIED SCIENCE DEGREE:

FIRST TERM		CREDITS
— —	Biology with genetics*	5
BI-234	Introductory Microbiology**	4
NRS-110	Foundations of Nursing – Health Promotion	5
NRS-110C	Foundations of Nursing – Health Promotion Clinical	4
PE-185	Physical Education***	0-1

* BI-112 meets this requirement and must be completed prior to start of second term of nursing program.

** BI-234 must be completed prior to start of second term of nursing program.

*** Current CPR for Healthcare Providers (AHA) is required prior to first term of the first year of the nursing program and meets PE requirement.

SECOND TERM

NRS-111	Foundations of Nursing in Chronic Illness I	2
NRS-111C	Foundations of Nursing in Chronic Illness I Clinical	4
NRS-230	Clinical Pharmacology I	3
NRS-232	Pathophysiological Processes I	3

THIRD TERM

NRS-112	Foundations of Nursing in Acute Care I	2
NRS-112C	Foundations of Nursing in Acute Care I Clinical	4
NRS-231	Clinical Pharmacology II	3
NRS-233	Pathophysiological Processes II	3
— —	Humanities, Social Science or Natural Science electives, if needed	3

Continued

Health Sciences

Nursing continued...

FOURTH TERM

NRS-222	Foundations of Nursing in Acute Care II & End of Life	3
NRS-222C	Foundations of Nursing in Acute Care II & End of Life Clinical	6
— —	Humanities, Social Science or Natural Science electives, if needed	6

FIFTH TERM

NRS-221	Foundations of Nursing in Chronic Illness II & End of Life	3
NRS-221C	Foundations of Nursing in Chronic Illness II & End of Life Clinical	6
— —	Humanities, Social Science or Natural Science electives, if needed	6

SIXTH TERM

NRS-224	Integrative Practicum	2
NRS-224C	Integrative Practicum Clinical	7
WR-123	English Composition	
or WR-227	Technical Report Writing	3-4
— —	Humanities, Social Science or Natural Science electives, if needed	3

Minimum credits required for degree 90-92

Students must achieve "C" or higher grades in all required courses (including prerequisites/preparatory courses) 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

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 three credits.

Select courses with a prefix of:

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

ART, DMC, 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 three 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 six 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

** MTH-095 may be applied toward prerequisite credits but not toward the BSN degree.

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.

* NRS-224 articulates to OHSU for substitution of NRS-424.

Human Resources

- 57** *Corrections AAS Degree*
 - *Corrections Certificate*
 - *Juvenile Corrections Certificate*
- 59** *Criminal Justice AAS Degree*
 - *Crime Analysis Certificate*
- 60** *Early Childhood Education & Family Studies AAS Degree*
 - *Early Childhood Education & Family Studies Certificate*
 - *Child Development Associate Career Pathway Certificate*
 - *Child & Family Studies Career Pathway Certificate*
 - *Family Development Career Pathway Certificate*
- 62** *Emergency Management AAS Degree*
- 63** *Human Resource Management Certificate*
 - *Human Resource Management Essentials Career Pathway Certificate*
- 63** *Human Services Generalist AAS Degree*
 - *Human Services Generalist Certificate*
 - *Career Development Facilitator Career Pathway Certificate*
- 65** *Paraeducator Certificate*

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, and 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, 503-594-3367 or dicka@clackamas.edu

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	4
WINTER TERM	
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	4
SPRING TERM	
CJA-101 Criminology	3
CJA-203 Crisis Intervention	3
HE-205 Youth Addictions	3
MTH-050 Technical Mathematics I	
or MTH-065 Algebra II	3-4
— — Corrections program elective	3

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
— — Corrections program elective	3
WINTER TERM	
CJA-170 Careers in Criminal Justice Fields	3
CJA-201 Juvenile Delinquency	3
CJA-213 Interview & Interrogation	3
CJA-243 Narcotics & Dangerous Drugs	3
SOC-206 Institutions and Social Change	4
SPRING TERM	
CJA-230 Juvenile Corrections	3
CJA-240 Cultural Diversity/Law Enforcement	3
CJA-280 Criminal Justice/Corrections/CWE	6
— — Corrections program elective	3

Minimum credits required for degree 96-97

CORRECTIONS PROGRAM ELECTIVES

COURSE	CREDITS
CJA-112 Patrol Procedures	3
CJA-142 Statistics for Crime Analysis	1
CJA-200 Community Relations & Policing	3
CJA-210 Criminal Investigation I	3
CJA-211 Criminal Investigation II	3
CJA-212 Criminal Investigation III	3
CJA-220 Substantive Law	3
CJA-222 Procedural Law	3
CS-121 Computer Applications	
or BA-131 Introduction to Business Computing	3-4

Continued

Human Resources

Corrections

■ Certificate

The Corrections certificate 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, and 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, 503-594-3367 or dicka@clackamas.edu

JUVENILE CORRECTIONS

See certificate program.

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		
CJA-120	Judicial Process	3
CJA-134	Correctional Institutions	3
CJA-170	Careers in Criminal Justice Fields	3
HE-250	Personal Health	3
PSY-221	Introduction to Counseling	4
WR-121	English Composition	4
SPRING TERM		
CJA-101	Criminology	3
CJA-203	Crisis Intervention	3
CJA-280	Criminal Justice/Corrections/CWE	3
MTH-050	Technical Mathematics I	
or MTH-065	Algebra II	3-4
WR-122	English Composition	4
<i>Minimum credits required for certificate</i>		50-51

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, 503-594-3367 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	4
WINTER TERM		
CJA-201	Juvenile Delinquency	3
HE-205	Youth Addictions	3
PSY-219	Introduction to Abnormal Psychology	4
SOC-205	Social Stratification & Social Systems	4
WR-122	English Composition	4
SPRING TERM		
CJA-101	Criminology	3
CJA-203	Crisis Intervention	3
CJA-230	Juvenile Corrections	3
MTH-050	Technical Mathematics I	
or MTH-065	Algebra II	3-4
PSY-215	Introduction to Developmental Psychology	4
ADDITIONAL REQUIREMENT		
CJA-170	Careers in Criminal Justice Fields	3
CJA-280	Criminal Justice/Corrections/CWE (can be taken Winter or Spring term)	3
<i>Minimum credits required for certificate</i>		59-60

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, 503-594-3367 or dicka@clackamas.edu

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

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		
CJA-170	Careers in Criminal Justice Fields	3
CJA-211	Criminal Investigation II	3
CJA-220	Substantive Law	3
CJA-243	Narcotics & Dangerous Drugs	3
SOC-206	Institutions and Social Change	4
SPRING TERM		
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	4

Minimum credits required for degree

99-100

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, 503-594-3367 or dicka@clackamas.edu

Continued

Human Resources

Crime Analysis continued...

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		
CJA-141	Introduction to Crime Mapping	1
CJA-142	Statistics for Crime Analysis	1
CJA-170	Careers in Criminal Justice Fields	3
CJA-211	Criminal Investigation II	3
CS-121	Computer Applications	
or BA-131	Introduction to Business Computing	3-4
PSY-101	Human Relations	3
WR-121	English Composition	4
THIRD TERM		
CJA-143	Crime Analysis via Statistical Analysis	1
CJA-144	Crime Analysis via Modus Operandi	1
CJA-145	Crime Analysis Capstone	1
CJA-146	Crime Analysis/Link Analysis	1
CJA-147	Introduction to Profiling Violent Crimes	1
CJA-148	Crime Scene Analysis Profiling	1
CJA-149	Research Methods/Crime Analysis	1
CJA-150	Introduction to Police Intelligence	1
CJA-151	Crime Intelligence Analysis	1
CJA-152	Crime Scene Analysis Capstone	1
CJA-153	Crime Intelligence Analysis: (CSA) Capstone	1
CJA-280	Criminal Justice/Corrections/CWE	3
MTH-050	Technical Mathematics I	
or MTH-065	Algebra II	3-4
<i>Minimum credits required for certificate</i>		52-54

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

Early Childhood Education & Family Studies

▲ Associate of Applied Science Degree

■ Certificate

This program provides a foundation in the ten core knowledge categories: Family and Community Systems; Diversity; Health, Safety and Nutrition; Human Growth and Development; Learning Environments and Curriculum; Observation and Assessment; Personal, Professional and Leadership Development; Program Management; Special Needs; and Understanding and Guiding Behavior (*The Oregon Registry, 2008*).

PROGRAM OUTCOMES:

Upon satisfactory completion of the one-year (four terms) coursework, students will have completed the education/training required for The Oregon Registry - Level 8 in early childhood care and education. Program outcomes should include the skills necessary for participants to become entry-level early childhood practitioners in center and home based settings, private and public schools and child and family support agencies.

On completing the two-year AAS in Early Childhood Education & Family Studies, students will have completed the education necessary to become in-charge practitioners in certain settings (e.g. private preschools and child development centers), paraeducators in public school settings (PK-4th Grade) or family support paraprofessionals in various child and family support agencies (public/private). Students will also qualify for Level 9 of The Oregon Registry.

CAREERS:

After completing the two-year AAS in Early Childhood Education & Family Studies, students will be prepared to work in a variety of education and family support settings: in-charge teachers in private preschools/ kindergartens or teaching assistants (paraeducators) in public school settings (PK-4th Grade). Additionally, students will be prepared to work as family support personnel (e.g. family advocates, parent practitioners, family life paraprofessionals, etc.) in various education settings or child and family support agencies.

For information contact Dr. Patricia McIlveen, 503-594-3209 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-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3-4

FALL TERM

ECE-150	Introduction & Observation in Early Childhood Education	3
ECE-173	Preschoolers & Loss: Divorce & Death	1
ECE-235	Nutrition, Music & Movement	3
HDF-225	Prenatal, Infant & Toddler Development	3
HDF-260	Understanding Child Abuse & Neglect	3
— —	PE/Health requirement (see page 21)	2-3

WINTER TERM

ECE-121	Observation & Guidance I in ECE Settings	4
ECE-154	Language & Literacy Development	3
ECE-209	Theory & Practicum	3
ECE-240	Lesson & Curriculum Planning	3
HDF-247	Preschool Child Development	3

SPRING TERM

ECE-179	Starting Points: The Oregon Registry	1
ECE-239	Helping Children & Families Cope With Stress	3
ECE-280	Early Childhood Education/CWE	3
ED-258	Multicultural Education	3
HDF-140	Contemporary American Families	3
HE-261	Community/CPR (Includes Infant CPR)	1

Minimum credits required for certificate 51-54

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

Complete certificate program.

EARLY CHILDHOOD EDUCATION & FAMILY STUDIES ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR**FALL TERM CREDITS**

ECE-178	Designing a Learning Garden	1
ECE-221	Observation & Guidance II in ECE Settings	4
ED-100	Introduction to Education	3
ED-150	Creative Activities for Children	3
ED-270	Practicum I/CWE	4

WINTER TERM

ECE-185	Field Trips: Fun & Fascinating	1
ECE-289	The Project Approach in Early Childhood Education	1
ED-169	Overview of Students With Special Needs	3
ED-271	Practicum II/CWE	4
HDF-141	Parent Child Relations I: Context & History	3
— —	General electives (any college-level course)	6

SPRING TERM

ECE-186	Nature & Gardening With Preschoolers	1
ED-114	Instructional Strategies in Math & Science	3
ED-246	School, Family & Community Relations	4
ED-272	Practicum III/CWE	4

Minimum credits required for degree 96-99

Child Development Associate**● Career Pathway Certificate****PROGRAM OUTCOMES:**

The 12 credits of education provides the necessary 120 clock hours of formal childcare education (in eight subject areas) needed to meet the education requirements to obtain the nationally-recognized CDA (Child Development Associate) credential.

Those subject areas are:

- 1 Planning a safe, healthy learning environment
- 2 Steps to advance children's physical and intellectual development
- 3 Positive ways to support children's social and emotional development
- 4 Strategies to establish productive relationships with families
- 5 Strategies to manage an effective program operation
- 6 Maintaining a commitment to professionalism
- 7 Observing and recording children's behavior
- 8 Principles of child development and learning

CAREERS

The Child Development Associate (CDA) credential is a nationally-recognized assessment system of standards that defines, acknowledges and evaluates the competency of the ECE practitioner, which in turn helps enhance the quality of early childhood care and education settings. In Oregon, the CDA may be an in-charge early childhood care and education practitioner in family-based settings, as well as in certain child development centers. At Clackamas, we offer this certificate of completion that acts as an initial pathway to obtaining first the CDA credential and then either the one-year certificate and/or two-year AAS degree in Early Childhood & Family Studies.

For more information contact Dr. Patricia McIlveen, 503-594-3209 or patriciam@clackamas.edu

CHILD DEVELOPMENT ASSOCIATE CAREER PATHWAY CERTIFICATE

COURSE	CREDITS	
ECE-130	Introduction to CDA	1
ECE-131	Physical Activity/Movement in ECE Programs	1
ECE-132	Positive Child Guidance in ECE	1
ECE-133	Infant-Toddler Development	1
ECE-134	Health & Safety Issues in ECE	1
ECE-135	Self-Esteem in the ECE Classroom	1
ECE-136	Observing & Recording Children's Behavior	1
ECE-137	Developing the Classroom Environment	1
ECE-138	Family-School Relationships	1
ECE-139	Program Management in ECE	1
ECE-140	Preschool Development	1
ECE-141	Outdoors & Children's Learning	1

Minimum credits required for certificate 12

Human Resources

Child & Family Studies

● Career Pathway Certificate

PROGRAM OUTCOMES

Outcomes include obtaining the education and skills necessary for participants to become entry-level family support paraprofessionals in both the early childhood care and education fields and at various child and family support agencies.

CAREERS

After completing the Child & Family Studies Certificate, the students will be prepared for entry-level work in a variety of education and family support settings, including classroom support personnel in private preschools/kindergartens, or as paraprofessionals in various child and family support agencies, (e.g. supporting family advocates, parent and family life practitioners, etc.)

For more information contact Dr. Patricia McIlveen, 503-594-3209 or patriciam@clackamas.edu

CHILD & FAMILY STUDIES CAREER PATHWAY CERTIFICATE

COURSE		CREDITS
ECE-121	Observation & Guidance I in ECE Settings	4
HDF-140	Contemporary American Families	3
HDF-141	Parent Child Relations: Context & History	3
HDF-225	Prenatal, Infant & Toddler Development	3
HDF-247	Preschool Child Development	3
HDF-260	Understanding Child Abuse & Neglect	3
HDF-280	Practicum I: Family Studies/CWE	
or ECE-280	Early Childhood Education/CWE	4
SOC-205	Social Stratification and Social Systems or General Elective (any college level course)	3-4
<i>Minimum credits required for certificate</i>		26-27

Family Development

● Career Pathway Certificate

The Family Development Career Pathway Certificate is designed to provide paraprofessionals, working within child and family support agencies, with competencies to assist families to become self-reliant and interdependent within the scope of their communities.

PROGRAM OUTCOMES

Successful completion of this 14-credit certificate should prepare students to work as front line family development paraprofessionals in a variety of education and family support agencies.

CAREERS

Career opportunities may include: family advocates, child care and education practitioners, home visitors and family practitioners, employment and training counselors, community or nutrition workers, home health aides and direct care workers, early intervention staff, outreach workers, crisis intervention staff, intake and social welfare workers, case managers.

For information contact Dr. Patricia McIlveen, 503-594-3209 or patriciam@clackamas.edu

FAMILY DEVELOPMENT CAREER PATHWAY CERTIFICATE

COURSE		CREDITS
HDF-130	Introduction to Family Development	1
HDF-131	Communication in Family Development	1
HDF-132	Self-Care Skills Family Development Workers	1
HDF-133	Diversity in Family Development	1
HDF-134	Strengths-Based Assessment in Family Life Development	1
HDF-135	Setting & Achieving Goals in Family Development	1
HDF-136	Community Resources in Family Development	1
HDF-137	Home Visiting in Family Development	1
HDF-138	Facilitation Skills in Family Development	1
HDF-280	Practicum I: Family Studies/CWE	
or ECE-280	Early Childhood Education/CWE	2-3
PSY-215	Introduction to Developmental Psychology or Family Development program electives	3-4
<i>Minimum credits required for certificate</i>		14-17

FAMILY DEVELOPMENT PROGRAM ELECTIVES

COURSE		CREDITS
HDF-140	Contemporary American Families	3
HDF-141	Parent-Child Relations	3
HDF-247	Preschool Development	3
HDF-260	Understanding Child Abuse & Neglect	3

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, 503-594-3367 or dicka@clackamas.edu

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 Professional in Human Resources (PHR) from the Human Resource Certification Institute. Though this certificate is intended to enhance the qualifications of people already working in the human resource 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 human resource 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 generalist, human resource specialist, human resource assistant, and information and records clerk.

For information contact Bill Waters, 503-594-3079 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-208	Employee Labor Relations	4
BA-285	Human Relations in Business	4
MTH-050	Technical Mathematics I	3
SPRING TERM		
BA-205	Solving Communication Problems with Technology	4
BA-217	Budgeting for Managers	3
BA-229	Employment Law	4
BA-254	Basic Compensation and Benefits	4
BA-280	Business/CWE	3
<i>Minimum credits required for certificate</i>		55

Human Resource Management Essentials

● Career Pathway Certificate

This program is designed for students who either are currently employed in or desire to be employed in Human Resource Management (HRM), and who lack formal education in Human Resource Management laws and processes. The classes provided in this pathway certificate form the foundation for work as a Human Resource Manager or for future education in the discipline.

PROGRAM OUTCOMES

The HRM Essentials Career Pathway Certificate program at Clackamas Community College should prepare students to begin their careers in Human Resource Management and to continue their education in management. For students already employed in this field, the program will provide a foundation for career growth.

CAREERS

Careers includes human resource specialists, human resource generalists, and human resource assistants.

For more information contact Bill Waters, 503-594-3079 or billw@clackamas.edu

HUMAN RESOURCE MANAGEMENT ESSENTIALS CAREER PATHWAY CERTIFICATE

COURSE		CREDITS
BA-224	Human Resource Management	4
BA-229	Employment Law	4
BA-254	Basic Compensation and Benefits	4
BA-285	Human Relations in Business	4
<i>Minimum credits required for certificate</i>		16

Human Services Generalist

▲ Associate of Applied Science Degree

■ Certificate

Both the one-year certificate and the two-year AAS in Human Services Generalist degree offer training for both entry-level positions in diverse social services agencies. The degree combines academic course work with 12 credits of supervised field experience. In addition to general course work in human services, students may select a variety of approved elective certificates/courses to focus on different concentration areas.

PROGRAM OUTCOMES

The Human Services Generalist certificate/degree provides training in skills such as interviewing clients, assessing assets and barriers to optimal client functioning, recognizing signs of substance abuse disorders, understanding of service organizations; and providing information and referrals to community resources.

Continued

Human Resources

Human Services Generalist continued...

CAREERS

Opportunities for employment include positions such as case managers and assistants, resource specialists, family advocates, client advocates, intake workers, family assistance workers and volunteer coordinators.

For information contact Dr. Patricia McIlveen, 503-594-3209 or patriciam@clackamas.edu

HUMAN SERVICES GENERALIST CERTIFICATE

FALL TERM		CREDITS
HDF-260	Understanding Child Abuse & Neglect	3
HS-100	Introduction to Human Services	3
WR-101	Occupational Writing	
or WR-121	English Composition	3-4
— —	Human Services Generalist program electives	6
WINTER TERM		
HS-154	Community Resources	3
MTH-050	Technical Mathematics I	
or MTH-065	Algebra II	3-4
PSY-215	Introduction to Developmental Psychology	4
PSY-219	Abnormal Psychology	4
— —	Human Services Generalist program elective	1
SPRING TERM		
HDF-140	Contemporary American Families	3
HS-170	Introduction to Field Experiences in Human Services	3
SOC-205	Social Stratification and Systems	4
— —	Human Services Generalist program electives	5
<i>Minimum credits required for certificate</i>		45-47

HUMAN SERVICES GENERALIST ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR

Complete certificate program.

HUMAN SERVICES GENERALIST ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR

FALL TERM		CREDITS
HE-151	Body & Drugs I	3
HS-260	Victim Advocacy & Assistance	4
HS-280	Human Services Generalist: CWE/Practicum	4
— —	Human Services Generalist program electives	4
WINTER TERM		
HE-152	Body & Drugs II	3
HS-156	Interviewing Theory & Techniques	3
HS-281	Human Services Generalist II: CWE/Practicum	4
PSY-221	Introduction to Counseling	4
— —	Human Services Generalist program electives	1
SPRING TERM		
HE-261	Community CPR	1
HS-267	Intervention Strategies: Working with Families	4
HS-282	Human Services Generalist III: CWE/Practicum	4
— —	Human Services Generalist program electives	6
<i>Minimum credits required for degree</i>		90-92

HUMAN SERVICES GENERALIST PROGRAM ELECTIVES

Students may use up to 23 credits from any of the following certificate programs, as electives in the Human Services Generalist program:

Business Management Certificate	55
Career Development Facilitator Certificate	12
Child Development Associate Certificate	12
Child & Family Studies Certificate	28
Early Childhood Education Certificate	51-54
Emergency Medical Technology (EMT) Certificate	57
Family Development Certificate	15-16
Gerontology Certificate	46-50
Juvenile Corrections Certificate	59-60
Medical Assistant Certificate	54-57
Paraeducator Certificate	50-53

Career Development Facilitator

● Career Pathway Certificate

The Career Development Facilitator Career Pathway Certificate is designed for individuals who are working in the field of career development and/or career advancement. This certificate can also serve as a step toward earning a Global Career Development Facilitator Credential which is endorsed by the National Career Development Association.

PROGRAM OUTCOMES

Upon completion of the program, students are expected to possess the skills and knowledge to assist others in identifying and exploring career options, researching occupational information, making career decisions, implementing action plans, and conducting effective job searches.

CAREERS

Career development facilitator training can enhance the skills of many careers including human service providers, educators, training and development specialists, and human resource professionals. Career development facilitators may serve as school-to-work coordinators, work force development personnel, case managers, job search and career workshop facilitators, career coaches, intake interviewers, career resource specialists, and employment/placement specialists.

For information contact the Student Success Department, 503-594-3475, or <http://depts.clackamas.edu/advising>

**CAREER DEVELOPMENT FACILITATOR
CAREER PATHWAY CERTIFICATE**

FIRST TERM		CREDITS
HS-217	Helping Skills and Diverse Populations	2
HS-218	Career Development Models and Assessments	2
SECOND TERM		
HS-219	Training Clients/Peers and Employability Skills	2
HS-220	Labor Market Information and Technology in Career Planning	2
THIRD TERM		
HS-221	Ethics and Consultation	2
HS-222	Program Management and Public Relations	2
— —	Career Development Facilitator program electives or general elective (any college-level 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 Generalist I/CWE	4

Paraeducator

■ Certificate

The Paraeducator Certificate is designed for those who would like to work as instructional assistants in educational settings. The certificate prepares students to resolve everyday challenges and to professionally support teachers in planning, presenting and evaluating instruction and learning. The paraeducator's responsibilities may include assisting small-group instruction in reading, math, spelling, assisting individual students in the above academic areas and self-help skills, daily-living skills, following behavior programs as directed by the teacher, and preparing and assembling materials. The particular responsibilities assigned to a paraeducator (instructional assistant) depend on the program and personnel in each school. Employment opportunities exist in surrounding areas as a result of the present legislative support for equal education for students with special needs. The program is designed for persons of all ages, races, cultures and economic backgrounds. The program values and encourages diversity in the field of education.

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-needs students and the role of the classroom in a multicultural society.

Course work includes Related Instruction requirements, cooperative work experience and core courses in education, many of which are 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 state approved CCC Paraeducator Certificate provides more than half the necessary credits for the associate's degree as well as a strong foundation in education and teaching. Completion of the remaining degree requirements should include the knowledge and 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 Student Success Department, or Paula Hamm at 503-594-3210 for requirements.

CAREERS

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

For information contact Paula Hamm, 503-594-3210 or paulah@clackamas.edu

PARAEDUCATOR CERTIFICATE

FALL TERM		CREDITS
CS-121	Computer Applications	
or BA-131	Introduction to Business Computing	3-4
ED-100	Introduction to Education	3
ED-131	Instructional Strategies	3
ED-229	Learning and Development	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		
ED-114	Instructional Strategies in Math and Science	3
ED-130	Comprehensive Classroom Management	3
ED-254	Instructional Strategies for English Language Learners	3
ED-258	Multicultural Education	3
SUMMER TERM		
ED-235	Educational Technology	3
MTH-065	Algebra II	4
RD-090	Intermediate Reading Skills*	3
WR-121	English Composition	4
<i>Minimum credits required for certificate</i>		50-54

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

Industrial & Engineering Systems

- 66** *Automotive Service Technology AAS Degree*
- 67** *CAD/CAM Technology AAS Degree*
- 68** *Collision Repair and Refinishing Technology AAS Degree*
- *Collision Repair and Refinishing Technology Certificate*
- 69** *Construction Trades, General Apprenticeship AAS Degree*
- *Construction Trades, General Apprenticeship Certificate*
 - *Manual Trades Apprenticeship Certificate*
- 70** *Electrician Apprenticeship Technologies AAS Degree*
- *Electrician Apprenticeship Technologies Certificate*
 - *Limited Electrician Apprenticeship Technologies Certificate*
- 70** *Electronics Engineering Technology AAS Degree*
- *Electronics Engineering Technology Certificate*
- 71** *Energy & Resource Management AAS Degree*
- *Energy & Resource Management Certificate*
 - *Utility Trade Preparation: Lineworker Certificate*
 - *Utility Workforce Readiness Career Pathway Certificate*
- 73** *Fire Science (Wildland) AAS Degree*
- *Fire Science (Wildland) Certificate*
 - *Wilderness Survival and Leadership Career Pathway Certificate*
- 75** *Geographic Information System (GIS) Technology Certificate*
- 75** *Manufacturing Technology AAS Degree*
- *Manufacturing Technology Certificate*
 - *Basic Manufacturing Technician Certificate*
 - *CNC Machining Technician Career Pathway Certificate*
- 78** *Microelectronics Systems Technology AAS Degree*
- *Microelectronics Systems Technology Certificate*
- 79** *Network & Microcomputer Specialist AAS Degree*
- *Network & Microcomputer Specialist Certificate*
- 80** *Professional Truck Driver Certificate*
- 80** *Renewable Energy Systems Technology AAS Degree*
- *Renewable Energy Systems Technology Certificate*
- 81** *Welding Technology AAS Degree*
- *Welding Technology Certificate*
 - *Entry Level Welding Technician Career Pathway Certificate*

Automotive Service Technology

▲ *Associate of Applied Science Degree*

* *Professional Upgrade*

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.

PROGRAM OUTCOMES

Program outcomes 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, 503-594-3047.

PROFESSIONAL TRUCK DRIVER

See certificate program on page 80.

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
— —	Human Relations requirement (see page 21) (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	3-4
	or MTH-065 Algebra II	
SPRING TERM		
AM-123	General Auto Repair III	3
AM-131	Chassis Systems	7
WR-101	Communication Skills: Occupational Writing	3-4
	or WR-121 English Composition	

**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
— —	PE/Health requirements (see page 21) (Recommended: HE-252)	3
WINTER TERM		
AB-112	Collision Repair Welding I or WLD-102 Introduction to Welding	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
<i>Minimum credits required for degree</i>		93-95

Note: Alternative course schedule is available. Contact the Automotive Department, 503-594-3047 for information.

CAD/CAM Technology

▲ Associate of Applied Science Degree

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

PROGRAM OUTCOMES

Program outcomes include entry-level skills for employment as a CNC/CAD/CAM or manufacturing technician to provide a company with the needed computer-aided manufacturing support. The technician's training involves the skills to support initial product design through manufacturing, including design principles, print-reading, solid modeling, CNC machine tool operations and related mathematics.

CAREERS

Career opportunities may include CNC programmer and operator, CAD technician, manufacturing engineering technician and CAD/CAM technician. For information contact Mike Mattson, mattsonm@clackamas.edu or 503-594-3322.

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, 503-594-3318.

**CAD/CAM TECHNOLOGY
ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR**

FIRST TERM		CREDITS
CDT-102	Sketching and Problem Solving	3
CDT-108A	Introduction to SolidWorks	3
MFG-104	Print Reading	2
MTH-050**	Technical Mathematics I	3
WR-101**	Communication Skills: Occupational Writing	3
SECOND TERM		
CDT-223	Inventor Fundamentals	
or CDT-225	Advanced SolidWorks	3
MFG-105	Dimensional Inspection	2
MFG-109	Computer Literacy for Technicians	3
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
MFG-221	Materials Science	3
— —	CAD/CAM program elective	3

**CAD/CAM TECHNOLOGY
ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR**

FOURTH TERM		CREDITS
MFG-113	Machine Tool Fundamentals III	6
MFG-201	CNC I: Set-up & Operation	4
MFG-204	Computer-Aided Manufacturing I	4
— —**	Human Relations requirement (see page 21)	3
FIFTH TERM		
MFG-202	CNC II: Programming & Operation	4
MFG-205	Computer-Aided Manufacturing II	4
MFG-209	Programming and Automation for Manufacturing	3
— —	PE/Health requirement (see page 21)	3
SIXTH TERM		
MFG-203	CNC III: Applied Programming & Operation	3
MFG-206	Computer-Aided Manufacturing III	3
MFG-211	Machine Tool Fundamentals IV	6
MFG-280	Manufacturing Technology/CWE	4
<i>Minimum credits required for degree</i>		93

CAD/CAM TECHNOLOGY PROGRAM ELECTIVES

Any course with a CDT, EET, GIS, MFG, RET, SM or WLD prefix.

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 Student Success Department for the transfer requirements of the specific advanced program or school.

Industrial and Engineering Systems

Collision Repair and Refinishing Technology

▲ Associate of Applied Science Degree

The Collision Repair and Refinishing program at Clackamas simulates real working conditions in a well equipped 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. The flexibility of the program allows students to enter any term and proceed at their own pace.

Technicians repair or replace parts, straighten structure, install and adjust glass and components, repair electrical systems, restraints, suspension components, brakes, prepare all types of surfaces for necessary refinishing operations, mix and apply modern urethane and waterborne paint products, and finish their work to industry standards. Skills learned include welding, metal straightening, filler use, plastic repair, surface preparation, masking, product selection, mixing, color matching and application techniques, as well as detailing and troubleshooting.

PROGRAM OUTCOMES

Program outcomes include entry level skills for employment in collision repair and refinishing, from repair and replacement of body panels on full frame and unibody vehicles, to preparation and finish application. Detailing, customer service, shop safety, and environmental concerns will also be covered.

CAREERS

Employment opportunities may include auto body technician, frame technician, auto body mid-tech, painter's helper, painter, estimator or manager in an independent repair shop, automobile dealership, truck or heavy equipment dealer or service center, or sales of auto body related tools and materials.

For information contact Dave Bradley, 503-594-3051, or the Automotive Department, 503-594-3047.

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

FIRST TERM	CREDITS
AB-112 Collision Repair Welding I	2
AB-113 Collision Repair I/Nonstructural	6
ABR-125 Collision Repair Refinishing I	6
MTH-050 Technical Mathematics I or MTH-065 Algebra II	3-4
SECOND TERM	
AB-123 Collision Repair Welding II	2
AB-133 Collision Repair II/Structural	6
ABR-127 Collision Repair Refinishing II*	6

THIRD TERM

AB-222 Collision Repair III/Advanced Structural	6
ABR-129 Collision Repair Refinishing III	6
— — Human Relations requirement (see page 21) (Recommended: SP-100 or PSY-101)	3

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

FOURTH TERM	CREDITS
AB-149 Collision Repair Estimating I	2
AB-224 Collision Repair IV/Advanced Structural	6
ABR-225 Production Shop Techniques	6
— — PE/Health requirement (see page 21) (Recommended: HE-252)	3
FIFTH TERM	
AB-150 Collision Repair Computerized Estimating-Shoplinc	2
AB-226 Collision Repair V/Advanced Structural	6
AB-235 Collision Repair Welding III	2
ABR-227 Restoration Practices	6
SIXTH TERM	
AB-151 Collision Repair Computerized Estimating- Pathways	2
AB-280 Collision Repair/CWE	6
ABR-142 Airbrush Art or ABR-152 Custom Painting Fundamentals or ABR-162 Basic Automotive Pinstriping	2
WR-101 Communication Skills: Occupational Writing or WR-121 English Composition	3-4
<i>Minimum credits required for degree</i>	92-94

* 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 or in current progress prior to enrolling in ABR-127 Collision Repair Refinishing

Collision Repair and Refinishing Technology

■ Certificate

The Collision Repair and Refinishing Technology program at Clackamas simulates real working conditions in a well-equipped modern shop facility. Training combines intensive theory and practical lab experience tailored to specific needs. In order to complete the course in three consecutive terms, students must start fall term.

Technicians repair or replace parts, straighten frames and unibody structure, install and adjust components and glass, repair electrical systems, restraints, suspension components, brakes, prepare all types of surfaces for necessary refinishing operations, mix and apply modern waterborne and solvent-borne paint products, and finish their work to industry standards. Skills learned include welding, metal straightening, filler use, plastic repair, surface preparation, masking, product selection, mixing, color matching and application techniques, as well as detailing and troubleshooting. This certificate qualifies students to apply for an I-CAR Core Area Certification.

PROGRAM OUTCOMES

The certificate focused program will provide entry level skills for employment in collision repair and refinishing, from replacement or repair of body panels on unibody and full frame vehicles, to preparation and finish application. Detailing, customer service, safety and environmental concerns will also be covered.

CAREERS

Employment opportunities may include entry level positions as a prepper, masker, painter's helper, body mid-tech, paint or body technician at independent, dealership, or fleet repair facilities in any transportation related field: automotive, trucking, transit, light rail, aircraft, recreational vehicle, industrial or marine.

For information contact Dave Bradley, 503-594-3051, or the Automotive Department, 503-594-3047.

COLLISION REPAIR AND REFINISHING CERTIFICATE

FIRST TERM		CREDITS
AB-112	Collision Repair Welding I	2
AB-113	Collision Repair I/Nonstructural	6
AB-149	Collision Repair Estimating I	2
ABR-125	Collision Repair Refinishing I	6
SECOND TERM		
AB-123	Collision Repair Welding II	2
AB-133	Collision Repair II/ Structural	6
AB-150	Collision Repair Computerized Estimating-Shoplink	2
ABR-127	Collision Repair Refinishing II*	6
THIRD TERM		
AB-222	Collision Repair III/Advanced Structural	6
ABR-129	Collision Repair/Refinishing III	6
<i>Minimum credits required for certificate</i>		<i>44</i>

* 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 or in current progress prior to enrolling in ABR-127 Collision Repair Refinishing II.

Construction Trades, General Apprenticeship

▲ Associate of Applied Science Degree

■ Certificate

Clackamas Community College offers courses for registered apprentices or those interested in becoming an apprentice. For an apprentice who has attained journey status, you may be able to use your journeyman card to receive credit toward an Associate of Applied Science degree.

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 logon to http://egov.oregon.gov/BOLI/ATD/A_Atdopen.shtml and click on the area in which you are interested in applying (Portland, Salem, Eugene, etc.).

The Apprenticeship pathway model provides statewide transfer opportunities, ladder-type certificates of completion, and an optional transfer path into Bachelor of Science degrees at the Oregon Institute of Technology. Both certificates of completion and the AAS degree are based on Oregon State Apprenticeship Training Council and local Joint Apprenticeship Training Committee related training (trade specific) standards. The statewide certificates of completion and AAS degree provide additional access to related training courses across the state for registered apprentices and aligned program outcomes, assessments, and courses.

For information contact Paul Wanner, 503-594-3387 or paulw@clackamas.edu; Connie Hetterly, 503-594-3031 or connieh@clackamas.edu

PROGRAM OUTCOMES

The statewide certificates of completion and Associate of Applied Science (AAS) credentials are available in the following areas:

Construction

- Manual Trades Apprenticeship Certificate of Completion
- Construction Trades, General Apprenticeship Certificate of Completion
- Construction Trades, General Apprenticeship Associate of Applied Science (AAS)
- Optional transfer path into a Bachelor of Science degree in Operations Management at the Oregon Institute of Technology

Industrial and Engineering Systems

Electrician Apprenticeship Technologies

▲ Associate of Applied Science Degree

■ Certificate

Clackamas Community College offers courses for registered apprentices or those interested in becoming an apprentice. For an apprentice who has attained journey status, you may be able to use your journeyman card to receive credit toward an Associate of Applied Science degree.

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 logon to http://egov.oregon.gov/BOLI/ATD/A_Atdopen.shtml and click on the area in which you are interested in applying (Portland, Salem, Eugene, etc.).

The Apprenticeship pathway model provides statewide transfer opportunities, ladder-type certificates of completion, and an optional transfer path into Bachelor of Science degrees at the Oregon Institute of Technology. Both certificates of completion and the AAS degree are based on Oregon State Apprenticeship Training Council and local Joint Apprenticeship Training Committee related training (trade specific) standards. The statewide certificates of completion and AAS degree provide additional access to related training courses across the state for registered apprentices and aligned program outcomes, assessments, and courses.

For information contact Paul Wanner, 503-594-3387 or paulw@clackamas.edu; Connie Hetterly, 503-594-3031 or connieh@clackamas.edu

PROGRAM OUTCOMES

The statewide certificates of completion and Associate of Applied Science (AAS) credentials are available in the following areas:

Electrician

- Limited Electrician Apprenticeship Technologies Certificate of Completion
- Electrician Apprenticeship Technologies Certificate of Completion
- Electrician Apprenticeship Technologies Associate of Applied Science (AAS)
- Optional transfer path into a Bachelor of Science degree in Operations Management at the Oregon Institute of Technology

Electronics Engineering Technology

▲ Associate of Applied Science Degree

■ Certificate

* 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 Electronics Engineering 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 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 the Manufacturing Department, 503-594-3318.

ELECTRONICS ENGINEERING TECHNOLOGY CERTIFICATE

FIRST TERM	CREDITS
EET-112 Electronic Test Equipment & Soldering	3
EET-137 Electrical Fundamentals I	4
EET-139 Principles of Troubleshooting I	2
MTH-095 Algebra III	4
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
MFG-109 Computer Literacy for Technicians	3
MTH-111 College Algebra	5
— — Human Relations requirement (see page 21)	3
THIRD TERM	
EET-127 Semiconductor Circuits I	4
EET-142 Electrical Fundamentals III	4
EET-257 Digital Logic II	4
MTH-112 Trigonometry/Pre-Calculus	5
SM-280 Electronics & Microelectronics/CWE	2
<i>Minimum credits required for certificate</i>	
	55

**ELECTRONICS ENGINEERING TECHNOLOGY
ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR**

Complete certificate program.

**ELECTRONICS ENGINEERING TECHNOLOGY
ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR**

FOURTH TERM		CREDITS
EET-215	Principles & Applications of Manufacturing Equipment Technology I	2
EET-227	Semiconductor Circuits II	3
EET-239	Principles of Troubleshooting II	2
MFG-107	Industrial Safety & First Aid	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
PH-203**	General Physics	5
SM-280	Electronics & Microelectronics/CWE	2
— —	PE/Health requirement (see page 21)	3

Minimum credits required for degree 104

*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 Student Success Department 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.

For information contact Mike Mattson, 503-594-3322 or mattsonm@clackamas.edu

Energy & Resource Management

▲ Associate of Applied Science Degree

■ Certificate

The Energy & Resource Management (ERM) program provides the necessary training for entry level careers within the utility industry. Course work covers traditional and alternative energy generation, distribution, operation, management and leadership.

This program is endorsed by the Utility Training Alliance (UTA) comprised of Portland General Electric, PacifiCorp and Clackamas Community College. It is also endorsed by the Utility Education Training Alliance (UETA) that is comprised of various utilities and community colleges throughout Oregon and Washington.

PROGRAM OUTCOMES

Successful completion of this program should enable students to demonstrate the core knowledge and skills needed to acquire entry level positions within the utility industry.

Students can also earn a Project Management Leadership & Communication Career Pathway Certificate (see page 46) with the successful completion of second year and applying with a separate petition for graduation.

CAREERS

Career opportunities may include: entry-level applied technical trades within utilities, support personnel, utilities assistant, engineering consulting, resource specialist, business administration and project management.

For information contact Shelly Tracy, 503-594-0945 or shellyt@clackamas.edu

PSU TRANSFER AGREEMENT

Graduates from CCC's Energy & Resource Management AAS Degree will transfer with a minimum of 90 credits to Portland State University's *Community Development in CUPA* major with the following understanding: Transfer students will contact a PSU transfer advisor, Undergraduate Advising and Support Center (UASC), 1-800-8887, ext. 4005.

ENERGY & RESOURCE MANAGEMENT CERTIFICATE:

FIRST TERM	CREDITS	
BA-131	Introduction to Business Computing	4
ERM-100	Orientation to Energy & Resource Management	3
ERM-101	Energy & Resource Technology I: Intro	3
ERM-171	Energy Industry Health Awareness	3
HE-261	Community CPR	1
PSY-101	Human Relations	3

Continued

Industrial and Engineering Systems

Energy & Resource Management continued...

SECOND TERM

ERM-102	Energy & Resource Technology II: Electricity	3
ERM-107	Career Portfolio	3
ERM-108A	Career Industry Marketing Strategies	2
WR-121	English Composition	4
— —	Computation requirement (see page 21)	4-5

THIRD TERM

EC-201	Principles of Economics: MICRO	4
ERM-103	Energy & Resource Technology III: Generation	3
ERM-180	Energy & Resource Management/CWE	3
WR-122	English Composition	4

Minimum credits required for certificate 47-48

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

Complete certificate program.

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

FOURTH TERM	CREDITS
BA-122 Teamwork: Project Management	3
BA-285 Human Relations in Business	4
ERM-201 Energy App. I: Renewable Energy Resources	4
SSC-180 Pathway to Sustainability	5

FIFTH TERM

BA-123 Leadership & Motivation: Project Management	3
ERM-202 Energy Applications II: Leadership	4
SP-111 Public Speaking	4
SSC-181 Pathway to Sustainability	5

SIXTH TERM

BA-124 Negotiation: Project Management	3
BA-205 Solving Business Communication Problems with Technology	4
ERM-203 Energy Application III: Seminar	4
SSC-182 Pathway to Sustainability	5

Minimum credits required for degree 95-96

Utility Trade Preparation: Lineworker

Certificate

Pending Approval

The Utility Trade Preparation: Lineworker program prepares students to enter the outside line construction industry with the core required skills, knowledge and safety awareness for initial employment requirements. It is important to be physically fit, work well in a team environment, adhere to safety requirements, and maintain ethical conduct in all work practices. Each term has a focus that prepares the student for the following term. First term: Introduction to the Utility Industry and Health/Safety Awareness. Second term: Introduction to job site applications, competent use of heavy equipment, job search and interviewing skills. Third term: Fundamentals of daily ground worker responsibilities, Initial Pole Climbing and basic electricity.

This certificate is endorsed by the Utility Training Alliance (UTA) comprised of Portland General Electric (PGE), PacifiCorp and Clackamas Community College. The certificate is also supported by other regional utility partners.

PROGRAM REQUIREMENTS

- Must be 18 years or older
- Possess a valid driver's license
- Able to obtaining a CDL permit
- Capable of strenuous physical activity
- Physically able to climb utility poles
- Comfortable with heights of up to 40 feet

PROGRAM OUTCOMES

Successful completion of this program enables students to demonstrate the core knowledge and hands-on skills of electrical systems, equipment, and safety applications needed to satisfy employment requirements within the outside line construction industry. Accept personal responsibility with compliance to all laws and performance standards. Produce reliable results that blend safety and performance into a unified work practice. General knowledge and experience with: forklift, excavator, digger derrick, and bucket truck. Health & Safety Certification training includes: flagging, CPR/First Aid, OSHA 10 and CDL permit.

CAREERS

Career opportunities may include: groundworker, power lineworker, power line clearance, maintenance and repair workers, general laborer or technical assistant. For information contact Shelly Tracy, 503-594-0945 or shellyt@clackamas.edu

UTILITY TRADE PREPARATION: LINEWORKER CERTIFICATE

FIRST TERM		CREDITS
ERM-100	Orientation to Energy & Resource Management	3
ERM-101	Energy & Resource Technology I: Intro	3
ERM-171	Energy Industry Workplace Health Awareness	3
ERM-172	Energy Industry Safety Development	3
HE-261	Community CPR	1
PSY-101	Human Relations	3
SECOND TERM		
ERM-102	Energy & Resource Technology II: Electricity	3
ERM-107	Career Portfolio	3
ERM-108A	Career Marketing Strategies	2
ERM-173	Energy Industry Performance Development	6
THIRD TERM		
ERM-174	Groundworker Training	3
ERM-175	Initial Pole Climbing	4
MFG-130	Basic Electricity I	3
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3-4
—	MTH-065 Algebra II (or higher level of math)	4-5

Minimum credits required for certificate 47-48

Utility Workforce Readiness

● **Career Pathway Certificate**

A less-than-one-year program. The Utility Workforce Readiness Career Pathway program provides training that prepares students for entry-level positions in technical careers within the utility industry. It is important to be physically fit, to work well in a team environment, adhere to safety requirements and maintain ethical conduct in all work practices. The Utility Workforce Readiness Career Pathway Certificate is offered as part of the Energy & Resource Management program. This certificate is endorsed by the Utility Training Alliance (UTA) comprised of Portland General Electric (PGE), PacifiCorp and Clackamas Community College. The certificate is also supported by other regional utility partners.

PROGRAM OUTCOMES

Successful completion of this program should enable students to demonstrate the core knowledge and hands-on skills needed to acquire entry level positions within the utility industry. Accept personal responsibility with compliance to all laws and performance standards. Produce reliable results that blend safety and performance into a unified work practice. Health & Safety Certification training includes: flagging, CPR/first aid, OSHA 10 and CDL permit.

CAREERS

Career opportunities may include: ground worker, general laborer, flagger, service technician, store room, or maintenance and repair workers.

For information contact Shelly Tracy, 503-594-0945 or shellyt@clackamas.edu

UTILITY WORKFORCE READINESS CAREER PATHWAY CERTIFICATE

FIRST TERM		CREDITS
ERM-100	Orientation to Energy & Resource Management	3
ERM-101	Energy & Resource Technology I: Intro	3
ERM-171	Energy Industry Workplace Health Awareness	3
ERM-172	Energy Industry Safety Development	3
HE-261	Community CPR	1
PSY-101	Human Relations	3
SECOND TERM		
ERM-102	Energy & Resource Technology II: Electricity	3
ERM-107	Career Portfolio	3
ERM-108A	Career Marketing Strategies	2
ERM-173	Energy Industry Performance Development	6

Minimum credits required for certificate 30

Fire Science (Wildland)

▲ **Associate of Applied Science Degree**
 ■ **Certificate**

The Fire Science (Wildland) program provides training that can lead to seasonal employment in wildland fire-fighting 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 wild-land 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, 503-594-3620 or jrcrawford@clackamas.edu; Tom Laugle, 503-594-3066 or toml@clackamas.edu or visit <http://depts.clackamas.edu/firescience/>

Continued

Industrial and Engineering Systems

Fire Science (Wildland) continued...

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 Mathematics I	
or MTH-065 Algebra II	3-4
PE-185 Physical Education (Recommended: Weight Training, Beg.)	1
WR-121 English Composition	
or WR-101 Communication Skills: Occupational Writing	3-4
SECOND TERM	
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
FRP-246 Survivor IV: Wilderness First Aid	2
HE-261 Community CPR	1
PE-185 Physical Education (Recommended: Weight Training, Int., or Rock Climbing)	1
— — General elective (any college-level course)	3-4
— — Human Relations requirement (see page 21) (Recommended: PSY-101)	3
THIRD TERM	
FRP-110 Basic Wildland Fire Investigation (FI-110)	1
FRP-180 Wildland Firefighting/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	3
PE-185 Physical Education (Recommended: Weight Training Adv. or Rock Climbing)	1
— — General elective (any college-level course)	3-4
<i>Minimum credits required for certificate</i>	50-54

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
ESH-101 Hazardous Waste Management	2
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 electives	2
— — Science, Social Science or Fire Science (Wildland) program electives (Recommended: EMT-101)	4-5
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 (S-290)	3
— — Science, Social Science or Fire Science (Wildland) program electives (Recommended: EMT-102)	4-5

SIXTH TERM

FRP-220 Initial Attack Incident Commander (S-200)	1
FRP-230 Crew Boss (Single Resource) (S-230)	2
FRP-231 Engine Boss (Single Resource) (S-231)	1
FRP-280 Wildland Fire/Advanced CWE	6
HPE-296 Health & Fitness for Industry	2
— — Science, Social Science or Fire Science (Wildland) program electives	4-5
<i>Minimum credits required for degree</i>	91-98

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
FRP-217 Interagency Helicopter Training (S-271)	3
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-247 Survivor V: Dangerous Animals	2
FRP-248 Survivor VI: Introduction to Search and Rescue	2
FRP-259 Task Force/Strike Team Leader (S-330)	2
FRP-260 Interagency Incident Management (S-260)	1

Wilderness Survival and Leadership

● Career Pathway Certificate

The Wilderness Survival and Leadership program is designed for those students who would like to pursue a variety of careers in the outdoors. Students will understand leadership, survival and rescue in the wilderness. The certificate is part of the Wildland Fire career pathway.

PROGRAM OUTCOMES

Upon successful completion of the program, students will learn the basics of land navigation, wilderness first aid, Northwest weather prediction, wilderness preparedness, approaches to dealing with dangerous animals, search and rescue methods including evacuation techniques, and preparation of helicopter landing zones.

CAREERS

This program prepares students for employment in parks and recreation, guide services, search and rescue, state and federal agencies, private organizations, forestry jobs and wildland firefighting. The certificate gives students the necessary skills to lead and/or participate in any programs in a wide variety of settings that require leadership and competency in the outback regions of the Northwest.

For information contact Tom Laugle, 503-594-3066 or toml@clackamas.edu or visit <http://depts.clackamas.edu/firescience/wilderness.aspx>

**WILDERNESS SURVIVAL AND LEADERSHIP
CAREER PATHWAY CERTIFICATE**

COURSE		CREDITS
FRP-243	Survivor I: Maps, Compass, GPS	2
FRP-244	Survivor II: Wilderness	2
FRP-245	Survivor III: Weather of the NW	2
FRP-246	Survivor IV: Wilderness First Aid	2
FRP-247	Survivor V: Dangerous Animals	2
FRP-248	Survivor VI: Introduction to Search & Rescue	
or FRP-130	Introduction to Wildland Firefighting (S-130/S-190)	2-3

Minimum credits required for certificate 12-13

Note: Courses do not need to be taken in sequence.

Geographic Information Systems (GIS) Technology

■ Certificate

The Geographic Information Systems (GIS) Technology Certificate offers instruction in the fields of geography, cartography, computer-aided drafting (CAD), global positioning systems (GPS), database theory and mathematics. The program also includes instruction in research skills, technical mathematics, computer programming, human relations skills and other field competencies.

PROGRAM OUTCOMES

Program outcomes 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: GIS technician, mapping technician and survey technician.

For information contact Mike Mattson, 503-594-3322 or mattsonm@clackamas.edu

GEOGRAPHIC INFORMATION SYSTEMS (GIS) TECHNOLOGY CERTIFICATE

FIRST TERM		CREDITS
GEO-100	Introduction to Physical Geography	
or GEO-110	Cultural & Human Geography	4
GIS-201	Introduction to Geographic Information System	3
GIS-236	Visual Basic Programming for GIS	1
MFG-109	Computer Literacy for Technicians	3
MTH-050	Technical Mathematics I	3
WR-121	English Composition	4
SECOND TERM		
CDT-103	Computer-Aided Drafting I	3
GIS-237	Advanced Visual Basic Programming for GIS	1
GIS-281	ArcGIS I	3
GIS-286	Remote Sensing	3
MTH-080	Technical Mathematics II	3
— —	Technical elective	3

THIRD TERM

CDT-224	Professional Web Design	1
GIS-232	Data Collection & Application	3
GIS-280	GIS/CWE	4
GIS-282	ArcGIS II	3
— —	Human Relations requirement (see page 21)	3
Minimum credits required for certificate		48

TECHNICAL ELECTIVES

Any course with a GIS or CDT prefix.

Manufacturing Technology

▲ Associated of Applied Science Degree

■ Certificate

* 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 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/CAM technicians.

CNC MACHINING TECHNICIAN

See Career Pathway Certificate program on page 77.

Industrial and Engineering Systems

Manufacturing Technology 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, Department Chair, 503-594-3322 or mattsonm@clackamas.edu; or the Manufacturing Department, 503-594-3318.

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. For information contact the Manufacturing Department, 503-594-3318 for more information.

CAD/CAM TECHNOLOGY DEGREE

See degree program on page 67.

MANUFACTURING TECHNOLOGY CERTIFICATE

FIRST TERM		CREDITS
MFG-104	Print Reading	2
MFG-107	Industrial Safety & First Aid	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
MFG-280	Manufacturing Technology/CWE	2
— —	Manufacturing Technology program electives	3
— —	Human Relations requirement (see page 21)	3
<i>Minimum credits required for certificate</i>		51

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
— —	Microelectronics Systems Technology program electives	3

FIFTH TERM

MFG-202	CNC II: Programming & Operation	4
MFG-205	Computer-Aided Manufacturing II	4
— —	Manufacturing Technology program electives	3
— —	PE/Health requirement (see page 21)	3

SIXTH TERM

MFG-203	CNC III: Applied Programming & Operation	3
MFG-206	Computer-Aided Manufacturing III	3
MFG-221	Materials Science	3
MFG-280	Manufacturing Technology/CWE	2
— —*	General elective (any college-level course)	3
<i>Minimum credits required for degree</i>		96

MANUFACTURING TECHNOLOGY PROGRAM ELECTIVES

Complete three or more credits from the following:

COURSE		CREDITS
CDT-102	Sketching & Problem Solving	1-3
CDT-103	Computer-Aided Drafting I	4
CDT-108A	Introduction to Solid Modeling	3
CDT-223	Inventor Fundamentals	3
CDT-224	Professional Web Design	1-3
CDT-225	Advanced SolidWorks	1-3
MFG-101	Essential Skills for Manufacturing I	2-4
MFG-113	Machine Tool Fundamentals III	3
MFG-130	Basic Electricity I	3
WLD-150	Welding Processes	4
— —	Other technical courses with 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 Student Success Department for the transfer requirements of the specific advanced program or school.

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

Basic Manufacturing Technician

■ Certificate

The Basic Manufacturing Technician (BMT) program at Clackamas Community College is part of a larger, state-wide curriculum that is widely recognized by manufacturing employers. The BMT program provides students with competencies in five core areas: machine tool operation, precision measurement, print reading, industrial safety and technical math. Students then have the opportunity to select an area of concentration related to traditional machining, CNC operation or welding. This training provides the necessary skills for entry-level employment within the manufacturing field. Course work covers blueprint reading, technical mathematics, dimensional inspection, safety, cutting tools and machine tool operation. The program is full transferable to the one-year Manufacturing Technology Certificate or two-year Manufacturing Technology AAS Degree.

This certificate is part of the manufacturing career pathway which prepares students for a wide variety of manufacturing careers, as well as continued study in our degree program and articulation to OIT for the study of engineering technology.

PROGRAM OUTCOMES

Upon successful completion of the program, students will have learned the skills necessary to obtain entry-level employment in the manufacturing industry.

CAREERS

Career opportunities may include entry-level machine operator, welder, machinist or general manufacturing technician.

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

BASIC MANUFACTURING TECHNICIAN CERTIFICATE

COURSE		CREDITS
MFG-104	Print Reading	2
MFG-105	Dimensional Inspection	2
MFG-107	Industrial Safety & First Aid	3
MFG-111	Machine Tool Fundamentals I	3
MTH-050	Technical Mathematics I	3
— —	Focus Area elective	2-4
— —	Focus Area elective	2-6

Minimum credits required for certificate 17-23

BASIC MANUFACTURING TECHNICIAN CERTIFICATE FOCUS AREA ELECTIVES

Select courses from the following focus areas.

WELDING FOCUS AREA

COURSE		CREDITS
WLD-100	Welder's Print Reading I	3
WLD-102	Introduction to Welding	2

CNC MILL OPERATION FOCUS AREA

COURSE		CREDITS
MFG-111	Machine Tool Fundamentals I	3
MFG-201	CNC I: Set-up & Operation	4

MACHINING FOCUS AREA

COURSE		CREDITS
MFG-111	Machine Tool Fundamentals I	6
MFG-221	Materials Science	3

CNC Machining Technician

● Career Pathway Certificate

The CNC Machining Technician program at Clackamas provides the training necessary for employment within the advanced manufacturing field. The program is arranged with core CNC competencies in mind while allowing the student flexibility to take other relevant manufacturing courses. Course work covers blueprint reading, technical mathematics, safety, and manual and CNC machining. The program is fully transferable to the one-year Manufacturing Technology Certificate or two-year Manufacturing Technology AAS Degree.

This certificate is part of the manufacturing career pathway preparing students for a wide variety of manufacturing careers and opportunities to continue at a four-year institution.

PROGRAM OUTCOMES

Upon successful completion of the program, students will have learned the skills necessary to obtain entry-level employment in the manufacturing field as a CNC operator.

CAREERS

Career opportunities may include entry-level CNC operator, machinist or general manufacturing technician.

For more information contact the Manufacturing Department at 503-594-3318 or mattsonm@clackamas.edu

CNC MACHINING TECHNICIAN CAREER PATHWAY CERTIFICATE

COURSE		CREDITS
MFG-104	Print Reading	2
MFG-107	Industrial Safety & First Aid	3
MFG-111	Machine Tool Fundamental I	9
MFG-201	CNC I: Set-up & Operation	4
MTH-050	Technical Mathematics I	3
— —	CNC Machining Technician program elective	2-4

Minimum credits required for certificate 23-25

Industrial and Engineering Systems

CNC Machining continued...

CNC MACHINING TECHNICIAN PROGRAM ELECTIVES

COURSE		CREDITS
MFG-101	Essential Skills for Manufacturing I	2-4
MFG-105	Dimensional Inspection	2
MFG-106	Applied Geometric Dimensioning & Tolerancing for Manufacturing	2
MFG-112	Machine Tool Fundamental II	3
MFG-202	CNC II: Programming & Operation	4
MFG-204	Computer-Aided Manufacturing I	4
WLD-150	Welding Processes	4

Microelectronics Systems Technology

▲ Associate of Applied Science Degree

■ Certificate

* 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, 503-594-3322 or mattsonm@clackamas.edu

MICROELECTRONICS SYSTEMS TECHNOLOGY CERTIFICATE

FIRST TERM		CREDITS
EET-112	Electronic Test Equipment & Soldering	3
EET-137	Electrical Fundamentals I	4
EET-139	Principles of Troubleshooting I	2
MFG-107	Industrial Safety & First Aid	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
SM-170	Semiconductor Processing III	2
SM-280	Electronics & Microelectronics/CWE	2
SP-100*	Basic Speech Communication	3
— —	Microelectronics Systems Technology program elective	3

Minimum credits required for certificate

55

MICROELECTRONICS SYSTEMS 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 Manufacturing Equipment Technology	2
EET-239	Principles of Troubleshooting II	2
MFG-104	Print Reading	2
— —	Human Relations requirement (see page 21)	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-133	Programmable Logic Controllers	3
SM-229	Vacuum Technology	2
— —	PE/Health requirement (see page 21)	3
— —	Microelectronics Systems Technology program electives	3

Minimum credits required for degree

99

MICROELECTRONICS SYSTEMS TECHNOLOGY PROGRAM ELECTIVES:

Any course with an EET, RET, SM, MFG, WLD or CDT prefix not already in the Microelectronics Systems Technology program.

*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 Student Success Department for the transfer requirements of the specific advanced program or school.

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. For information contact Mike Mattson, 503-594-3322 or mattsonm@clackamas.edu

Network & Microcomputer Specialist

▲ Associate of Applied Science Degree

■ Certificate

The Network & Microcomputer Specialist program prepares students for technical support careers specializing in network administration and maintenance. Students may earn either a one-year Certificate of Completion or two-year Associate of Applied Science degree. The course work emphasizes development of analytical and problem-solving skills in addition to specific hardware and software configurations. Cooperative Work Experience (CWE) is supervised real-world 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 is an open program. 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, 503-594-3170 or dcarino@clackamas.edu

NETWORK & MICROCOMPUTER SPECIALIST CERTIFICATE

FALL TERM		CREDITS
CS-121	Computer Applications	
or BA-131	Introduction to Business Computing	3-4
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	Introduction to Networking	3
CS-227	PC Hardware & Repair I	4
CS-240W	Operating Systems II: Windows	3
WR-101	Communication Skills: Occupational Writing	
or WR-121	English Composition	3-4

SPRING TERM

CS-140U	Operating Systems I: Linux/UNIX	3
CS-228	PC Hardware & Repair II	4
CS-279W	Windows Server Administration	4
CS-280	Computer Science/CWE	3
— —	Human Relations requirement (see page 21) (Recommended: BA-285 or PSY-101)	3-4

Minimum credits required for certificate 49-52

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 Hardware	4
CS-240U	Operating Systems II: Linux/UNIX	3
— —	Network & Microcomputer program elective	3-4
— —	PE/Health requirement (see page 21)	1

WINTER TERM

CS-240M	Operating Systems II: Macintosh	3
CS-288W	Network Administration	4
CS-289I	Web Server Administration: Internet Information Server	3
— —	Network & Microcomputer program electives	6-8

SPRING TERM

CS-280	Computer Science/CWE	6
CS-284	Network Security	3
CS-289A	Web Server Administration: Apache	3
CS-297N	Network Capstone	4

Minimum credits required for degree 95-101

NETWORK & MICROCOMPUTER SPECIALIST PROGRAM ELECTIVES

Complete 9-12 credits from the following:

COURSE	CREDITS	
BA-101	Introduction to Business	4
BA-103	Business Strategies for Computer Consultants	3
— —	Any computer science course numbered 125 or higher	

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

Industrial and Engineering Systems

Professional Truck Driver

■ Certificate

A less-than-one-year program. The Professional Truck Driver program at Clackamas provides the necessary training for employment within the Transportation and Logistics field. Course work covers rules, regulations and practices, practical applications, customer service skills, and C.D.L. (Commercial Driver's Licensing) training provided in conjunction with the IITR truck driving school. This four class series is part of a statewide program designed to put you in the driver's seat of an exciting career.

PROGRAM OUTCOMES

Upon successful completion of the program, students will have earned a Commercial Driver's License, and have learned the necessary skills to obtain employment in the Transportation and Logistics industry.

CAREERS

Career opportunities may include short and long haul trucking, delivery services, public transportation, supply and logistics management, and dispatching.

For information contact the Automotive Department at 503-594-3047 or David Bradley at BradleyD@clackamas.edu

PROFESSIONAL TRUCK DRIVER CERTIFICATE:

COURSE		CREDITS
TTL-101	Introduction to Transportation & Logistics	4
TTL-121	Practical Applications in Transportation & Logistics	6
TTL-141	Transportation Customer Service Skills	3
TTL-180	Transportation & Logistics/CWE	6
<i>Minimum credits required for certificate</i>		19

Renewable Energy Systems Technology

▲ Associate of Applied Science Degree

■ Certificate

The Renewable Energy Systems Technology (RET) program provides technical training for employment in the field of manufacturing, installation and maintenance of renewable energy systems and products. Graduates will be prepared to integrate, install and repair equipment related to equipment and controls. This program takes a broad-based approach to training renewable energy technicians, with emphasis on mechanical and electro-mechanical systems, fluid power, instrumentation and controls as well as systems troubleshooting. RET graduates will be prepared to work in the capacity of a technician with specialized skills in energy system measurement, energy efficiency, system design and electronic controls.

PROGRAM OUTCOMES

Program outcomes include providing graduates with the technician-level skills necessary for entry into a broad range of positions related to the manufacture, maintenance and integration of renewable energy technologies. Graduates will have a scientific base on which to understand the operating principles of energy technologies and have the analytical skills necessary to make economic, systems design and procurement decisions.

CAREERS

Career opportunities may include residential/commercial energy systems integrator, energy audit and efficiency technician, energy systems installer, photo-voltaic (PV) manufacturing and industrial maintenance technician, wind turbine technician, limited renewable technician; PV, geothermal and solar thermal technicians. Additional opportunities exist in the utilities and building trades.

For information contact Mike Mattson at 503-594-3322 or mattsonm@clackamas.edu

RENEWABLE ENERGY SYSTEMS TECHNOLOGY CERTIFICATE

FIRST TERM		CREDITS
EET-139	Principles of Troubleshooting	2
MFG-130	Basic Electricity I	3
MTH-050	Technical Mathematics I	3
RET-200	Renewable Energy Systems	4
RET-240	Alternative Fuel Systems	4

SECOND TERM

MFG-107	Industrial Safety & First Aid	3
MFG-109	Computer Literacy for Technicians	3
MFG-131	Basic Electricity II: Motors & Controls	3
MTH-080	Technical Mathematics II	3
RET-209	Renewable Energy I: System Fundamentals	3

THIRD TERM

MET-170	Manufacturing Processes	3
RET-211	Renewable Energy II: Energy Efficiency	3
RET-280	Renewable Energy Technology/CWE	2
WR-101	Communication Skills: Occupational Writing	3
— —	Human Relations requirement (SP-100 Recommended)	3
— —	Renewable Energy Systems Technology program elective	3

Minimum credits required for certificate 48

**RENEWABLE ENERGY SYSTEMS TECHNOLOGY
ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR**

Complete certificate program.

**RENEWABLE ENERGY SYSTEMS TECHNOLOGY
ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR**

FOURTH TERM		CREDITS
EET-215	Principles & Applications of Manufacturing Equipment Technology	2
EET-239	Principles of Troubleshooting II	2
HUM-180	Pathway to Sustainability	5
	or HUM-181 Pathway to Sustainability	
	or HUM-182 Pathway to Sustainability	
MFG-104	Print Reading	2
RET-213	Renewable Energy III: Installation & Maintenance	3
— —	Renewable Energy Systems Technology program elective	3

FIFTH TERM

MFG-123	Instrumentation and Controls	3
MFG-140	Principles of Fluid Power	3
MFG-209	Programming & Automation for Manufacturing	3
RET-215	Renewable Energy IV: Systems Design	3
— —	Renewable Energy Systems Technology program elective	3

SIXTH TERM

MFG-133	Programmable Logic Controllers	3
MFG-221	Materials Science	3
RET-217	Renewable Energy Capstone	3
RET-280	Renewable Energy Technology/CWE	2
— —	PE/Health requirement (see page 21)	3
— —	Renewable Energy Systems Technology program elective	3

Minimum credits required for degree 97

**RENEWABLE ENERGY SYSTEMS TECHNOLOGY
PROGRAM ELECTIVES**

Any course with a CDT, EET, GIS, MFG, RET, SM or WLD prefix.

Welding Technology

▲ Associate of Applied Science Degree

■ Certificate

* 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 welding (GMAW)
 - Flux-core arc welding (FCAW)
 - Gas-tungsten arc welding (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

Industrial and Engineering Systems

Welding Technology 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.

For information contact Paul Wanner, 503-594-3387 or paulw@clackamas.edu or the Applied Technology Department, 503-594-3064.

WELDING TECHNOLOGY CERTIFICATE

FIRST TERM		CREDITS
MFG-107	Industrial Safety & First Aid	3
MTH-050*	Technical Mathematics I	3
WLD-100	Welders' Print Reading	3
WLD-111	Shielded Metal Arc Welding (STICK)	8
SECOND TERM		
MFG-109	Computer Literacy for Technicians	3
WLD-112	Intro SMAW Pre-Pipe Welding	2
WLD-113	GMAW/FCAW (Wirefeed)	8
WLD-200	Welders' Print Reading II	3
WR-101*	Communication Skills: Occupational Writing	3
THIRD TERM		
MFG-221	Materials Science	3
WLD-110	Welder Certification	1-4
WLD-115	Gas Tungsten Arc Welding (GTAW)	8
WLD-280	Welding Technology/CWE	2
— —	Human Relations Requirement (see page 21)	3
<i>Minimum credits required for certificate</i>		53-56

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-211	Advanced SMAW	4
WLD-250	Welding Fabrication I Beginning Project	4
— —	PE/Health requirement (see page 21)	1
FIFTH TERM		
WLD-210	Beginning SMAW Pipe Welding	2
WLD-213	Advanced GMAW/FCAW	4
WLD-251	Welding Fabrication II Intermediate Project	4
— —*	General electives (any college level course)	3
SIXTH TERM		
WLD-215	Advanced GTAW	4
WLD-252	Welding Fabrication III Advanced Project	4
WLD-280	Welding Technology/CWE	2
— —	Welding program elective	2-6
<i>Minimum credits required for degree</i>		90-97

* 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 Student Success Department for the transfer requirements of the specific advanced program or school.

WELDING PROGRAM ELECTIVES

COURSE		CREDITS
WLD-102	Introduction to Welding	2
WLD-103	Blacksmithing and Traditional Iron Working	2
WLD-104	Intro to CNC Plasma Cutting	2
WLD-150	Welding Processes	4
WLD-212	SMAW Pipe Welding	2
WLD-261	Special Projects	2

Entry Level Welding Technician

● Career Pathway Certificate

This program is designed with core competencies in mind while allowing the student flexibility to take other relevant welding courses.

PROGRAM OUTCOMES

This program prepares students for employment in entry level welding positions with a variety of industries. Course work focuses on the knowledge and skills to perform the following tasks: measure and cut material accurately; read and understand blueprints; weld fillet and groove welds in all positions with the process of their choice; repair their mistakes and fabricate parts.

CAREERS

Career opportunities include entry level jobs in cutting parts, blueprint reading and fitting, tacking, production welding, repair welding and fabrication.

For information contact Paul Wanner, 503-594-3387 or paulw@clackamas.edu or the Applied Technology Department, 503-594-3064.

ENTRY LEVEL WELDING TECHNICIAN CAREER PATHWAY CERTIFICATE

COURSE		CREDITS
MFG-107	Industrial Safety & First Aid	3
WLD-100	Welders' Print Reading	3
WLD-250	Welding Fabrication I/Beginning Project	4
— —	Entry Level Welding Technician program electives	11-12
<i>Minimum credits required for certificate</i>		21-22

ENTRY LEVEL WELDING TECHNICIAN PROGRAM ELECTIVES

COURSE		CREDITS
MFG-111	Machine Tool Fundamentals I	3
WLD-110	Welder Certification	1 or 4
WLD-111	Shielded Metal Arc Welding (STICK)	4 or 8
WLD-113	GMAW/FCAW (Wirefeed)	4 or 8
WLD-115	Gas Tungsten Arc Welding	4 or 8

Additional Programs

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.

The certificate combines 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 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.

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 Student Success Department, 503-594-3475, or <http://depts.clackamas.edu/advising>

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.

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 please contact the Student Success Department, 503-594-3475, or <http://depts.clackamas.edu/advising>

OCUPATIONAL SKILLS TRAINING CERTIFICATE

PROGRAM REQUIREMENTS

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

RELATED INSTRUCTION REQUIREMENTS

MTH-050	Technical Mathematics I	3
WR-101	Communication Skills: Occupational Writing	3
— —	Human Relations requirement (see page 21)	3
<i>Minimum credits required for certificate</i>		48



Additional Programs & Ways to Earn Credit



*We believe in
respecting the
inherent right of
all persons to live
with dignity and
freedom.*



Additional Programs & Ways to Earn Credit

Apprenticeships

CCC OREGON CITY CAMPUS

503-594-3031 or connieh@clackamas.edu

Clackamas Community College offers courses for registered apprentices and people interested in becoming an apprentice. For an apprentice who has attained journey status, you may be able to use your journeyman card to receive credit toward an Associate of Applied Science degree.

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_Atdopen.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.

Basic Skills Development

CCC OREGON CITY CAMPUS

503-594-3395

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

503-594-3395

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 may 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* or www.clackamas.edu, under Programs & Classes, for information.

REQUIREMENTS FOR ADULT HIGH SCHOOL DIPLOMA

Complete a minimum of 22 high school units:

Subject Units

Language Arts	4
<i>(Shall include the equivalent of one unit in written composition.)</i>	
Mathematics	3
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:	24

Students 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

503-594-3395

CCC HARMONY CAMPUS

503-594-0730

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
503-594-3395

The Campus Learning Center offers instruction in basic skills including credit classes in reading, writing 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
503-594-3401

The Bridges program assists young adults (17-23) to transition successfully to further education or to work, by providing an awareness of educational and employment options and resources; overcoming barriers; exploring aptitudes, abilities and interests; developing educational and/or career goals; and attaining skills for educational or workplace success.

Gateway to College

DYE LEARNING CENTER
503-594-3401

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 Education Development

DYE LEARNING CENTER
503-594-3395

Students may earn a high school equivalency certificate by passing the General Education Development (GED) test. 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.

CCC HARMONY CAMPUS
503-594-0730

GED prep classes are offered to assist students in mastering their basic skills to earn a GED. Students may earn a high school equivalency certificate by passing the General Educational Development (GED) test. 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

CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-594-3475

<http://depts.clackamas.edu/advising>

Life and Career Options (LCOP) prepares people to enter or re-enter the job market. Day and evening classes offered fall, winter, and spring 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
503-594-3399

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.

Young Parent Opportunity Program

FAMILY RESOURCE CENTER
503-594-3027

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
503-594-3475, Community Center
or 503-594-3096, DeJardin 220
<http://depts.clackamas.edu/cwe/>

The Cooperative Work Experience (CWE) is an internship program which 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
- Valuable employer contacts
- College credit for on-the-job experience
- Work experience suitable for a résumé
- Possible source of income to cover college expenses
- Increased professional confidence

Requirements & Registration for CWE:

- Contact an advisor and a CWE instructor in your area of study. CWE instructor consent is required for registration.
- Complete the CWE application and determine the number of work hours and appropriate credits.
- 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) measurable learning objectives.
- Participate in a CWE seminar course on career management skills and complete seminar assignments.
- Successfully complete 30 hours of work experience for every credit.

Credit & Grading

The number of credits earned depends on the number of hours worked and the program requirements. Students may earn a maximum of 12 CWE credits per year.

Work/Credit Chart

# of Credits	Hours Worked Per Week	Total Hours Per Term	Seminar Hours Per Term
6 credits	18-20 hours	180-216 hours	16 hours
5 credits	15-17 hours	150-179 hours	16 hours
4 credits	12-14 hours	120-149 hours	16 hours
3 credits	9-11 hours	90-119 hours	16 hours
2 credits	6-8 hours	60-89 hours	16 hours
1 credit	3-5 hours	30-59 hours	16 hours

For More Information

Drop by the Student Success Center in the Community Center, or call 503-594-3475, or visit <http://depts.clackamas.edu/cwe>

College Credit Alternatives

CCC OREGON CITY CAMPUS
503-594-3475

There are several alternative ways you can earn college credit from Clackamas Community College.

College Now/Advanced College Credit

CCC OREGON CITY CAMPUS, BARLOW HALL, B250/B251
503-594-3208

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, register with the college and pay a fee for the credits earned through Advanced College Credit.

For more information, contact your high school counselor; call 503-594-3208; or visit <http://depts.clackamas.edu/acc>

Advanced Placement (AP)

CCC OREGON CITY CAMPUS, ROGER ROOK HALL
503-594-3378

If you took college-level courses in high school, you may be eligible for college-level 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.

Credit for Prior Learning (CPL)

CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-594-3475

Clackamas Community College's CPL program can award college credit for knowledge and skills acquired outside the classroom. For more information contact the Student Success Department.

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.

Hybrid Courses

503-594-6310

Hybrid courses describe a format that combines face-to-face classroom instruction with computer-based learning. Hybrid courses combine instructional time spent in the classroom with online time. The result is a course that offers the student the high-touch aspects of face-to-face time in the classroom with the anytime/anywhere high-tech online course learning opportunities. The Hybrid format reduces the amount of time the student needs to be on campus. Hybrid courses are identified in the quarterly *Schedule of Classes* by the term HYBRID and also the icon HYB.

Online

503-594-6310

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

Telecourses

503-594-6310

Individual telecourses are viewed in the campus library. In addition to video lessons, telecourse instruction may include textbooks, classroom discussion, and assignments and exams. For more information see: dl.clackamas.edu





Transfer Information



*We believe that
the college exists
in a dynamic
environment,
which encourages
innovation,
self-evaluation
and continuous
improvement.*



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 ensure 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 course work 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.

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 Student Success Center, see page 10.

Direct Transfer 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 their advisor at the school they intend to transfer to as well as a CCC advisor in order to choose courses.

Transfer Steps

See a faculty advisor or an academic advisor 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 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.

Articulation Agreements

Articulation agreements are formal institutional agreements between higher education institutions (private or public) that establish how certificates, degrees, and/or credits transfer.

Articulation agreements may...

- List individual course equivalencies (how courses will transfer from one institution to another).
- Describe how an entire degree or certificate will transfer from one institution to another.

For a current list of CCC's articulation agreements and further information, please visit:

<http://depts.clackamas.edu/advising/ArticulationAgreements.aspx>

CCC Degree Partnerships

If your goal is a four-year degree, CCC's degree partnerships can help you get there, saving time and money in the process. We offer degree partnerships, or dual enrollments, at three Oregon universities: Oregon Institute of Technology, Oregon State and Portland State. The application process is easy and starts you on a seamless path to your degree. For information about the degree partnership program at Clackamas Community College, including applications, admissions requirements and more, please visit the Degree Partnerships website at www2.clackamas.edu/degreepartnerships

Student Guide 2010-2011
Oregon Transfer Module (OTM)



	Requirements	Courses
Foundational Skills	<i>Writing (2 courses)</i>	WR-121 and 122, 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, RUS, SPN (languages must be 200 level) ART, DMC, ENG, HUM (except HUM-100), J, MUP, MUS, PHL, R, SP-105 and above (except SP-111 and SP-112), 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 180, 199, 280, and 299 and ED-270, 271, and 272, 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 503-594-3475 or email: advising@clackamas.edu for more information.

Student Planner Worksheet 2010-2011 Oregon Transfer Module (OTM)



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

Requirements	Courses Required	CCC Courses Completed	Transferred Courses	Courses/Credits Earned	Courses Needed
Writing WR-121, 122, 123 or 227	2				
Oral Communications/Rhetoric SP-111 or SP-112	1				
Mathematics MTH-105, 111 or higher	1				
Arts & Letters	3				
Social Science	3				
Science/Math/Computer Science Select 3 courses including at least one lab course in the biological or physical sciences.	3				
Elective Courses Courses must be from the introduction to Disciplines areas (Arts & Letters, Social Science, or Science/Math/Computer Science)	will vary				
	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

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 503-594-3475 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 180, 199, 280, and 299 and ED-270, 271, and 272, 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 course work.** 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. Oregon's Career Learning Areas (CLA) are six broad groupings of instructional areas, comprised of related careers, which provide context for academic, technical, and career learning. CLA help students gain a deeper and broader view of their career interests and the expectation as required for post high school employment and postsecondary training and education.

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 <http://www.ous.edu/programs/acadprog/index.php>

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 503-594-3475 or advising@clackamas.edu.

OUS Bachelor Degrees ^{1,2}	OUS ¹ Transfer Options								CCC Contact Information - see pg. 101
	EOU	OIT	OSU	OSU-Cascade	PSU	SOU	UO	WOU	
OUS¹ Subject Area: Arts and Humanities									
ODE Career Learning Area³: Arts, Information and Communications									
Advertising									Business Administration
American Sign Language/Eng. Interpret.									Foreign Languages
American Studies									Humanities
Anthropology/Sociology									Anthropology/Sociology
Apparel Design									Art
Art									
Art History									Humanities
Arts & Letters									Social Science
Asian Studies									
Black/African Studies									Art
Ceramics									Foreign Languages
Chinese									Humanities
Classics/Classical Civilization									Humanities
Communication/Communication Studies									Physical Education/Health
Dance									Art
Digital Arts									Social Science
Discourse Studies									Art
Drawing									Journalism
Electronic Media									Humanities
English									
Ethnic Studies									Art
European Studies									Humanities
Fibers									Art
Film/Film Studies									Humanities

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 Oregon Department of Education Career Learning Areas: www.ode.state.or.us

+ Co-major

⚙️ Cooperative Programs

OUS Bachelor Degrees ^{1,2}	OUS ¹ Transfer Options								CCC Contact Information - see pg. 101
	EOU	OIT	OSU	OSU-Cascade	PSU	SOU	UO	WOU	
Fine & Performing Arts									Theatre Arts
French									Foreign Languages
General Studies									Student Success Department
German									Foreign Languages
Graphic Design									Art
Greek									Foreign Languages
History									History
Human Communication									Humanities
Humanities									
Interdisciplinary/Liberal Studies									Social Science
International Studies/Relations									
Italian									Foreign Languages
Japanese									
Jazz Studies									Humanities
Journalism									Journalism
Judaic Studies									Humanities
Language & Culture									
Latin									Foreign Languages
Latin American Affairs/Studies									Social Science
Linguistics/Applied Linguistics									Humanities
Literary Studies									
Magazine/News Editorial									Journalism
Material & Product Studies/Design									Art
Media, Digital Arts & related									
Medieval Studies									Humanities
Metalsmithing & Jewelry									Art
Middle East Studies									Social Science
Multimedia									Art
Music									Music
Painting									Art
Philosophy									Philosophy
Philosophy, Economics & Political Science									Social Science
Photography									Art
Political Science									Political Science
Printmaking									Art
Product Design									
Psychology									Psychology
Public Relations									Journalism
Religious Studies									Religion
Romance Languages									Foreign Languages
Russian									
Russian & East European Studies									Social Science
Sculpture									Art
Social Sciences									Social Science
Social Sciences: Human Services									Human Services
Sociology									Sociology

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 Oregon Department of Education Career Learning Areas: www.ode.state.or.us

+ Co-major

* Cooperative Programs

OUS Bachelor Degrees ^{1,2}	OUS ¹ Transfer Options								CCC Contact Information - see pg. 101
	EOU	OIT	OSU	OSU-Cascade	PSU	SOU	UO	WOU	
Spanish			■						Foreign Languages
Speech Communication			■						Humanities
Theater/Theater Arts	■								Theatre Arts
Twentieth Century Studies			■						Social Science
Visual Arts (and Applied)/Design			■					■	Art
Women's & Gender Studies					■				Women's Studies
Writing/Creative Writing	■					■	■		Humanities
OUS¹ Subject Area: Arts and Humanities									
ODE Career Learning Area³: Human Resources									
Child & Family Studies					■			■	Early Childhood Education/Education
Community Development					■				Student Success Department
Criminology and Criminal Justice						■		■	Criminal Justice
Family and Human Services								■	Human Services
Fire Services Administration	■							■	Fire Science (wildland)
Forensics						■			Science
Human Development & Family Sciences			■	■					Human Services
Planning, Public Policy & Management	■							■	Student Success Department
ROTC			■					■	
Small City, Rural County Management	■								Human Services/Social Science
Social Sciences: Human Services				■		■			
Social Work/Welfare	■				■				
OUS¹ Subject Area: Business									
ODE Career Learning Area³: Business and Management									
Accounting	■		■		■	■	■		Accounting
Advertising Management					■				Business Administration
Allied Health Management									
Business Administration	■		■		■	■	■	■	
Business-Chemistry						■			Business Administration/Science
Business & Health Promotions	■								Business Administration/Physical Education/Health
Business-Mathematics						■			Business Administration/Math
Business-Physics						■			Business Administration/Science
Business Real Estate Finance					■				Business Administration
Economics	■		■		■	■	■		Economics
Entrepreneurialship - Small Bus. Mgmt		■	■		■				Business Administration
Finance			■		■		■		
Global Management							■		
Hospitality & Tourism Mgmt	■					■			
Human Resource Management					■				Business Administration/Computer Science
Information Systems						■	■	■	
Information Systems & Operations					■		■		Computer Science
Information Technology		■							Business Administration
International Business	■		■						
Management	■	■			■	■	■		
Management of Aging Services						■			Gerontology
Marketing	■	■			■	■	■		Business Administration
Music Business+						■			Business Administration/Music

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 Oregon Department of Education Career Learning Areas: www.ode.state.or.us

+ Co-major

⚙️ Cooperative Programs

OUS Bachelor Degrees ^{1,2}	OUS ¹ Transfer Options								CCC Contact Information - see pg. 101
	EOU	OIT	OSU	OSU-Cascade	PSU	SOU	UO	WOU	
Operations Management									Business Administration
Small City, Rural County Management									Student Success Department
Sports Business									Business Administration
Supply & Logistics Management									Business Administration
OUS¹ Subject Area: Education Auth./Teaching Endorsements									
ODE Career Learning Area³: Human Resources									
Early Childhood Development									Early Childhood Education
Early Childhood Education									Early Childhood Education
Education									Education
Education (Double Degree)									Education
Educational Studies									Education
Elementary Ed. & Interdisciplinary Studies									Education
Family & Human Services									Human Services
Music Education									Education/Music
Special Education									Education
OUS¹ Subject Area: Teaching Authorizations									
ODE Career Learning Area³: Human Resources									
Early Childhood (3 yrs-4 th grade)									Early Childhood Education
Elementary (grades 3-8)									Education
Middle Level (grades 5-10)									Education
High School (grades 7-12)									Education
OUS¹ Subject Area: Architecture/Computer Science/Engineering/Mathematics									
ODE Career Learning Area³: Industrial and Engineering Systems									
Architecture									Student Success Department
Bioengineering									Engineering/Science
Chemical Engineering	*								Engineering
Civil Engineering									Engineering
Computer & Information Science									Computer Science
Computer Engineering									Computer Science
Computer Engineering Technology									Computer Science
Computer Science									Computer Science
Construction Engineering Mgmt									Engineering
Ecological Engineering									Engineering
Electrical Engineering									Engineering
Electronics Engineering Technology									Manufacturing Technology
Embedded Systems Engineering Tech.									Manufacturing Technology
Engineering Physics									Engineering/Science
Environmental Engineering									Engineering/Science
Forest Engineering									Engineering
Geographic Information Science									Geographic Information Systems (GIS)
Geomatics (Surveying & GIS)									Geographic Information Systems (GIS)
Housing Studies									Human Services
Industrial Engineering									Engineering
Interior Design/Architecture									Student Success Department
Landscape Architecture									Horticulture
Manufacturing Engineering									Engineering

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 Oregon Department of Education Career Learning Areas: www.ode.state.or.us

+ Co-major

* Cooperative Programs

OUS Bachelor Degrees ^{1,2}	OUS ¹ Transfer Options								CCC Contact Information - see pg. 101
	EOU	OIT	OSU	OSU-Cascade	PSU	SOU	UO	WOU	
Manufacturing Engineering Technology		■							Manufacturing Technology
Material Science						■			
Mathematical Sciences			■						Math
Mathematics	■	■	■	■	■	■	■	■	
Mechanical Engineering		■			■				Engineering
Nuclear Engineering			■						
Renewable Energy Engineering		■							Engineering/Manufacturing Technology
Software Engineering Technology		■							Computer Science/Engineering
Statistics									Math
OUS¹ Subject Area: Health & Pre-Professions									
ODE Career Learning Area³: Health Sciences; Human Resources									
Athletic Training			■						Physical Education/Health
Exercise Physiology/Sport Science	■				■			■	
Gerontology/Aging Services				■					Gerontology
Health Management & Policy			■						Business Administration
Health Promotion/Fitness Mgmt			■						Physical Education/Health
Physical Education & Health	■					■			
OUS¹ Subject Area: Health & Pre-Professions									
ODE Career Learning Area³: Health Sciences									
Clinical Lab Science		■					■		Clinical Lab Assistant
Communication Disorders & Sciences							■		Student Success Department
Dental Hygiene	*	■							
Diagnostic Medical Sonography		■							
Echocardiography		■							
Emergency Med. Tech./Paramedic Ed.									Emergency Medical Technology (EMT)
Health Sciences/Studies		■			■				Student Success Department
Human Physiology							■		Science
Medical Technology			■						Student Success Department
Nuclear Medicine Technology		■							
Nursing+	*	*				*		*	Nursing
Nutrition			■						Human Services
Polysomnographic Technology		■							Student Success Department
Pre-Pharmacy/PharmD			■						
Radiation Health Physics			■						
Radiologic Science		■							
Respiratory Care		■							
Speech & Hearing Sciences					■				
Vascular Technology		■							
OUS¹ Subject Area: Science/Natural Resources/Agriculture/Forestry/Environmental Science									
ODE Career Learning Area³: Health Services; Agriculture, Food & Natural Resource Systems; Industrial & Engineering Systems									
Biochemistry/Biophysics	■				■		■		Science
Biology	■	■	■		■	■	■	■	
Biomedical/Health Informatics									
Bioresource Research			■						
Botany	■								
Chemistry	■				■		■	■	

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³ Oregon Department of Education Career Learning Areas: www.ode.state.or.us

+ Co-major
* Cooperative Programs

OUS Bachelor Degrees ^{1,2}	OUS ¹ Transfer Options								CCC Contact Information - see pg. 101	
	EOU	OIT	OSU	OSU-Cascade	PSU	SOU	UO	WOU		
Computational Physics									Science	
Earth Science										
Entomology										
Environmental & Molecular Toxicology										
Environmental Studies/Sciences										
Geography										Geography
Geology										Science
Marine Biology										
Material Science										
Microbiology/Molecular Biology										
Natural Science										
Physics										
Renewable Energy Systems										
Science/General Science										
Zoology										
OUS¹ Subject Area: Science/Natural Resources/Agriculture/Forestry/Environmental Science										
ODE Career Learning Area³: Agriculture, Food and Natural Resource Systems										
Agricultural Business Management	*								Horticulture	
Animal Sciences	*								Science	
Bioresource Research									Human Services	
Food Science & Technology										
Crop & Soil Science	*								Science	
Environmental Econ., Policy & Mgmt	*									
Fisheries & Wildlife Science	*									
Forest Engineering										
Forest Management										
Forest Products										
Horticulture										Horticulture
Natural Resources	*								Science	
Rangeland Ecology and Mgmt.	*								Fire Science (wildland)	
Wood Science & Technology										
OUS¹ Subject Area: Science/Natural Resources/Agriculture/Forestry/Environmental Science										
ODE Career Learning Area³: Business Management										
Food Services									Business Administration	
Tourism & Outdoor Leadership										
OUS¹ Subject Area: Science/Natural Resources/Agriculture/Forestry/Environmental Science										
ODE Career Learning Area³: Human Resources										
Land Use Planning									Student Success Department	
Sustainability										

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 Oregon Department of Education Career Learning Areas: www.ode.state.or.us

+ Co-major
* Cooperative Programs

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COURSE DESCRIPTIONS



*We believe
students should
respect the
diversity and
dignity of all
persons.*



Course Descriptions

AB*	Collision Repair.....	105	GIS*	Geographic Information Systems.....	150
ABE**	Adult Basic Education	105	GRN	Gerontology	151
ABR*	Collision Repair and Refinishing.....	105	GS	General Science	151
AM	Automotive Service Technology.....	106	HD	Human Development & Career Planning	151
ANT	Anthropology	107	HDF*	Family Studies.....	153
ART	Art.....	107	HE/HPE	Health	154
ASC	Arts and Sciences.....	111	HOR*	Horticulture.....	155
ASE**	Adult High School Diploma.....	111	HPD*	Healthcare Professional Development	158
ASL	American Sign Language	114	HS*	Human Services.....	158
BA	Business Administration	114	HST	History	159
BI	Biology	118	HUM	Humanities Inquiry	159
BOT	Botany	119	J	Journalism.....	160
BRI	Bridges	119	LIB	Library	161
BT*	Business Technology.....	120	MA*	Medical Assistant.....	161
CDT*	Computer-Aided Drafting.....	121	MET*	Mechanical Engineering Technology.....	162
CH	Chemistry.....	121	MFG*	Manufacturing Technology	163
CIV**	Citizenship.....	122	MTH	Mathematics	165
CJA	Criminal Justice	122	MUP	Music Performance.....	167
CLA*	Clinical Laboratory Assistant	124	MUS	Music	171
CS	Computer Science	125	NRS	Nursing	175
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DA	Dental Assistant	129	PE	Physical Education	176
DMC	Digital Multimedia Communications	131	PH	Physics	177
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ECE*	Early Childhood Education	133	PIE**	Program for Intensive English.....	178
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ERM*	Energy Resource & Utility Management	140	SBM**	Small Business Management	184
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EST*	Employment Skills Training.....	145	SPN	Spanish	187
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GE	General Engineering.....	148	WQT*	Water & Environmental Technology.....	193
GED**	General Educational Development.....	149	WR	Writing	194
GEO	Geography.....	149	WS	Women's Studies.....	196
GER	German	149	Z	Zoology	196

* 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 career 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-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

6 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

6 credits, Fall/Winter/Spring

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

AB-149 Collision Repair Estimating I

2 credits, Fall

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 Computerized Estimating - Shoplink

2 credits, Winter

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

AB-151 Collision Repair Computerized Estimating - Pathways

2 credits, Spring

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

AB-222 Collision Repair III/Advanced Structural

6 credits, Fall/Winter/Spring

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

AB-224 Collision Repair IV/Advanced Structural

6 credits, Fall/Winter/Spring

Advanced frame and unibody repair procedures. Electronic measurement and dimensioning, repair documentation, brakes suspension, and alignment as they relate to collision repair. Prerequisite: AB-222.

AB-226 Collision Repair V/Advanced Structural

6 credits, Fall/Winter/Spring

Learn to use the latest in high quality, productive techniques and equipment to repair vehicles to pre-collision condition. This class teaches the refined collision repair processes expected in today's workplace. Prerequisite: AB-224.

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. Work-based learning 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/Summer

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 career technical credits for the AAOT or ASOT-Business.

Collision Repair and Refinishing

ABR-125 Collision Repair/Refinishing I

6 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
6 credits, Fall/Winter/Spring

Application of solvent and waterborne finishes, including spot repairs, color matching, complete refinishing, and problem solving. Introduction to computerized color information retrieval and mixing.

ABR-129 Collision Repair/Refinishing III
6 credits, Fall/Winter/Spring

Application of solvent and waterborne basecoats and tri-coats and urethane topcoats, using both foreign and domestic refinish systems. Includes complete refinishing, spot and panel painting, color matching and problem solving.

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, 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. Work-based learning experience in an auto refinishing shop. Required: Instructor consent & a CWE seminar.

ABR-225 Production Shop Techniques
6 credits, Fall/Winter/Spring

Designed for students who wish to gain additional hands-on experience in refinishing, using the most up-to-date methods and materials. Prerequisites: ABR-125, ABR-127, and ABR-129.

ABR-227 Restoration Practices
6 credits, Fall/Winter/Spring

Designed for students who wish to broaden their skills base in the upper end refinish market. Projects will be more challenging, with standards and expectations set higher. Prerequisites: ABR-125, ABR-127, ABR-129, and ABR-225.

AM

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

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-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/Spring

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 design, construction, testing, maintenance, repair, and rebuilding.

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, 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 and 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-280 Auto Mechanics/CWE
2-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Work-based learning experience in an auto repair shop or auto dealership. Required: Instructor consent & a CWE seminar.

ANT***Anthropology*****ANT-101 Physical Anthropology**
4 credits, not offered every term

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, not offered every term

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, not offered every term

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 prehistoric 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-100A Jewelry Making Techniques**
1 credit, Fall/Winter/Spring

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

ART-100B Ceramic Making Techniques
1 credit, Fall/Winter/Spring

Various topics will introduce techniques in clay construction, firing, glazing and other ceramic methods. Students will be encouraged to create and design their own work using clay and clay materials which consider meaning and function. Historical and contemporary issues related to ceramics will be presented and discussed. May be repeated up to 3 credits.

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 art.

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 art.

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 art.

ART-106 Animation & Motion Graphics I
3 credits, Fall/Winter/Spring

Introduction to fundamentals of motion graphics design. This project-based course will explore experimental and new technological approaches to creating digital effects and animation for video and web-based applications. Recommended: Previous experience with computer graphics and digital video.

ART-107 Animation & Motion Graphics II
3 credits, Winter

Continuation of the practice of motion graphics design. This project-based course advances the concepts and practices covered in ART-106/DMC-106 with a particular focus on visual effects and compositing techniques, as well as intermediate layer handling and workflow enhancement. Traditional and experimental animation techniques will be explored. Recommended: Previous experience with computer graphics and digital video.

ART-108 Animation & Motion Graphics III
3 credits, Spring

Introduces students to advanced animation and motion graphics techniques with particular focus on portfolio development and professional workflow scenarios. Advanced layer handling, 3D camera and light techniques, narrative development and rendering will be explored. Advanced theoretical, historical and technical aspects of animation will be discussed. Recommended: Previous experience with computer graphics and digital video.

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, Winter

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, not offered every term

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-194 Watercolor Painting
3 credits, not offered every term

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

ART-197 Gallery Design & Management
3 credits, not offered every term

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

ART-204 History of Western Art
4 credits, Fall

Examines art, culture, and history from the Paleolithic 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
4 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
4 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, not offered every term

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, not offered every term

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, not offered every term

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 Adobe'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. Prerequisites: Pass CS-195 or 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 and 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, not offered every term

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, not offered every term

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, not offered every term

Basic techniques of casting in silver and bronze. Includes cuttlefish, centrifugal, clay impression, tumbling and patination. Design and execute jewelry, small sculpture and flatware. No experience necessary.

ART-262 Digital Photography & Photo-Imaging
3 credits, Fall/ Winter/Spring

Introduces concepts, techniques, practices, aesthetics and ethics of photographic imaging and image-making with digital technology. 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 Integrated Science Inquiry
4 credits, Fall

Introductory lab science course for liberal arts majors. Interdisciplinary perspective on science. Collaborative scientific investigations and critical thinking. Topics vary. Recommended: Pass WR-095 or placement in WR-121.

ASC-201 Integrated Science Inquiry
4 credits, Winter

Introductory lab science course for liberal arts majors. Interdisciplinary perspective on science. Collaborative scientific investigations and critical thinking. Topics vary. Recommended: Pass WR-095 or placement in WR-121.

ASC-202 Integrated Science Inquiry
4 credits, Spring

Introductory lab science course for liberal arts majors. Interdisciplinary perspective on science. Collaborative scientific investigations and critical thinking. Topics vary. Recommended: Pass WR-095 or placement in WR-121.

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 for high school diploma requirement. Required: Instructor consent. May be repeated up to 1.5 credits.

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. Required: Instructor consent. May be repeated up to 1.5 credits.

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/ note taking, 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 for high school diploma requirements. 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. May be repeated up to 2 credits. 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. May be repeated up to 2 credits. Required: Instructor consent.

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. May 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 now 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**.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. Required: Instructor consent.

ASE-072 Algebra II**.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. Required: Instructor consent.

ASE-086 General Science/Birds**.5 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**.5 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 year**

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. 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.

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. 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. 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 Management Fundamentals
3 credits, Fall

This course offers tools and techniques to perform needs analysis, negotiating and contracting for goals and resources, work/task breakdown, project flowchart and schedule, resource allocation, time estimates, critical path, contingency planning, project monitoring, and reporting.

BA-122 Teamwork: Project Management
3 credits, Fall

Focuses on team dynamics, group behavior, and communication skills. Students study personalities, learning styles, diversity, appreciating differences and values, ethics, decision making, problem solving, and virtual teaming.

BA-123 Leadership and Motivation: Project Management
3 credits, Winter

Identifies effective and ethical approaches to leadership and motivation, especially as it applies to teamwork. As a learned skill, leadership focuses on achieving objectives by employing human, financial, material, and organizational resources.

BA-124 Negotiation: Project Management
3 credits, Spring

Approaches negotiation from both theoretical and practical perspectives. Students engage in one-on-one and team negotiation role plays and complete both pre- and post-negotiation analyses to optimize negotiation outcomes. Ethical perspectives in negotiation are emphasized.

BA-125 Risk Management: Project Management
3 credits, Winter

Focuses on principles of project risk management including risk identification, analysis, quantification, monitoring, and control in a project management environment. Project communication processes are also emphasized.

BA-126 Project Management: Workshop
3 credits, Spring

In teams, students will manage an interactive, simulated project, addressing topics in the progression of managing the project. As a final outcome, student teams will submit a report summarizing the project experience to be included in the student portfolio. Prerequisites: Pass BA-120, BA-125 & BT-177.

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, multi-tasking, and file management. Designed for business majors. 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. Recommended: Pass RD-090 or placement in RD-115.

BA-160 Purchasing I
3 credits, not offered every year

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

BA-161 Purchasing II
3 credits, not offered every year

Covers more advanced purchasing concepts and techniques, such as win-win negotiations, total cost management, supplier management, continuous quality improvement, value analysis and value engineering, and inventory management. Prerequisite: Pass BA-160 or instructor consent.

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-111 or BA-211.

BA-205 Solving Communication Problems with Technology
4 credits, Fall/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. Prerequisites: Pass BA-131 and 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. Recommended: Pass RD-090 or placement in RD-115.

BA-208 Employee Labor Relations
4 credits, Winter

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. 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, debt, and financial statements. Corporate analysis of financial position including the cash flow statement. 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, process, flow, and standard costing. Presentation and interpretation of accounting data to aid decisions. Prerequisite: Pass BA-212.

BA-214 Business Communication
3 credits, not offered every year

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 pass BA-111 or BA-211 or have experience in accounting or work-related budgeting. Recommended: Pass RD-090 or placement in RD-115.

BA-218 Personal Finance
3 credits, Fall/Spring

An analysis and personal application of basic principles in budgeting, financial decision-making, use of credit, savings and investing, home ownership, risk management, estate planning, and other major personal finance topics. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass MTH-020 or higher, pass BA-104.

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. 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. 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. 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. Prerequisite: Pass BA-226.

BA-228 Computerized Accounting (formerly BT-105)
3 credits, Spring

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

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
4 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. Topics include but are not limited to budgetary accounting, general, special revenue, capital projects, debt service, enterprise and proprietary funds, general fixed asset accounts. 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. Recommended: Pass RD-090 or placement in RD-115.

BA-248 Auditing
3 credits, Spring

Auditing standards and procedures by 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

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. Recommended: Pass RD-090 or placement in RD-115.

BA-254 Basic Compensation and Benefits
4 credits, Spring

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-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.

BI**Biology****BI-055 Introduction to Human Biology**
3 credits, Fall

A lab course that discusses 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 Clinical Laboratory Assistant or Medical Assistant programs.

BI-101 General Biology**4 credits, Fall/Winter/Spring/Summer**

A laboratory course emphasizing an evolutionary approach to cellular biology, genetics, and natural selection. 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 emphasizing an evolutionary approach to animal systems. 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-103 General Biology**4 credits, Fall/Spring/Summer**

A laboratory course emphasizing an evolutionary approach to plants and ecosystems. 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-112 Biology for Health Sciences**4 credits, Fall/Winter/Spring/Summer**

One-term preparatory biology lab course for students who want to take Anatomy and Physiology and/or Microbiology. Cellular aspects of biology including genetics and organ systems. 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. 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, and behavior. Identification techniques applied to birds through lectures, slide presentations, and field trips to Malheur, Willamette Valley, 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. Field trips required.

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-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 the Oregon Coast.

BI-165D Natural History of SW Deserts**4 credits, Spring**

A lab course studying 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-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 preprofessional students. An evolutionary approach to cell structure, organization and metabolism, genetics and evolution, with an introduction to tissues and organ systems. 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 preprofessional 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 preprofessional 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. Animal organ dissection required. 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. Prerequisites: Pass BI-112 (recommended), or pass BI-101 & BI-102, or pass BI-211. Pass CH-112 (recommended), or pass CH-104 & CH-105, or pass CH-221 & CH-222.

BI-232 Human Anatomy/Physiology II**4 credits, Fall/Winter/Spring/Summer**

A lab course covering structure and function of the muscular, cardiovascular, lymphatic, and respiratory systems. Animal organ dissection required. 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. Animal organ dissection required. 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. Prerequisites: Pass 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, not offered every year

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, 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, 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, not offered every year

A lab course with an evolutionary approach to plant classification, taxonomy and ecosystems. 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.

BRI

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

Bridges**BRI-090 Bridges**
3 credits, not offered every term

Designed to assist young adults (17-23) in successfully transitioning to higher education by providing awareness of educational options and resources; overcoming barriers; exploring attitudes, abilities and interests; goal setting; and presenting opportunities to aid students in college success; therefore enabling them to take full advantage of options that will positively shape their future. Prerequisites: GED or High School Diploma, and/or instructor consent.

BRI-095 Bridges to Work
3 credits, not offered every term

Designed to assist young adults (17-23) in successfully transitioning to higher education through providing awareness of educational options and resources; overcoming barriers; exploring attitudes, abilities and interests; goal setting; and presenting opportunities to aid students in college success, therefore enabling them to take full advantage of options that will positively shape their future. Prerequisites: GED or High School Diploma, and/or instructor consent.

BT

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

Business Technology**BT-101 Introduction to e-Learning**
1 credit, not offered every term

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

BT-110 Income Tax Preparation
8 credits, Fall

An introduction to individual income tax law and tax return preparation. Approved by the Oregon State Board of Tax Practitioners to prepare students to take the Oregon Licensed Tax Preparer's Exam. Recommended: Pass RD-090 or placement in RD-115.

BT-120 Personal Keyboarding
2 credits, Fall/Winter/Spring

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

BT-121 Data Entry
1 credit, Fall

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

BT-122 Keyboarding Skillbuilding
2 credits, Fall

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

Course builds communication skills through the study of correct usage of grammar, spelling, vocabulary usage, effective writing, and editing principles. 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. Prerequisite: Pass BT-124 with a "C" or better.

BT-160 Word I
3 credits, Winter

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

BT-161 Word II
3 credits, Spring

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

BT-170 Access
3 credits, not offered every year

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, Spring

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 the basics of presentation concepts including how to plan, develop, and give a presentation to present data and information using Microsoft's presentation graphics program. Prerequisite: BT-120 or instructor consent.

BT-176 Excel
3 credits, not offered every year

Study and application of Microsoft Excel involving spreadsheets and graphics. Business applications include working with templates, formulas and functions, and creating multiple worksheets. 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-262 Integrated Projects
4 credits, Fall

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.

BT-271 Advanced Business Projects
4 credits, Spring

Students participate in dynamic business simulations that provide experience in working as team members in a professional environment. This includes practice using oral and written communications, analyzing information, problem solving, decision making, prioritizing, applying time management skills, and using industry standard technology tools. Prerequisite: BA-131, BA-205, BA-228, BT-125, BT-216, BT-262, & CS-135S.

CDT

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

Computer-Aided Drafting

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

CDT-102 Sketching and Problem Solving
1-3 credits, Fall

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, Winter

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

CDT-108A Introduction to SolidWorks
1-3 credits, Fall/Spring

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

CDT-223 Inventor Fundamentals
1-3 credits, Winter

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

CDT-224 Professional Web Design
1-3 credits, Spring

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

CDT-225 Advanced SolidWorks
1-3 credits, Winter

Advanced features of SolidWorks will be discussed and problems will be worked that exemplify them. Subjects include equations, configurations, design tables and dynamics. Prerequisites: CDT-108A or CAD-293 or instructor consent.

CH**Chemistry****CH-104 Introductory Chemistry**
5 credits, Fall/Winter/Spring/Summer

A lab transfer course for students in nursing, allied health fields, and liberal arts. Observation, measurement, composition, stoichiometry, atomic structure, periodic table, bonding, and nomenclature. Prerequisite: Pass MTH-065 with a "C" or better or placement in MTH-095.

CH-105 Introductory Chemistry
5 credits, Winter/Spring/Summer

A laboratory course discussing heat; molecular and ionic interactions in solids, liquids, gases, and solutions; chemical reactions including acid-base, electron transfer, and equilibrium. Prerequisite: Pass CH-104 (CH-112 not accepted).

CH-106 Introductory Chemistry
5 credits, Spring/Summer

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

CH-112 Chemistry for the Health Sciences

4 credits, Fall/Winter/Spring/Summer

One-term preparatory chemistry lab 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 with a "C" or better or placement in MTH-111.

CH-221 General Chemistry
5 credits, Fall/Winter

Transfer lab course for science, engineering, and professional majors. The nature of chemistry, atomic theory, electron configuration, structure, bonding, properties, composition and nomenclature of covalent and ionic substances. Introduces organic chemistry and biochemistry topics. Prerequisites: A year of high school chemistry or pass CH-150 or CH-104 and 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

A lab course discussing 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

A lab course discussing 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, not offered every year

First term of a transfer sequence lab course 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, not offered every year

Second term of a transfer sequence lab course 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, not offered every year

Third term of a transfer sequence lab course 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.

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.

CJA-112 Patrol Procedures
3 credits, Fall

Describes the nature and purpose of patrol activities for the law enforcement officer. Includes routine 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.

CJA-122 Criminal Law
3 credits, Fall

Examines the elements, purpose and functions of criminal, traffic, juvenile and liquor laws.

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.

CJA-134 Correctional Institutions
3 credits, Winter

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

CJA-140 Introduction to Crime Analysis
1 credit, Fall/Winter/Spring/Summer

Examines the history and development of crime analysis in the criminal justice field. Defines crime analysis, identifies the three categories and four functions within each category, and explores the tasks and products associated with each category.

CJA-141 Introduction to Crime Mapping
1 credit, Fall/Winter/Spring/Summer

Examines the evolution of crime mapping in law enforcement. Describes basic uses: tactical, strategic, and administrative crime analysis. Includes: pin and grid mapping, GIS for crime analysis, and geocoding for law enforcement. Prerequisite: CJA-140.

CJA-142 Statistics for Crime Analysis
1 credit, Fall/Winter/Spring/Summer

Introduces mathematical and statistical tools needed for simple crime analysis through the use of statistics. Prerequisite: CJA-140.

CJA-143 Crime Analysis via Statistical Analysis
1 credit, Fall/Winter/Spring/Summer

Explores statistical tool application in crime analysis and demonstrates their use in: Tactical, Strategic, and Administrative Crime Analysis using case-study methodology. Prerequisites: CJA-140 and CJA-142.

CJA-144 Crime Analysis via Modus Operandi
1 credit, Fall/Winter/Spring/Summer

Examines tactical crime analysis through modus operandi analysis, characteristics to identify factors for crime types and classifications to provide solvability factors and suspect identification. Prerequisite: CJA-140.

CJA-145 Crime Analysis Capstone
1 credit, Fall/Winter/Spring/Summer

Final course of the basic crime analysis series. Case-study methodology is used to formulate real decisions, use of proper application of statistical and mapping tools, including modus operandi analysis. Prerequisites: CJA-140, CJA-141, CJA-142, CJA-143, and CJA-144.

CJA-146 Crime Analysis/Link Analysis
1 credit, Fall/Winter/Spring/Summer

Examines tactical crime analysis through link analysis and other forms of graphic analysis. Presents development of the graphic analytical techniques of link analysis, flow chart analysis, and telephone toll analysis. Prerequisite: CJA-140.

CJA-147 Intro to Profiling Violent Crimes
1 credit, Fall/Winter/Spring/Summer

Examines psychological profiling history: arson, murder, rape, pedophilia, terrorism, and misuses, such as racial profiling. 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. Prerequisites: CJA-140 and CJA-147.

CJA-149 Research Methods/Crime Analysis
1 credit, Fall/Winter/Spring/Summer

Examines informational resources needed for the research of administrative crime analysis. Demonstrates survey methodology for measuring crime and its impact. 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 and illustrates differences between investigative unit, strategic and operational intelligence. Discusses legal limitations to intelligence information gathering. Prerequisite: CJA-140.

CJA-151 Crime Intelligence Analysis**1 credit, Fall/Winter/Spring/Summer**

Discusses legal limitations to intelligence information gathering; basic police intelligence mission and five-step intelligence process. Illustrates differences between investigative unit, strategic and operational intelligence. Prerequisites: CJA-140 and CJA-150.

CJA-152 Crime Scene Analysis: Capstone (CSA)**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. Prerequisites: CJA-140, CJA-147 and CJA-148.

CJA-153 Crime Intelligence Analysis Capstone**1 credit, Fall/Winter/Spring/Summer**

Final part of CIA series. Students demonstrate skills using a case study: threat assessments, summaries, and estimates, CIA reports, recommendations, and supporting documentation using tools such as link analysis tools. Prerequisites: CJA-140, CJA-146, CJA-150 and CJA-151.

CJA-170 Careers in Criminal Justice Fields**3 credits, Winter**

Discusses career opportunities throughout the criminal justice system, including law enforcement, the practice of law, courts, corrections, and private security. Addresses hiring, promotions, and workplace ethic. This course is required for participation in Criminal Justice/Corrections Cooperative Work Experience.

CJA-200 Community Relations & Policing**3 credits, Fall**

Examines interrelationships and role expectations of agencies and public policy. Explores racial community tension, minority group crime, social forces, community policing and police misconduct.

CJA-201 Juvenile Delinquency**3 credits, Winter/Spring**

Surveys the nature and extent of delinquent behavior. Explores causes, legal apprehension, controls and treatment.

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.

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.

CJA-212 Criminal Investigation III**3 credits, Spring**

Final part of the Criminal Investigation series. Applies techniques acquired in CJA-210 Criminal Investigation I and CJA-211 Criminal Investigation II. Covers investigative techniques from a practical aspect, with some "hands-on" experimentation, including fingerprinting, photography, diagramming, and reconstruction. Prerequisites: CJA-210 and 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.

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.

CJA-223 Criminal Justice Ethics**3 credits, Fall**

Introduces ethical issues, questions and challenges facing policing and corrections professionals. Emphasizes recognition of ethical issues, personal and professional skills in decision making, consequences of unethical conduct, and the Law Enforcement code of Ethics.

CJA-230 Juvenile Corrections**3 credits, Spring**

Studies the historical and contemporary perspectives on juvenile offenders, code, court and procedures. Describes treatment programs and the differences between adult and juvenile court laws, and procedures.

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-233 Public Safety Intervention/
Mental Health Issues****3 credits, not offered every year**

Equips Public Safety workers in a wide variety of fields with a basic understanding and knowledge concerning persons with mental illness and dispels inaccurate perceptions.

**CJA-240 Cultural Diversity/Law
Enforcement****3 credits, Spring**

Provides information on how law enforcement professionals work effectively with diverse cultural groups, both inside their organizations and in the community. Explores racial profiling, hate crimes, community based policing, undocumented, and alternative lifestyles encountered in law enforcement.

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.

**CJA-280 Criminal Justice/Corrections/
CWE****2-6 credits, Fall/Winter/Spring**

Identifies employment opportunities in the criminal justice or corrections systems. Students must be enrolled full-time in the criminal justice or corrections program. Required: Instructor consent. Prerequisite: CJA-170.

**CJA-281 Criminal Justice/Corrections/
CWE****2-6 credits, Fall/Winter/Spring**

Identifies employment opportunities in the criminal justice or corrections systems. Students must be enrolled full-time in the criminal justice or corrections program. Required: Instructor consent. Prerequisite: CJA-170.

CLA

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

**Clinical Laboratory
Assistant****CLA-100 Introduction to Healthcare****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 unpaid assignment in area medical center laboratories to gain practical experience. Required: Instructor consent.

**CLA-120 Phlebotomy/Laboratory/
Practicum II****4 credits, Spring**

Supervised unpaid assignment in area medical center laboratories to gain practical experience. Required: Instructor consent. Prerequisite: Pass CLA-119.

**CLA-125 Introduction to Clinical
Research****2 credits, Spring**

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; using the latest versions of the Windows operating system; making commands in Windows programs; learning to use, create, and delete files and folders; using applications to accomplish tasks using a word processor, e-mail, and the 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, spreadsheets, and 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, not offered every term**

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

CS-093S Computers for New Users II, Spanish**3 credits, not offered every term**

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

CS-094S Database & Web Design, Spanish**3 credits, not offered every term**

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

CS-120 Survey of Computing**4 credits, Fall/Winter/Spring/Summer**

Survey computer literacy course to familiarize students with computer concepts, software applications and living online. Introduces students to computer concepts, including, but not limited to the Windows environment. Word processing, spreadsheet, and presentation graphics skills performed in a hands-on lab setting. Prerequisites: Pass CS-090 or placement in CS-120; pass WR-095 or placement in WR-121.

CS-121 Computer Applications**3 credits, not offered every year**

Continuation of CS-120. Hands-on approach to word processing, database management, and electronic spreadsheets. Uses Microsoft Office 2007 (Word, Excel, and Access.) 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, not offered every year**

Continuation of CS-120. Hands-on approach to word processing, database management, and electronic spreadsheets. Uses Microsoft Office 2007 (Word, Excel, and Access.) Topics, 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, CSS styles, and limited scripting. Brief introduction to page editors. Recommended: Pass CS-120 or equivalent experience.

CS-125P Computer Publishing**3 credits, not offered every term**

Desktop publishing using Microsoft Publisher: modifying and publishing professional documents. Presentation software using Microsoft PowerPoint: creating, modifying, and publishing slide shows.

CS-125R Podcasting**3 credits, not offered every year**

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

CS-133S Web Application Development I**3 credits, Fall**

Design, programming, testing of scripted web pages using JavaScript, ASP, and PHP. Introduction to server-side programming and fundamental concepts of interactive web pages, program control statements, variables, database access, and functions. Prerequisites: Pass CS-125H and MTH-065 or placement in MTH-095.

CS-133VA Visual Basic for Applications**3 credits, Spring**

Using Visual Basic for Applications to develop advanced application features for Microsoft Office 2007 (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 BA-131.

CS-133VB Visual Basic.NET I**3 credits, Spring**

Hands-on approach to software design using object-oriented programming. Planning an application, building a user interface, using variables and constants, calculating, accumulating, counting, making decisions, using functions, and using menus. Prerequisites: Pass BA-131 or CS-121; pass MTH-065 or placement in MTH-095.

CS-135DB Advanced Database**3 credits, Fall/Spring**

Using Microsoft Access 2007 for design, construction, and documentation of a database management systems. Designing reports, forms, advanced form techniques, advanced queries, customizing tables, creating and using an application system and macros. Recommended: Pass CS-121 or BA-131; 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 Adobe Dreamweaver CS4 and Fireworks CS4. Utilize CSS, scripts, audio, video, and other emerging technologies. Emphasizes professional design techniques. Prerequisite: Pass CS-125H.

CS-135S Advanced Spreadsheet
3 credits, Fall/Winter/Spring

Using Microsoft Excel 2007 for design, construction, and documentation of advanced spreadsheets. Templates, multiple worksheets, complex formulas, functions and filtering, advanced chart features, Visual Basic macros, sorting, database capabilities. Recommended: Pass CS-121 or BA-131; pass MTH-065 or placement in MTH-095.

CS-135W Advanced Word Processing
3 credits, Winter

Using Microsoft Word 2007 for advanced word processing features: tables, merging form letters and data, desktop publishing, large document capabilities (including master documents, indexes), templates, styles, linking and embedding objects in a document. Recommended: Pass CS-121 or BA-131.

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, Spring

Computer operating systems concepts using Linux/UNIX. General operating system concepts, file management, network utilities, text editing, shell environment configuration, Linux installation. 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, and 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-179 Introduction to Networking
3 credits, Winter

Introductory course in Computer Networking. Covers data communication basics, network models, Ethernet, cabling, remote connectivity, wireless networking, and basic TCP/IP operation and configuration. Prerequisites: Pass CS-120 or placement in CS-121. Recommended: MTH-092 or prior exposure to base-2 numbering system concepts.

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 drawing/capturing multimedia, frame- and tween-based animation, timelines, Action Scripting. Prerequisite: Pass CS-125H.

CS-225 Computer End User Support
3 credits, Fall

Addresses professional and interpersonal skills needed by computer technicians who support and manage hardware and software information systems. Customer service, troubleshooting, help desk operation; customer needs analysis; technical documentation and training skills. Prerequisites: Pass CS-120 or placement in CS-121; pass WR-095 or placement in WR-121.

CS-227 PC Hardware & Repair I
4 credits, Winter

Part 1 of a 2 part series. Covers basic operational concepts, identification, installation, and configuration, power supplies, motherboards, microprocessors, memory modules, and disk drives. Maps to the A+ certification exam objectives. Prerequisites: Pass CS-140 or equivalent experience.

CS-228 PC Hardware & Repair II
4 credits, Spring

Part 2 of 2 part series. Covers basic operational concepts, identification, installation, configuration, and troubleshooting of sound, video, I/O devices, and printers. Also covers software tools used in the configuration and troubleshooting of PCs. Maps to the A+ certification exam objectives. Prerequisite: Pass CS-227.

CS-229 Network Hardware
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 and CS-179.

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 and CS-133VB; or pass CS-125H and 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 and CS-133VB; or pass CS-125H and CS-161.

CS-240M Operating Systems II: Macintosh
3 credits, Winter

An exploration of the current Macintosh operating system. Includes installation, disks and file systems, profiles and policies, security, internetworking, remote access, printing and troubleshooting. Prerequisites: Pass CS-140 and CS-150.

CS-240U Operating Systems II: Linux/UNIX
3 credits, Fall

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 exploration of the current Windows client operating system. Includes installation, disks and file systems, profiles and policies, security, internetworking, remote access, printing and troubleshooting. Prerequisites: 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 database design using relational database management systems (RDMS). Database theory, entity-relationships, data modeling, extensive use of SQL for data manipulation. Uses MS Access, MS SQL Server, MySQL and Oracle. Prerequisite: Pass CS-135DB or equivalent knowledge.

CS-279W Windows Server Administration
4 credits, Spring

Managing a Microsoft Windows server network. Topics include: Network protocols, Active Directory, performance issues, managing web resources, security, and disaster recovery. Prerequisites: Pass CS-179 and 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, CS-140 and 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, not offered every year

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 Network Administration
4 credits, Winter

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, and ftp protocols. Prerequisite: Pass CS-140U.

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. Prerequisite: Pass CS-240W or network administration experience.

CS-297N Network Capstone
4 credits, Spring

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

CS-297W Website Capstone
3 credits, Spring

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. Prerequisites: 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-052A Excel Basic

0 credit, Fall/Winter/Spring/Summer

This class is for the student who goal is to become proficient using Microsoft Excel 2007 to create simple worksheets and charts that will be used for internal reports and data tracking.

CW-052B Excel Intermediate

0 credit, Fall/Winter/Spring/Summer

Designed for the student who understands the basics of creating simple worksheets and charts, this course introduces skills for using large or multiple worksheets, advanced charting and formatting, management of files, auditing features and templates.

CW-052C Excel Advanced

0 credit, Fall/Winter/Spring/Summer

Designed for the student who has the skills to work with large or multiple worksheets, this class presents advanced formulas, lookup and datatables, PivotTables, list management, analytical options, macros, and interactive web pages.

CW-054A Word Basic

0 credit, Fall/Winter/Spring/Summer

This class is for the student whose goal is to become proficient using Microsoft Word 2007 to create, format, save and print basic documents.

CW-054B Word Intermediate

0 credit, Fall/Winter/Spring/Summer

Designed for the student who is proficient using Microsoft Word 2007 to create, format, save and print basic documents. Course introduces working sections, columns and tables; using styles, graphics and templates; using headers and footers.

CW-054C Word Advanced

0 credit, Fall/Winter/Spring/Summer

Designed for the student who is proficient using Microsoft Word 2007 to create, format, save and print advanced documents. Course introduces creating form letters, Mail Merge, creating and working with forms, master documents, automating tasks using macros, custom menus and tool bars, and encrypting documents.

CW-055A PowerPoint Basic

0 credit, Fall/Winter/Spring/Summer

This class is for the student whose goal is to become proficient using Microsoft PowerPoint 2007 to build, design, format, save and deliver basic presentations.

CW-055B PowerPoint Intermediate

0 credit, Fall/Winter/Spring/Summer

This course broadens the scope of presentation design by adding multimedia, charts and graphs, and exploring slideshow features. Students should be proficient in using Microsoft PowerPoint 2007 to build, design, format, save, and deliver basic presentations.

CW-055C PowerPoint Advanced

0 credit, Fall/Winter/Spring/Summer

This class is for the student who wants to integrate sound clips, animation and other objects into PowerPoint 2007 presentations.

CW-056A Access Basic

0 credit, Fall/Winter/Spring/Summer

This class is for the student whose goal is to become familiar with database concepts and objects and become proficient using Microsoft Access 2007 to create simple database structures.

CW-056B Access Intermediate

0 credit, Fall/Winter/Spring/Summer

Created for the student whose goal is to become proficient in designing tables, setting relationships between tables, validating data entry in tables, and creating and using advanced queries, forms and reports in Microsoft Access 2007.

CW-056C Access Advanced

0 credit, Fall/Winter/Spring/Summer

Created for the student whose goal is to become proficient in PivotTables and PivotCharts; creating advanced forms and macros; Internet integration; database management and security fundamentals; and explore Access SQL.

CWE

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

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

The seminar provides an opportunity to develop the career management skills necessary to obtain and sustain employment. Prepares students for career success. Corequisite for program specific CWE courses.

CWE-282 Cooperative Work Experience Seminar II

0 credit, Fall/Winter/Spring/Summer

The seminar provides an opportunity to develop the career management skills necessary to advance a career. Uses case studies and special projects. Prerequisite: CWE-281. Corequisite for program specific CWE courses.

CWE-283 Cooperative Work Experience Seminar III

0 credit, Fall/Winter/Spring/Summer

This advanced seminar provides an opportunity to conduct an independent study of the career management skills necessary to develop advanced skills in obtaining, sustaining, and advancing employment. 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.

Career Technical Cooperative Work Experience Classes:

Accounting.....	BA-280
Administrative 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
Career Development Internship.....	HD-180
Computer Science.....	CS-280
Corrections.....	CJA-280
Crime Analysis.....	CJA-280
Criminal Justice.....	CJA-280
Digital Multimedia Communications	DMC-180
Digital Multimedia Communications	DMC-280
Drafting.....	CDT-280
Early Childhood Education.....	ECE-280/HDF-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.....	GRN-280
GIS (Geographic Information Systems)	GIS-280/281
Health.....	HE-280
Horticulture.....	HOR-280/281/282
Human Resource Management.....	BA-280
Human Services/Generalist I.....	HS-280
Human Services/Generalist II.....	HS-281
Human Services/Generalist III.....	HS-282
Juvenile Corrections.....	CJA-280
Landscape.....	HOR-281
Manufacturing.....	MFG-280
Marketing.....	BA-280
Microelectronics Systems Technology	SM-280
Music Technology.....	MUS-280
Network & Microcomputer Specialist	CS-280
Occupational Skills Training.....	OST-180
Paraeducator.....	ED-280
Professional Truck Driver.....	TTL-180

Project Management.....	BA-280
Renewable Energy Technology.....	RET-280
Retail Management.....	BA-280
Tutoring CWE.....	HD-280
Water & Environmental Technology	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/J-280A
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 career 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. OSHA and Hazard Communication guidelines are practiced. Includes lectures and discussion of the dental professional, dental law, ethics, HIPAA, and patient records. Measuring and recording of vital signs are also covered. Required: Instructor consent.

DA-105 Clinical Procedures II
3 credits, Winter

Further knowledge of chairside 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 credits, 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 and dental cements. 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 first term. 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 eight 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.

DMC**Digital Multimedia Communications****DMC-100 Introduction to Media Arts**
3 credit, not offered every term

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

DMC-104 Digital Video Editing
4 credits, not offered every term

Students will utilize video editing skills. These skills will include logging and capturing raw video, assembly of shots on a time line, and the use of effects in the creation of a final video sequence. Along with text generation and video compositing, this course will offer students an in-depth overview of the video editing process. Course will explore the history of film editing and the theory behind various forms of film and video editing. Lab component included. Recommended: Pass WR-095 or placement in WR-121.

DMC-106 Animation & Motion Graphics I**3 credits, Fall/Winter/Spring**

Introduction to the fundamentals of motion graphics design. This project-based course will explore the history and theory of motion picture effects in order to better understand and execute experimental and new technological approaches to creating digital effects and animation for video and web-based applications. Recommended: Previous experience with computer graphics and digital video.

DMC-107 Animation & Motion Graphics II**3 credits, Winter**

Continuation of the practice of motion graphics design. This project-based course advances the concepts and practices covered in ART-106/DMC-106 with a particular focus on visual effects and compositing techniques, as well as intermediate layer handling and workflow enhancement. Traditional and experimental animation techniques will be explored. Recommended: Previous experience with computer graphics and digital video.

DMC-108 Animation & Motion Graphics III**3 credits, Spring**

Introduces students to advanced animation and motion graphics techniques with particular focus on portfolio development and professional workflow scenarios. Advanced layer handling, 3D camera and light techniques, narrative development and rendering will be explored. Advanced theoretical, historical and technical aspects of animation will be discussed. Recommended: Previous experience with computer graphics and digital video.

DMC-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. Prerequisite: Pass RD-090 or placement in RD-115.

DMC-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, filmmakers, and New Media Artists. How to protect your intellectual property and benefit from your rights as a copyright owner.

DMC-147 Music, Sound & Moviemaking**1 credit, Fall/Winter/Spring**

Presents the basic components of designing, shooting, recording, editing, and scoring movies as well as the history and theory that has led to the current moment of film production.

DMC-180 Digital Multimedia Communications Internship 1-12 credits, Fall/Winter/Spring

The internship is an opportunity to develop entry level skills in a specific occupational area and to practice the basic career management skills necessary to obtain, sustain, and advance employment. A Training and Evaluation Plan is developed and managed in consultation with the student, internship supervisor, and faculty. Required: Instructor consent & a CWE seminar.

DMC-190 Digital Multimedia Communications Portfolio Project I**1-4 credits, not offered every term**

The purpose of this course is to provide students the opportunity to combine their skills, knowledge, and special interests in the planning, production, and presentation of an original finished product representative of any one of the focus areas included in the Digital Multimedia Communications Program.

DMC-191 Digital Multimedia Communications Portfolio Project II**3 credits, not offered every term**

The purpose of this course is to provide students the opportunity to combine their skills, knowledge, and special interests in the revision, refinement, and further development of an original finished product representative of any one of the focus areas included in the Digital Multimedia Communications Program, and to collaborate with peers in the process of integrating their work with one additional DMC focus area. Prerequisite: Pass DMC-190.

DMC-192 Digital Multimedia Communications Portfolio Project III**4 credits, not offered every term**

The purpose of this course is to provide students the opportunity to combine their skills, knowledge, and special interests in the production and production management of an original portfolio project that reflects full integration of DMC focus areas. Prerequisite: Pass DMC-191.

DMC-194 Introduction to Film**4 credits, not offered every term**

Explores the language of film both connotatively and denotatively. Students will learn to analyze a film beyond its surface meaning by gaining knowledge of film aesthetics, technology, history, and theory. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

DMC-195 American Film**4 credits, not offered every term**

Focuses on the history and theory of American filmmaking from 1895 to the present. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

DMC-205 Directing for Film & Video**4 credits, not offered every term**

Offers students interested in filmmaking the skills needed to successfully direct performances specifically for the screen. Lab component included. Prerequisite: Pass WR-121 or instructors consent.

DMC-230 Documentary & Experimental Filmmaking**4 credits, not offered every term**

Introduces the concepts and fundamentals of documentary and experimental filmmaking. This lecture/studio course will explore traditional and new technological approaches to creating digital documentaries and avant-garde film. Lab component included. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121; pass DMC-104 or previous experience with film studies and digital video.

DMC-242 Field Recording & Sound Design for Media**1 credit, not offered every term**

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

DMC-247 Music, Sound, & Moviemaking**3 credits, not offered every term**

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. Explores the basic components of commercial film/video production as they relate to music and sound.

DMC-264 Digital Filmmaking**4 credits, Winter**

Presents and defines the skills needed for producing a short screenplay. These skills will include screenplay editing, script breakdown and scheduling, dramatic interpretation of written work, shooting and lighting techniques, and editing. Lab component included. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121 or instructor consent.

DMC-265 Advanced Digital Filmmaking**4 credits, Spring**

Applies filmmaking skills to the production of a short film from a written script. Lab component included. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass DMC-264 or instructor consent.

DMC-280 Digital Multimedia Communications /CWE**2-6 credits****Fall/Winter/Spring/Summer**

Cooperative work experience. Provides students with on-the-job work experience in the field of media studies. Required: Instructor consent & a CWE seminar.

DMC-295 Revolutionary Film**4 credit, not offered every term**

Focuses on revolutionary styles of filmmaking from around the world that continue to have an effect on how movies are made today. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

DMC-296 Adaption: Literature into Film**4 credits, not offered every year**

Explores the art of transforming literary text into films. Focuses on various literary genres such as the novel, the short story, the play, and the nonfiction event, and analyzes the process of adapting these stories. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

EC***Economics*****EC-115 Introduction to Basic Economics****4 credits, not offered every term**

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 of economic resources, and international trade. Recommended: Pass RD-090 or placement in RD-115; pass MTH-095 with a "C" or better or placement in MTH-105 or MTH-111.

EC-202 Principles of Economics: MACRO**4 credits, Fall/Winter/Spring**

Introduction to economic theory, policy, and institutions. Focuses on macroeconomic theory, scarcity, production, money, unemployment, inflation, and international finance. Recommended: Pass RD-090 or placement in RD-115; pass MTH-095 with a "C" or better or placement in MTH-105 or MTH-111.

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. 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 career technical credits for the AAOT or ASOT-Business.

Early Childhood Education

ECE-121 Observation & Guidance I in ECE Settings 4 credits, Winter

This course is designed to help students explore in depth observation of and to learn various child guidance techniques for children PK-4th grade. Students will be provided with techniques to assist them in the ongoing guidance challenges that arise every day in their classrooms. Included are the issues of family values and how they impact one's beliefs as it relates to discipline and guidance resolutions (with emphasis on a strengths-based system).

ECE-130 Introduction to Child Development Associate 1 credit, not offered every term

This course is designed to provide students with an overview of the requirements involved in obtaining a CDA (Child Development Associate) national credential.

ECE-131 Physical Activity/Movement in ECE Programs 1 credit, not offered every term

This course is designed to help students explore the various ways that physical development and movement can be integrated in the "whole" curriculum.

ECE-132 Positive Child Guidance in ECE

1 credit, not offered every term
This course is designed to help students focus on discipline training techniques, with an emphasis on helping children think for themselves, while becoming more responsible and respectful.

ECE-133 Infant-Toddler Development 1 credit, not offered every term

This course is designed to help students understand the early stages of growth, including early brain development.

ECE-134 Health & Safety Issues in ECE 1 credit, not offered every term

This course is designed to help participants promote children's physical and socio-emotional development by preventing health problems.

ECE-135 Self-Esteem in the ECE Classroom

1 credit, not offered every term
This course assists participants in understanding the importance of facilitating children's feelings of self-esteem, while focusing on the nurturing needs of the children.

ECE-136 Observing & Recording Children's Behavior

1 credit, not offered every term
This course is designed to assist early childhood care and education practitioners observe children constantly.

ECE-137 Developing the Classroom Environment

1 credit, not offered every term
This course assists participants in organizing both the indoor and outdoor environments to encourage play and exploration.

ECE-138 Family-School Relationships 1 credit, not offered every term

This course helps participants establish positive associations with families, including building trusting and supportive relationships.

ECE-139 Program Management in ECE

1 credit, not offered every term
This course assists participants in planning and evaluating their program's specific goals (short and long term) for working with children and their families.

ECE-140 Preschool Development 1 credit, not offered every term

This course helps participants explore how to develop "richer" learning environments, so there are more concrete opportunities for children to expand their learning during the preschool years.

ECE-141 Outdoors & Children's Learning

1 credit, not offered every term
Participants will develop ways to incorporate children's growth and learning in whatever outdoor environment is accessible, by integrating all curriculum areas: dramatic play, music and movement, art, science, math, etc.

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-173 Preschoolers & Loss: Divorce and Death 1 credit, Fall

This course is designed to help participants explore the profound effects that loss from divorce or death can have on young children. The effects of such loss are examined, including common developmental outcomes: social, emotional, cognitive, and physical. Strategies for supporting children and their families through such difficult times of separation are researched.

ECE-178 Designing a Learning Garden 1 credit, Fall

This course is designed to assist participants in planning, designing and implementing an effective outdoor environment which is an area that has not received a great deal of attention in recent years. Participants will recognize how to evaluate various outdoor environments and activities while becoming familiar with how it can affect children's self esteem.

ECE-179 Starting Points: The Oregon Registry
1 credit, Spring

This course is designed to help participants explore in depth The Oregon Registry. Participants will be guided through the foundations of Oregon's professional development system while engaging in relevant hands-on activities. They will receive the information and materials needed to apply to The Oregon Registry.

ECE-185 Field Trips: Fun & Fascinating
1 credit, Winter

This course is designed to help participants understand the benefits of taking various field trips - especially those that build on young children's interests and help contribute to their understanding of the world. Participants will explore the possibilities for taking various field trips within the Portland metropolitan area. They will begin to develop field trip protocols and discuss common field trip issues. Included in the discussion of field trips will be the always-available neighborhood walks.

ECE-186 Nature & Gardening with Preschoolers
1 credit, Spring

This course is designed to assist participants in bringing nature and gardening experiences to early childhood environments. The many benefits of this type of natural experience are explored, not the least of which is fostering their development across the various domains: cognitive, socio-emotional, physical and language-literacy, while experiencing the changing contexts of the four seasons.

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-221 Observation & Guidance II in ECE Settings
4 credits, Fall

This course is designed to help students explore in greater depth the observation of PK-4th grade within the classroom environment. In this more advanced course, the student focuses on observation and guidance techniques for observing groups of children and addresses challenging behaviors and other issues within the early childhood environment. The practitioner's role in using observation to promote his/her own development and to assist in the development of the children is explored in depth. Prerequisite: ECE-121.

ECE-235 Nutrition, Music & Movement
3 credits, Fall

This course provides the knowledge and skills to work effectively with children and their families to help combat the prevalence of childhood obesity, which plays a major role in how they grow, develop and learn. Participants will explore various ways of integrating nutritional health-related activities into the daily routine. Special emphasis will be placed on the inclusion of music and movement, which will connect to the total curriculum in developmentally appropriate ways. The development needs of individual children will be taken into consideration, along with the cultural context.

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. Students enroll in cooperative work experience after completing 12 credits of Early Childhood Education and Family Studies courses.

ECE-289 The Project Approach in Early Childhood Education
1 credit, Winter

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

ED

Education

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 & 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-130 Comprehensive Classroom Management
3 credits, Spring

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 credit, Fall

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

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

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-229 Learning and Development
3 credits, Fall/Winter/Spring/Summer

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

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 School, Family and Community Relations
4 credits, Spring

This course provides the knowledge and skills to work effectively with families and community professionals in early childhood education (Pre-K – 4th grade). Emphasis is on building and maintaining positive relationships to foster cooperation and mutual respect between early childhood professionals and the families of the children with whom they are working.

ED-254 Instructional Strategies for English Language Learners
3 credits, Spring

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

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-270 Practicum I/CWE
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. The seminar covers classroom experience, problem-solving techniques, and materials. Required: Instructor consent. Prerequisites: ECE-280 or ED-280.

ED-271 Practicum II/CWE
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. The seminar covers classroom experience, best practices and assessment techniques. Required: Instructor consent. Prerequisites: ECE-280 or ED-280; and ED-270.

ED-272 Practicum III/CWE
4 credits, Spring

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 course. The seminar covers continuing observation/assessment, assisting the teacher in implementing an integrated approach to curriculum with attention paid to special needs children. Required: Instructor consent. Prerequisites: ECE-280 or ED-280; ED-270 and ED-271.

ED-280 Practicum/CWE
2-6 credits, Fall/Winter/Spring

Supervised practicum in a school setting. Students will utilize and develop knowledge, skills and attitudes relevant to working in a school and with children. Required: Instructor consent and successful completion of or current enrollment in 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 career technical credits for the AAOT or ASOT-Business.

Electronics Engineering Technology

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

EET-112 Electronic Test Equipment & Soldering
3 credits, Fall

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

EET-127 Semiconductor Circuits I
4 credits, Spring

Introduction to the basic concepts of semiconductor devices and the fundamental 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 Kirchlhoff'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 and 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 corequisite: Current enrollment in or successful completion of 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 subsystems used in the electronics industry including programmable controllers, sensors, transducers, motion and motor control systems. Recommended: EET-157 and 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/note-taking, 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 career 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. Required: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121, pass MTH-060 with a "C" or better or placement in MTH-065. Prerequisite: AHA CPR Healthcare 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-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-108 Emergency Response Patient Transportation
2 credits, Spring

Covers ambulance operations, laws, maintenance and safety, emergency response driving and route planning. Required credits for the CCC one-year EMT certificate program. Required for transferring to two-year AAS-EMT program. Prerequisite: Pass EMT-101.

EMT-109 Emergency Response Communication/Documentation
2 credits, Spring

Covers principles of communication via verbal, written and electronic modes in the provision of EMS. Documentation of the elements of patient assessment, patient care and transport, communication systems, radio types, reports, codes and correct techniques. Required credits for the CCC one-year EMT certificate program. Required for transferring to two-year AAS-EMT program. Prerequisite: Pass EMT-101.

EMT-116 Oregon EMT Intermediate Part I
5 credits, Winter

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, Spring

Continuation of EMT-116. Focus on: cardiac and other medical emergencies, and trauma management. Prerequisite: Pass EMT-116.

ENG**English****ENG-104 Introduction to Literature: Fiction**
4 credits, Fall/Winter/Spring/Summer

Introduction to American and international short fiction. Recommended: Pass RD-090 or 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. 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: 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-126 Literature of Vampires
4 credits, not offered every year

The first in a two-part series. Examines the ways in which the genre of the book, poem, or movie, and the age of the intended audience alter the written representation of the central vampire figure, and the ways in which the portrayals interact. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-130 Leadership in Literature
4 credits, not offered every year

Examines the nature of leadership by analyzing characters who are leaders in major literary works. Students will read and analyze texts, discuss character motivation, and determine an alternate resolution to story issues if possible. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-170 Introduction to Literary Criticism

4 credits, not offered every year

Study a famous literary text through a variety of critical approaches, such as feminism, psychoanalysis, Marxism, reader-response and New Historicism. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-194 Introduction to Film
4 credits, not offered every year

Explores the language of film both connotatively and denotatively. Students will learn to analyze a film beyond its surface meaning by gaining knowledge of film aesthetics, technology, history, and theory. 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

Focuses on the history and theory of American filmmaking 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. 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, with each term covering a different selection of comedies, histories, and tragedies, leading to a broader understanding of Shakespeare's body of work. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-203 Shakespeare

4 credits, Spring

Specialized study of significant plays and sonnets. Theme changes yearly. 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 seventeenth century. Representative readings from the Anglo-Saxon (beginning with Beowulf), Middle English, Renaissance, earlier seventeenth century and Restoration periods (through Pope, Swift and 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 eighteenth 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. 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. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-217 Games and Literature**4 credits, not offered every term**

This class explores games as important narrative forms with strong ties to the literary, social, and historical times in which they are created. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-218 Arthurian Legends**4 credits, not offered every year**

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 year**

Discussion and analysis of various types of creative nonfiction such as literary journalism, memoirs, nature or science writing, literary travel writing, and personal essays. Prerequisite: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-226 Advanced Literature of Vampires**4 credits, not offered every year**

The second part of the Literature of Vampires series. Explores the social, cultural, historical, and theological construction of the vampire character within story, folklore and film when authored within our culture and others. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-230 Documentary & Experimental Filmmaking**4 credits, not offered every term**

Introduction to the concepts and fundamentals of documentary and experimental filmmaking. This lecture/studio course will explore traditional and new technological approaches to creating digital documentaries and avant-garde film. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121; pass DMC-104 or previous experience with film studies and digital video.

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, not offered every year**

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/Winter/Spring**

Pre-colonial to nineteenth 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, Fall/Winter/Spring**

Mid-nineteenth century to twentieth 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, Fall/Winter/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-261 Literature of Science Fiction**4 credits, not offered every term**

Introduction to the literature of science fiction in print and film, exploring historical and contemporary themes. Covers a variety of authors and films, and examines the art and function of this genre of 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 term**

Historical and literary approach to the Hebrew Bible, Apocrypha, and New Testament. 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.

ENG-295 Revolutionary Film**4 credits, not offered every term**

Focuses on revolutionary styles of filmmaking from around the world that continue to have an effect on how movies are made today. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

ENG-296 Adaption: Literature into Film**4 credits, not offered every year**

Explores the art of transforming literary text into films. Focuses on various literary genres such as the novel, the short story, the play, and the nonfiction event, and analyzes the process of adapting these stories. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

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-115 Advanced Reading A****3 credits, not offered every term**

In this course, advanced ESL students will practice academic reading skills. Required: Instructor consent.

ENL-116 Advanced Reading B**3 credits, not offered every term**

In this course, advanced ESL students will practice academic reading skills. Required: Instructor consent.

ENL-117 Advanced Grammar A**3 credits, not offered every term**

Part A of a two-part series. Presentation and practice of adverb clauses, discourse connectors, reported 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 two-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 notetaking. 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 career technical credits for the AAOT or ASOT-Business.

Energy Resource & Utility Management**ERM-100 Orientation to Energy & Resource Management Technology****3 credits, Fall/Winter**

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 industry. Corequisite: ERM-101 and ERM-171.

ERM-101 Energy & Resource Technology I: Intro**3 credits, Fall/Winter**

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. Corequisite: ERM-100 and ERM-171.

ERM-102 Energy & Resource Technology II: Electricity
3 credits, Winter/Spring

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. Prerequisite: Pass ERM-100 and ERM-101 with a "C" or better.

ERM-103 Energy & Resource Technology III: Generation
3 credits, Spring

Examine methods for generating electricity. Coal, natural gas, nuclear, hydro, diesel powered plants, and the path to emerging technologies such as wind, solar, geothermal and wave energy resources. Prerequisite: Pass ERM-102 with a "C" or better.

ERM-107 Career Portfolio
3 credits, Winter/Spring

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. Prerequisite: Pass ERM-100 and ERM-101 with a "C" or better. Corequisite: ERM-108A.

ERM-108A Career Industry Marketing Strategies
2 credits, Winter/Spring

Expand your portfolio as a job-marketing tool, document knowledge, skills and abilities. Explore career options/pathways, develop industry contacts, plan internship, and practice interviewing skills and techniques. Prerequisite: Pass ERM-100 and ERM-101 with a "C" or better. Corequisite: ERM-107.

ERM-171 Energy Industry Workplace Health Awareness
3 credits, Fall/Winter

Discover principles and concepts that govern health related environmental conditions in a workplace setting in the utility industry. Create systems for change specific to health related workplace conditions within OSHA standards. Corequisite: ERM-100 and ERM-101.

ERM-172 Energy Industry Safety Development
3 credits, Fall/Winter

Discover principles and concepts that govern safe work practices in the utility industry. Create systems for change specific safe work practices. Focus on safety awareness and practice development. Required: Valid Oregon Driver's License and satisfactory driving record to pass the CDL permit requirements of ODMV. Prerequisite: Pass ERM-171 with a "C" or better.

ERM-173 Energy Industry Performance Development
6 credits, Winter/Spring

Discover principles and concepts that govern performance development in the utility industry. Create systems for change with specific performance outcomes. Focus is on performance development and team efficiency. Prerequisite: Pass ERM-171 and ERM-172 with a "C" or better.

ERM-174 Groundworker Training
3 credits, Spring

This course is designed to prepare the student for basic line Groundworker responsibilities. This course provides the training, field competency, and documentation to become qualified to assume duties of a bid Groundworker. Prerequisite: Pass ERM-173 with a "C" or better.

ERM-175 Initial Pole Climbing
4 credits, Spring

This course is designed to cover all of the basic knowledge, skills and abilities required to safely perform the duties of a line worker. The focus is on safety, proper equipment and various job functions. Students will practice and perform pole top rescue and test out doing different performances on the pole at four, ten, sixteen, twenty-five, and thirty-five feet. All climbing is done in full fall restraint until qualifying out. Prerequisite: Pass ERM-174 with a "C" or better.

ERM-180 Energy & Resource Management/CWE
3 credits, Fall/Winter/Spring/Summer

Practical work experience in, and exploration of, an energy or utility resource company under supervision of the instructor and employer. Required: instructor consent & CWE seminar.

ERM-201 Energy Applications I: Renewable Energy Resources
4 credits, Fall

Access and interpret building performance, conversion technologies and the applications of renewable energy resources. Prerequisite: Pass ERM-103 with a "C" or better.

ERM-202 Energy Applications II: Leadership
4 credits, Winter

Observe the concepts of leadership and management for energy generation and distribution. Develop strategies to expand application and resources. Prerequisite: Pass ERM-201 with a "C" or better.

ERM-203 Energy Applications III: Seminar
4 credits, Spring

Energy seminar. Research and report on current developments of energy applications. Reports will define internship projects Prerequisite: Pass ERM-202 with a "C" or better..

ESH

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

Environmental Safety & Health

ESH-100 Environmental Regulations
3 credits
Fall/Winter/Spring/Summer

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.

ESH-101 Hazardous Waste Management
2 credits, Fall/Winter/Spring/Summer
DEQ authorized class. This class offers ways to reduce, identify, store, and dispose of hazardous waste in Oregon. Certificate available from DEQ.

ESL

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

English as a Second Language

ESL-001 Planning for Your Future 0 credit, Fall/Winter/Spring/Summer

This course is designed for new students in the ESL program at CCC. Students receive information about classes offered, departmental and college policies, college services available, campus facilities, student responsibilities, and community resources. In addition, students are tested to determine their language levels and class placements. Required: Instructor consent.

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 campuses and outreach sites. Tutors help to set student goals and a plan of learning. Required: Instructor consent.

ESL-012 Assess/Evaluate for New Students 0 credit, Fall/Winter/Spring/Summer

New students in the ESL program receive information about classes offered, departmental and college policies, college services available, campus facilities, student responsibilities, and community resources. Students are tested to determine language levels and class placement. Required: Instructor consent.

ESL-014 Introduction to Business English A 0 credit, not offered every term

This course is Part A of a two-part series of classes designed for non-native speakers of English who are considering employment and/or training in a business field. The course teaches students the basic communication skills frequently required in everyday business interactions both in the U.S. and internationally. Required: Instructor consent.

ESL-015 Introduction to Business English B 0 credit, not offered every term

This course is Part B of a two-part series of classes designed for non-native speakers of English who are considering employment and/or training in a business field. The course teaches students the basic communication skills frequently required in everyday business interactions both in the U.S. and internationally. Required: Instructor consent.

ESL-019 Educational Planning for Returning Students 0 credit, Fall/Winter/Spring/Summer

For returning students in the ESL program at CCC. Students meet with their instructors to review progress, revisit goals, register for classes, and learn how to transition to other educational and training opportunities. 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 level; listening, speaking, reading, and writing are taught 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 study 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 study 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

Upper-intermediate level students study and practice speaking and listening to improve their fluency in English for living and working situations. Emphasis will be on developing conversational skills as needed for success in meeting personal, educational, family, and workplace goals. 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 note taking. Required: Instructor consent.

ESL-036 Communicating with Customers 0 credit, 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.

ESL-037 Conversation Skill Building 0 credit, not offered every year

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 present simple tense of the verb "to be," 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

This class will present and practice verb tenses (present simple, past simple, and present progressive), indefinite articles, and nouns in written and spoken English. Required: Instructor consent.

ESL-042 Intermediate Grammar A 0 credit, not offered every term

This course is Part A of a two-part series of classes designed to present and practice the formation and use of the simple present and present progressive with a focus on non-action verbs and extended time, past simple, past progressive, used to, the future, and wh-questions in written and spoken English. Required: Instructor consent.

ESL-043 Intermediate Grammar B
0 credit, not offered every term

This course is part B of a two-part series of classes designed to present and practice past progressive and present perfect with time expressions and adverbs of frequency, modals of ability, permission and advice, and comparative and superlative adjectives in written and spoken English. Required: Instructor consent.

ESL-044 Upper Intermediate Grammar A
0 credit, not offered every term

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, infinitives, and causative verbs. Required: Instructor consent.

ESL-045 Advanced Grammar A
0 credit, not offered every term

Part A of a two-part series. Presentation and practice of adverb clauses, connectors, reported 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 two-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, not offered every term

Part B of a two-part series. Presentation and practice of adjective clauses, phrasal verbs, and passive voice in written and spoken English. Required: Instructor consent.

ESL-048 Editing for Better Writing
0 credit, Fall/Winter/Spring/Summer

In this course, upper-intermediate and higher-level ESL students will improve their writing through editing. They will also engage in extended reading to provide a context for writing. 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 and Writing
0 credit, Fall/Winter/Spring/Summer

This course is designed to teach beginning-level students who have limited knowledge of written English. Students will practice alphabet recognition, read and write short sentences, study new vocabulary, 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

This course is designed for the intermediate-level ESL student who is ready to begin writing at the paragraph level. The major purpose of the course is to improve the student's reading and writing skills as needed for more advanced ESL and college courses, in the workplace, and in 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 A**0 credit, not offered every year**

For intermediate or higher-level 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 Idioms & Conversation A**0 credit, not offered every term**

Part A of a two-part series of classes. Introduces common idioms while practicing conversation skills at the upper-intermediate level. Required: Instructor consent.

ESL-064 Idioms & Conversation B**0 credit, not offered every term**

Part B of a two-part series of classes. Introduces common idioms while practicing conversation skills at the upper-intermediate level. Required: Instructor consent.

ESL-065 Pronunciation B**0 credit, not offered every term**

This class is for ESL students at the intermediate-level or higher who want to sound more natural when speaking English. Activities will focus on increasing student awareness of the sounds of American English, improving intelligibility, and producing speech more fluently. Required: Instructor consent.

ESL-067 Video and Conversation**0 credit, not offered every year**

Intensifies intermediate/advanced ESL language skills in listening/speaking. Students view Crossroads Café video series, complete workbook exercises, practice listening for specific information, participate in pair, small group, and whole class discussions and activities. Required: Instructor consent.

ESL-068 Introduction to Communication with Customers**0 credit, not offered every year**

This course is designed for upper-intermediate and advanced-level non-native speakers of English who desire employment in retail and/or customer service. The course teaches students the basics of customer service. Students practice customer service skills. 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-072 Multi-Level Conversational ESL**0 credit, not offered every term**

This course introduces the language necessary to function in day-to-day American society at multiple levels. Listening, speaking, reading and writing are taught in the contexts of work, family and community. Required: Instructor consent.

ESL-073 Writing Skills**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-074 Differentiated Writing Instruction**0 credit, not offered every term**

This course is designed 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.

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-083 Introduction to Spelling**0 credit, not offered every year**

This course will present and provide opportunities to practice English spelling patterns and rules and individualize 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-085 Editing A**0 credit, not offered every term**

In this course, upper-intermediate and higher-level ESL students will improve their writing through editing. Required: Instructor consent.

ESL-086 Editing B**0 credit, not offered every term**

In this course, upper-intermediate and higher-level ESL students will improve their writing through editing. Required: Instructor consent.

ESL-088 Advanced Reading A**0 credit, not offered every term**

In this course advanced ESL students will practice academic reading skills. Required: Instructor consent.

ESL-089 Advanced Reading B**0 credit, not offered every term**

In this course advanced ESL students will practice academic reading skills. Required: Instructor consent.

ESR***Environmental Science*****ESR-171 Environmental Science**
4 credits, Fall

A lab science course introducing 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

A lab science course introducing the planning of parks and preserves, environmental toxicology, energy principles, fossil fuel recovery and use, renewable energy sources, nuclear energy, water management, water pollution, global warming and air pollution. 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

A lab science course introducing the indoor air pollution, ozone depletion, minerals and the environment, environmental economics, urban environments, waste management, biological diversity, biogeography and exotic species, 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**
1-3 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 Internship
1-12 credits

Fall/Winter/Spring/Summer

Develop entry level skills in a specific occupation and practice the career management skills necessary to obtain, sustain, and advance employment. A comprehensive employment plan is developed in with a focus on a career path.

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.

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.

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-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.

FR-211 Intermediate French Conversation
3 credits, Fall

A course in intermediate conversational French in which will be offered concurrently with FR-201. Students will be required to attend the first three-quarters of the time allotted to FR-201. The major topics and level of difficulty will correspond to FR-201. The course is intended to develop speaking and listening proficiency through film, radio, presentations, games, and interviews with classmates. Required: Current enrollment in or successful completion of FR-201 or instructor consent.

FR-212 Intermediate French Conversation
3 credits, Winter

Development of speaking and listening proficiency through creative activities such as discussions of excerpts from contemporary French-language media, presentations, games and interviews of classmates. Major topics and level of conversational difficulty will parallel FR-202. Prerequisite: Pass FR-103 with a "C" or better, or instructor consent.

FR-213 Intermediate French Conversation
3 credits, Spring

Development of speaking and listening proficiency through creative activities such as discussions of excerpts from contemporary French-language media, presentations, games and interviews of classmates. Major topics and level of conversational difficulty will parallel FR-203. Prerequisite: Pass FR-103 with a "C" or better, 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 career technical credits for the AAOT or ASOT-Business.

Fire Science (Wildland)

The National Wildfire Coordinating Group (NWCG) is the governing body for wildland firefighting.

FRP-006 Q & A Wildland Firefighting
0 credits, not offered every term

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. Meets the cooperative work experience seminar requirement.

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 and S-190 certified. Introduces students to wildland fire behavior and the skills necessary to fight wildland fires under close supervision. No 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
3 or 6 credits

Fall/Winter/Spring/Summer

Work-based learning experience in a wildland firefighting 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.

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.

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.

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.

FRP-217 Interagency Helicopter Training (S-271)

3 credits, not offered every term

NWCG S-271 certified. Provides basic knowledge and skills required by individuals working with helicopters relative to fire and non-fire: safety, protective equipment, load calculations, landing areas, fueling, Helibase and Helispot operations.

FRP-220 Initial Attack Incident Commander (S-200)**1 credit, not offered every term**

NWCG S-200 certified (ITC4). Provides 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: Maps, Compass, GPS**2 credits, Fall/Winter/Spring**

Use maps, compass, grid locations, land descriptions, topography, distance, directions, and Global Positioning Systems (GPS).

FRP-244 Survivor II: Wilderness**2 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.

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.

FRP-246 Survivor IV: Wilderness First Aid**2 credits, not offered every term**

Covers back country first aid and evacuation techniques in a wilderness setting.

FRP-247 Survivor V: Dangerous Animals**2 credits, not offered every term**

Focuses on Northwest animals' and insects' habits, habitats, how to prevent and avoid conflict with them and what to do if you're attacked. First-hand accounts, stories, CDC statistics and recommendations will be included.

FRP-248 Survivor VI: Introduction to Search & Rescue**2 credits, not offered every term**

Familiarize students with all aspects of Search and Rescue at the beginning level including search philosophy, tactics, operations, and behavior of the lost person.

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)**2 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 status and Pass FRP-230 (S-230).

FRP-260 Interagency Incident Management (S-260)**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 status.

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.

FRP-280 Wildland Fire/Advanced CWE**3 or 6 credits****Fall/Winter/Spring/Summer**

Work-based learning experience in a wildland firefighting capacity meeting requirements as set forth in the wildland firefighting task book. Prerequisite: Pass FRP-180 and 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).

FRP-294 Intermediate Incident Command System (I-300)**2 credits, not offered every term**

NWCG I-300 certified. This course provides description and detail of the Incident Command System (ICS) organization in supervisory roles on expanding or Type 3 incidents. NIMS compliant.

FRP-295 Advanced ICS: ICS for Command and General Staff & Complex Incidents (I-400)**2 credits, not offered every term**

NWCG I-400 certified. Directs the student towards an operational understanding of large single-agency and complex multi-agency/multi-jurisdictional responses. Prerequisite: FRP-294 (I-300).

FRP-296 Introduction to Wildland Fire Behavior Calculations (S-390)**3 credits, not offered every term**

NWCG S-390 certified. Introduces fire behavior calculations using a variety of methods. Prerequisites: FRP-290 (S-290) and qualify as a single resource boss.

G**Geology****G-101 General Geology**
4 credits, Fall

A lab course introducing 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. Recommended: Pass RD-090 or placement in RD-115.

G-102 General Geology
4 credits, Winter

A lab course introducing principles in landform development of glacial, coastal, desert, groundwater, systems, rivers and erosional processes. Environmental issues in geology. Introduction to topographic and geologic maps, structural geology. Recommended: Pass RD-090 or placement in RD-115.

G-103 General Geology
4 credits, Spring

A lab course introducing principles of plate tectonics, earth's internal structure, seismic activity, mountain building, earth's history and fossils. Introduction of compass work, field techniques, and GPS use. Recommended: Pass RD-090 or placement in RD-115.

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. A lab course introducing geologic principles and concepts, weathering, soils, earth structure, igneous, sedimentary, metamorphic rocks, volcanic activity, and landforms. Introduction to environmental geology. Recommended: Pass RD-090 or placement in RD-115; pass MTH-065 or placement in MTH-095.

G-202 General Geology
4 credits, Winter

For geology and science majors. A lab course introducing 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, and structural geology. Recommended: Pass RD-090 or placement in RD-115; pass MTH-065 or placement in MTH-095.

G-203 General Geology
4 credits, Spring

A lab course introducing principles of plate tectonics, earth's internal structure, seismic activity, mountain building, earth's history and fossils. Introduction to compass work, field techniques, and GPS use. Recommended: Pass RD-090 or placement in RD-115; pass MTH-065 or placement in MTH-095.

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 and MTH-251.

GE-115 Engineering Graphics
3 credits, Spring

Mechanical design automation software used to design parts and assemblies, design methods used to build, maintain and modify parts. Covers 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-252. 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 and 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-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. 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, not offered every term

Analyzes the physical elements of the Earth's surface and atmosphere. Focuses on natural processes that create physical diversity on the Earth including weather and climate, biosphere, soils and landforms. Recommended: Pass RD-090 or placement in RD-115.

GEO-110 Cultural & Human Geography
4 credits, not offered every term

Geographical perspectives on human population, agriculture, political pattern, language, religion, folk culture, popular culture, ethnic culture, urban development, industry, and transportation as these play out on the landscapes of the world. Recommended: Pass RD-090 or placement in RD-115.

GEO-130 Introduction to Environmental Geography
4 credits, not offered every term

Explores contemporary global environmental problems such as: overpopulation, over consumption, ozone layer depletion, pollution, acid rain, deforestation, desertification, and waste. Examines alternative sources of energy to fossil fuel and sustainable development strategies. Recommended: Pass RD-090 or placement in RD-115.

GEO-208 Geography of the U.S. & Canada
4 credits, not offered every year

Provides students with the fundamental geographical knowledge of the United States and Canada and their paths of development. Presents the spatial arrangement of culture, economics, politics, and the natural environment. Recommended: 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. Presents the similarities and differences in the spatial pattern of culture, economics, politics, and the natural environment of the world's regions. 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 a "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 a "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 a "C" or better or instructor consent.

GIS

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

Geographic Information Systems

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

GIS-201 Introduction to Geographic Information System
3 credits, Fall

Provides key GIS concepts, methodologies, and techniques. Emphasis is on developing an understanding of GIS applications, technical GIS concepts, terminology, methodology and problem solving techniques.

GIS-232 Data Collection & Application
3 credits, Spring

Introduction to data collection techniques using global positioning systems, PDAs, and related software. Emphasis on different ways to create data through existing surveys, compilation of data from many sources and merging data from differing sources, etc. Prerequisite: GIS-201.

GIS-236 Visual Basic Programming for GIS
1 credit, Fall

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-237 Advanced Visual Basic Programming for GIS
1 credit, Winter

Advanced training in Object Oriented Programming (OOP) and Visual Basic for Applications (VBA). Focus on ArcObjects and how to use object model diagrams to find out what individual objects do. Program objects to execute specific GIS tasks in the ArcGIS environment. Prerequisite: GIS-236.

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

Fall/Winter/Spring/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 and a CWE seminar.

GIS-281 ArcGIS I
3 credits, not offered every term

Introduces the essential skills needed to navigate and operate ArcGIS at a basic level. Includes how to utilize GIS concepts, methods and techniques in conjunction with problem solving techniques to accomplish assigned real world examples. Prerequisite: GIS-201.

GIS-282 ArcGIS II
3 credits, Spring

Introduction to the object-oriented data model. Working with geodatabases, datasets and feature classes. Additional topics include: establishing topological relationships, versioning, and analysis of geometric networks. Advanced surface and cell-based modeling will also be covered. Prerequisite: GIS-281.

GIS-286 Remote Sensing
3 credits, Winter

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-201.

GRN

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

Gerontology**GRN-181 Issues In Aging**
3 credits, Fall

Provides an introduction to gerontology including the history of aging and current issues. Covers: myths, stereotypes, economic and political aspects, demographics, and service availability for aging populations. Explores careers within the field.

GRN-182 Aging & the Body
3 credits, Winter

Focuses on how aging affects physical health and well-being: impact on body systems, illness, disability, longevity research, wellness and health promotion. For students interested in working with the elderly and those in the field.

GRN-183 Death & Dying
3 credits, Spring

Introduces effective interaction with those experiencing a death or grief process. Includes: historical and cross cultural perspectives, funeral and death rites, grief across the lifespan, hospice and palliative care, ethical considerations and physician-assisted suicide.

GRN-184 Aging & the Individual
3 credits, Winter

Explores the impact of aging on the individual as well as family members, caregivers, and professionals. Topics include: dementia, cognitive issues, stress, coping, life transitions, intelligence, wisdom and creativity.

GRN-280 Gerontology/CWE
2-6 credits, Fall/Winter/Spring

Work-based experience to acquaint gerontology students with the roles and related activities of organizations serving the elderly. This course provides an opportunity to apply theories and techniques learned in the classroom. Required: Instructor consent; current enrollment in or successful completion of HS-170.

GS**General Science**

See also Arts and Sciences (ASC).

GS-104 Earth System Science
4 credits, Fall

A lab course examining the physics and exploration methods that help us understand our universe. Topics include plate tectonics, the earth's structure, earthquakes/hazards, mineral chemistry, igneous rocks, volcanoes/hazards. Recommended: Pass MTH-065 or placement into MTH-095.

GS-105 Earth System Science
4 credits, Winter

A lab course examining the chemistry and geology of scientific dating techniques, sedimentary rocks/surfaces, processes, fossils, energy resources and the physics and chemistry of energy resources and mass wasting. Recommended: Pass MTH-065 or placement into MTH-095.

GS-106 Earth System Science
4 credits, Spring

A lab course examining the chemistry/physics of the hydrosphere and atmosphere. Includes atmospheric processes, the carbon cycle, desert formation and climate change. Recommended: Pass MTH-065 or placement into MTH-095.

GS-107 Astronomy
4 credits, Fall/Winter

A lab course discussing the history of astronomy, the Earth and Moon, all the planets in our solar system, along with asteroids, meteors, and comets. 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-153 Introduction to Cosmology
4 credits, not offered every year

A lab course introducing 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, not offered every year

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**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 per term 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

Provides students with a service learning experience in a community setting. Students complete 60-180 hours per term of volunteer work and participate in seminars. A continuation of HD-101. Required: Instructor consent. Recommended: Pass HD-101.

HD-120 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-121 College Success Expanded
3 credits, Fall/Winter/Spring

Provides advanced strategies for creating college success including understanding motivation, exchange theory, taking personal responsibility, learning style, goal setting, systems management, time management, effective study skills/habits/planning, and the use of on- and off-campus resources.

HD-140 Career Exploration

1-3 credits, Fall/Winter/Spring

Students use information about themselves (values, interests, personality and skills) and information about the world of work (career and industries) to make long term career decisions.

HD-141 Career Advancement

1-3 credits, not offered every term

Students gather and use information about their current skills, employer, and industry to create career advancement opportunities, identify strategies that increase employment stability, and examine issues that impact successful career pathways.

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 year

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-151 Stress Management II

1 credit, not offered every year

This class is a follow up to the Stress Management I class (HD-145). The goal of this class is to support and encourage students to make the life changes necessary to change their stress load and build a lifestyle that includes less stress.

HD-152 Contemporary Latino Issues

1-2 credits, not offered every year

Explores cultural adjustment and conflict of Latinos in the U.S. Provides tools for cultural self-assessment and achievement.

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

This course is designed to address the elements forming and impacting self-confidence, disarming your inner critic, including dealing with fear, self-esteem, personal power, and establishing your center.

HD-156 Creative Goal Setting

1 credit, not offered every term

Using a variety of art media, learn how to use the creative process to define, plan, and achieve personal or professional goals.

HD-157 Procrastination & Time Management

1 credit, not offered every term

Provides students the opportunity to study their procrastination habits and time management patterns. Course focuses 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-161 Multicultural Awareness

1 credit, not offered every term

Introduction to the complexities of multicultural issues and how they influence one another in everyday life.

HD-162 Meditation & Relaxation

1 credit, not offered every year

Meditation techniques such as breathing awareness, progressive relaxation, and visualization will be discussed and practiced. Theories and approaches to the importance of meditation are discussed.

HD-180 Career Development Internship

1-12 credits

Fall/Winter/Spring/Summer

Develop skills in a specific occupation and practice the career management skills necessary to obtain, sustain, and advance employment. A Training and Evaluation Plan is developed and managed in consultation with the student, internship supervisor, and faculty.

HD-190 Latino Leadership

1-3 credits, Fall/Winter/Spring

Teaches intercultural and leadership skills, communication strategies, Latino adaptation history in the U.S. and the mentoring process. May be repeated up to 9 credits.

HD-202 Life Transitions

3 credits, Fall/Winter/Spring

Examines process and stages of life transitions. Helps re-entry adults identify personal strengths and barriers related to success in education and employment. Offers opportunities to practice interpersonal skills. Provides information about CCC campus and community resources which can assist students in reaching their goals. This course is part of Life & Career Options. Corequisite: HD-208.

HD-208 Career & Life Planning
3 credits, Fall/Winter/Spring

Helps re-entry adults identify interests, abilities, values and transferable skills and apply this information to goal setting and career decisions. Students identify and explore options for training, education, and employment. Covers job search skills such as interviewing, resume writing, and developing a career portfolio. Each student develops an action plan identifying goals and next steps. This course is part of Life & Career Options. Corequisite: HD-202.

HD-209 Job Search Skills
1-3 credits, not offered every term

Use a job search plan to conduct labor market research, develop job search networking relationships, and to prepare and present applications, cover letters, resumés, interviews, and thank you notes.

HD-280 Human Development/CWE
2-6 credits

Fall/Winter/Spring/Summer

Provides students with career related experience on-the-job at a local organization. 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 career technical credits for the AAOT or ASOT-Business.

Family Studies**HDF-130 Introduction to Family Development**

1 credit, not offered every term

Designed to introduce front-line family workers and family development workers, who work in various community based child and family support agencies, to the concept of a strength-based approach to family development. Participants will acquire knowledge related to family development theory and have the opportunity to apply that knowledge to assist and support the family unit across the life span.

HDF-131 Communication in Family Development

1 credit, not offered every term

Designed to assist participants in strengthening their already present communication skills: spoken and written (expressive), and listening and reading (receptive), and to acquire new skills to become proficient family development communicators. Particular emphasis will be placed on the understanding and use of nonverbal body language (tone, gestures, facial expressions, etc.), understanding the role of empathy in communication, promoting cooperative solutions and working with language barriers or low levels of literacy.

HDF-132 Self-Care Family Development Workers

1 credit, not offered every term

Designed to assist participants in developing or clarifying their own personal vision for their work, as it related to family development. Topics covered include: balancing work and family life, completing a Family Assessment and stress reduction and wellness issues.

HDF-133 Diversity in Family Development

1 credit, not offered every term

Designed to assist participants in explaining how "culture" is defined in the field of family development (diversity and oppression) and realizing why cultural competence is an important skill in this field. Other topics include barriers related to cultural competence and their impact, appreciating aspects of your own cultural identity and increasing one's sensitivity to other cultures.

HDF-134 Strength-Based Assessment in Family Life Development

1 credit, not offered every term

Designed to assist family development workers help families identify and build on their strengths to achieve healthy self-reliance. Based on positive, mutually respectful relationships, workers communicate with families to help them recognize these strengths and the resources available to them. Participants will have the opportunity to review several strengths-based assessment tools.

HDF-135 Setting & Achieving Goals in Family Development

1 credit, not offered every term

Designed to provide family development workers with the skills needed to help families identify and set achievable goals, based on their own strengths. The importance of developing positive, mutually respectful relationships with families is emphasized - while techniques are offered to avoid families becoming dependent on the case worker.

HDF-136 Community Resources in Family Development

1 credit, not offered every term

Designed to provide family development workers with the information needed to assist families with identified special needs to access community resources. Such identified needs could include: specialized learning needs, family literacy issues, developmental delays, common mental health problems, issues related to domestic violence, alcohol and drug dependency, etc.

HDF-137 Home Visiting in Family Development

1 credit, not offered every term

Designed to provide family development workers with the skills necessary to conduct respectful home visits. Class discussions will include the role of the home visitor and the establishment of rapport with the families. Also covered are concerns for personal safety and other issues related to home visiting.

HDF-138 Facilitation Skills in Family Development

1 credit, not offered every term

Designed to provide family development workers with the facilitation skills necessary to conduct successful family meetings, support groups and community meetings. Class discussions will include the role of the family worker in helping families identify their informal support networks and the benefits to be gained from participating in support and advocacy groups.

HDF-140 Contemporary American Families**3 credits, Spring**

Focuses on the diversity of the American family today, and a historical overview of changes in the family environment and structure. Become familiar with internal/external factors that influence families such as parenting, violence, gender, divorce, remarriage, economics, and culture.

HDF-141 Parent-Child Relations: Context & History**3 credits, Winter**

Course covers history of child rearing in the U.S., child rearing 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-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 Understanding 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.

HDF-280 Child & Family Studies/CWE**2-6 credits, not offered every term**

Provides students with on-the-job experience in the field of early childhood care and education and/or family studies. Gain practical knowledge of various roles and responsibilities, including those of early childhood care and education practitioners or as child and family support personnel in a variety of agencies. Students enroll in cooperative work experience after completing 12 credits of Early Childhood Education and Family Study courses.

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.

HE-205 Youth Addictions**3 credits, Winter/Spring**

Increases knowledge of adolescent development and programs designed for prevention, assessment, intervention and treatment of chemically dependent youth. Investigates specific techniques for counseling youth. 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.

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-280 Health/CWE**2-6 credits, Fall/Winter/Spring**

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**

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.

HOR

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

Horticulture

HOR-111 Horticulture Practicum/Fall 6 credits, Fall

Practical horticulture practices which include seasonal activities covering container and field nurseries, greenhouse management, garden design, landscape installation and landscape management. Basic practices involved in planting, pruning, pest control, equipment operations, soil, water and fertilizer management. Industry field trips included. Projects parallel Horticulture classes for fall term. Class includes a lab component.

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. Class includes a lab component.

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. Class includes a lab component.

HOR-130 Plant Propagation Theory 3 credits, Winter

Covers plant anatomy and reproduction techniques of plants from seed, cuttings, grafting, division, and micro-propagation. Offers an in-depth overview of propagation systems that may be selected.

HOR-131 Tree & Shrub Pruning/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. Class includes a lab component.

HOR-132 Pesticide Selection & Use 3 credits, Winter/Spring

Plant protection methods for weed, insect or disease control. Laws and regulations related to safety, handling and storage of pesticides. Techniques for product selection, including chemical and non-chemical options, applicator safety and environmental protection included. Prepare and test for the Oregon Pesticide Applicator exams.

HOR-133 Horticulture Practicum/Winter 6 credits, Winter

Practical horticulture practices which include seasonal activities covering container and field nurseries, greenhouse crops, garden design, landscape installation and landscape management. Basic practices involved in propagation, transplanting, pruning, pest control, equipment operations, water and fertilizer management. Industry field trips included. Projects parallel Horticulture classes for winter term. Class includes a lab component.

HOR-134 Herb Growing & Gardening 1 credit, Winter or Spring

Study of herb plant propagation and garden use. Garden culture and design are 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. Class includes a lab component.

HOR-143 Horticulture Practicum/Spring 6 credits, Spring

Practical horticulture practices which include seasonal activities covering container and field nurseries, greenhouse crops, garden design, landscape installation and landscape management. Basic practices involved in transplanting, pruning, pest control, equipment operations, turf, soil, water and fertilizer management. Industry field trips included. Projects parallel Horticulture classes for spring term. Class includes a lab component.

HOR-144 Basic Pruning 1 credit, Spring

Why and how to prune trees, shrubs, and vines. Covers tools used for various pruning practices. Class includes a lab component.

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. Class includes a lab component.

HOR-146 Fruit Tree Short Course 1 credit, Winter or 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. Class includes a lab component.

**HOR-213 Computer-Aided Landscape
Design****3 credits, Spring**

Develop skills with Computer-Aided Design (CAD) software for creating landscape designs. Practice techniques utilized in common CAD programs used in the landscape industry. Class includes a lab component. Prerequisites: Pass CS-091 or placement in CS-120; and 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. Class includes a lab component. Oregon State University transfer course.

**HOR-216 Integrated Pest
Management****2 credits, Winter**

The development of an Integrated Pest Management (IPM) plan for landscape, nursery, greenhouse or agricultural industries. Plan incorporates pest detection, control practices and evaluates effectiveness. Recertification credits may be granted by the Oregon Department of Agriculture toward pesticide license renewal.

HOR-220 Plant Propagation/Fall**3 credits, Fall**

Proper techniques for reproducing plants from seeds, cuttings, and grafting. Emphasis on seasonal plant production. Class includes a lab component. (See also HOR-233 and HOR-242.)

**HOR-222 Horticultural Computer
Applications****2 credits, 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-224 Landscape Installation**3 credits, Fall**

Materials and practices in landscape installation, including plan reading, materials take-off, estimating, bidding, scheduling, grading, construction materials, and plant installation. Class includes a lab component.

HOR-225 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. Class includes a lab component. Class includes a lab component. 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. Class includes lab component. 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. Class includes a lab component. 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. Class includes a lab component.

**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. Class includes a lab component.

HOR-231 Irrigation/Drainage Design**3 credits, Winter**

Design principles of irrigation and drainage systems for various situations, including underground and above-ground, residential and commercial systems. Class includes a lab component.

HOR-232 Commercial Floral Design**3 credits, Winter**

Present design techniques, used by florists today, to create naturalistic centerpieces, corsages, and gift arrangements using fresh flowers. Cut flower conditioning and handling, wedding and sympathy design, and sales strategies will also be covered.

HOR-233 Plant Propagation/Winter**3 credits, Winter**

Proper techniques for reproducing plants using cuttings, grafting, and division. Emphasis on seasonal plant production. Class includes a lab component. (See also HOR-220 and 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. Class includes a lab component. Prerequisite: Pass HOR-229.

HOR-235 Weed Identification
2 credits, Fall

Identification and life cycles of weeds commonly found in landscapes and nurseries. 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. 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. 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. For beginner to moderately experienced climbers. Class includes a lab component.

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. Class includes a lab component.

HOR-241 Nursery Management
3 credits, Fall or 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. Class includes a lab component. (See also HOR-220 and 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. Class includes a lab component.

HOR-244 Environmental Landscape Design
3 credits, Spring

Design of landscapes to develop ecosystems using plants and other landscape amenities to encourage wildlife and generate low maintenance habitat. Includes the proper use of landscape features that build wildlife habitats and the study of various water environments.

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. Class includes a lab component. Prerequisites: 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. Class includes a lab component.

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. Class includes a lab component.

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. Class includes a lab component.

HOR-250 Western Herbs
1 credit, Fall

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, Winter

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

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. May be repeated up to 6 credits. 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. May be repeated up to 6 credits. 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, not offered every year

American Heart Association (AHA) Healthcare Provider CPR class. For recertification 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.

HS

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

Human Services

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

3 credits, not offered every term

For individuals, families, and professionals interested in learning about hospice care for the terminally ill. Issues include death, dying, and bereavement, with attention to psycho-social need, pain and symptom control, delivery of medical care, family dynamics, and philosophical and ethical questions. Required 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, and historical, political and social trends.

HS-156 Interviewing Theory & Techniques

3 credits, Winter

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 Introduction to Field Experience-Human Services

3 credits, Spring

Exploration of Human Services in the workplace and organizations, including work stress, supervision, ethics, cultural diversity, and social responsibility. Prerequisite to Human Services CWE courses.

HS-217 Helping Skills & Diverse Populations

2 credits, not offered every year

Addresses the helping skills necessary to provide career services in a multicultural world. Part of a series toward earning a Global Career Development Facilitator credential endorsed by the National Career Development Association.

HS-218 Career Development Models & Assessments

2 credits, not offered every year

Addresses career development models and career assessment tools. Part of a series toward earning a Global Career Development Facilitator credential endorsed by the National Career Development Association.

HS-219 Training Clients/Peers & Employability Skills

2 credits, not offered every year

Addresses the skills needed to train and work with groups, as well as clients' employability issues. Part of a series toward earning a Global Career Development Facilitator credential endorsed by the National Career Development Association.

HS-220 Labor Market Information & Technology in Career Planning

2 credits, not offered every year

Addresses the role information and technology plays in career planning and advancement. Part of a series toward earning a Global Career Development Facilitator credential endorsed by the National Career Development Association.

HS-221 Ethics & Consultation

2 credits, not offered every year

Addresses the ethical considerations and consultation practices in the field of career development and career advancement. Part of a series toward earning a Global Career Development Facilitator credential endorsed by the National Career Development Association.

HS-222 Program Management & Public Relations

2 credits, not offered every year

Plan, design, implement, and market services in the field of career development and/or career advancement. Part of a series toward earning a Global Career Development Facilitator credential endorsed by the National Career Development Association.

HS-260 Victim Advocacy & Assistance
4 credits, Fall

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 knowledge of working with families, using specific theories and techniques. Addresses multicultural perspective, history of family structure and effective interventions.

**HS-280 Human Services Generalist I:
CWE/Practicum**
4 credits, Fall

Cooperative Work Experience. Supervised experience in human services including but not limited to: social service; early childhood care; criminal/juvenile justice; gerontology; and other occupations. Required: Instructor consent. Prerequisite: HS-170 (except CDF students).

**HS-281 Human Services Generalist II:
CWE/Practicum**
4 credits, Winter

Cooperative Work Experience level II. Supervised experience in human services including but not limited to: social service; early childhood care; criminal/juvenile justice; gerontology; and other related occupations. Required: Instructor consent. Prerequisite: HS-170.

**HS-282 Human Services Generalist III:
CWE/Practicum**
4 credits, Spring

Cooperative Work Experience level III. Supervised experience in human services including but not limited to: social service; early childhood care; criminal/juvenile justice; gerontology; and other related occupations. Required: Instructor consent. Prerequisite: HS-170.

HST**History****HST-101 History of Western
Civilization**

4 credits, Fall/Winter

Origins and development of western civilization from ancient times to ca. 1300. Recommended: Pass RD-090 or placement in RD-115.

**HST-102 History of Western
Civilization**

4 credits, Winter/Spring

Development of western civilization from ca. 1300 to the 1800s. Recommended: Pass RD-090 or placement in RD-115.

**HST-103 History of Western
Civilization**

4 credits, Fall/Spring

Development of western civilization in the 19th and 20th centuries. Recommended: Pass RD-090 or placement in RD-115.

**HST-136 History of Popular Cultural
Entertainment & Sports**

4 credits, not offered every year

Explores the topics of popular culture, entertainment and sports in western civilization from ancient Greece to the present and relates them to the political, social, economic, intellectual and cultural trends of each time period. Recommended: Pass RD-090 or placement in RD-115.

**HST-137 History of Science, Medicine
& Technology**

4 credits, not offered every year

Traces the major developments in western civilization in the fields of science, medicine and technology from ancient Greece to the present. Includes an examination of the biographies of prominent scientists, doctors and engineers. Recommended: Pass RD-090 or placement in RD-115.

**HST-138 History of Love, Marriage &
the Family**

4 credits, not offered every year

Examines the concept of love and the institutions of marriage and the family in western civilization from ancient Greece to the present. Includes a consideration of the ideas of prominent thinkers, artists and political leaders. Recommended: Pass RD-090 or placement in RD-115.

HST-201 History of the United States
4 credits, Fall

Covers the period from early discovery to the Age of Jackson. Recommended that sequence is 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 that sequence is 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 that sequence is taken in order. Recommended: Pass RD-090 or placement in RD-115.

**HST-210 The Great Depression & New
Deal in America**
4 credits, not offered every term

Explores the contours of the Great Depression and New Deal in American history. Course includes an examination of economic, political, social, and cultural factors and forces at play in America during the Depression era (1929-1941) with an emphasis on the New Deal and its successes, failures, and legacy. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HST-280 History/CWE
2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of history. Required: Instructor consent & a CWE seminar.

HUM**Humanities Inquiry****HUM-160 Faith & Reason**
5 credits, Winter/Spring/Summer

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-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-180 Pathway to Sustainability
5 credits, Fall

Can we create a more sustainable and just world? We will question our assumptions regarding economic models, democracy, our relationships with the environment, 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, Winter

Can we create a more sustainable and just world? How do socially meaningful changes come about? What are the ecological and social repercussions of the choices we make? Are ecological and social justice concerns linked? Recommended: Pass RD-090 or placement in RD-115.

HUM-182 Pathway to Sustainability
5 credits, Spring

Can we create a more sustainable and just world? What can our personal roles in change be? How can we stimulate local sustainable economies? What analysis is useful in assessing ecological impacts? Recommended: Pass RD-090 or placement in RD-115.

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-230 Gender & Material Culture
4 credits, not offered every year

Provides in-depth study of social and cultural significance of material culture as it applies to gender, within a historical context. Focus 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 year

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.

HUM-235 Perspectives on Terrorism
4 credits, not offered every term

Examines multiple perspectives of terrorism and investigates their assumptions and beliefs. Perspectives will include historical and psychological approaches as well as those of other academic disciplines. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

HUM-240 American Military Conflict: Total War
4 credits, not offered every term

Provides students with the fundamental knowledge of the politics and geography of United States military operations when conducting "Total War" as applied in conflicts from The Civil War through WWII. Recommended: Pass RD-090 or placement in RD-115.

HUM-241 American Military Conflict: The Cold War
4 credits, not offered every term

Provides students with the fundamental knowledge of the politics and geography of United States military operations when conducting "The Cold War" as applied in conflicts in Korea, Vietnam and the planned defense of Western Europe. Recommended: Pass RD-090 or placement in RD-115.

HUM-242 American Military Conflict: The War on Terror
4 credits, not offered every term

Provides students with the fundamental knowledge of the politics and geography of United States military operations when conducting "The War on Terror," as applied in conflicts in Libya, Iraq, Afghanistan, and various other parts of the world. Pass RD-090 or placement in RD-115.

J

Journalism**J-134 Photojournalism**
4 credits, Fall/Spring

Emphasizes composition, lighting and creative ways to illustrate a news story. Analyzes ethical issues in the digital age. Weekly shooting assignments. Recommended: Basic photography skills.

J-211 Mass Media & Society
4 credits, not offered every term

Critical study of the production and consumption of mass media, including television, radio, books, film, newspapers, advertising and the Internet. Examines the economic and social organization of mass media, the growth of new media technologies, and the relationship between media and the public. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

J-215 Publications
1-3 credits, Fall/Winter/Spring

Students learn the components of new stories and photojournalism and study the techniques of putting together news stories and photos, including writing styles, photography rules, ethical standards of news gathering and the rights of a free press in democracy. Students work as writers, photographers and editors on The Clackamas Print and its Web site in areas of writing, photography, editing, production and advertising. May be repeated up to 6 credits. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121; pass J-216.

J-216 Reporting
4 credits, Fall/Spring

Introduces the fundamentals of journalism: news gathering, news writing, interviewing, libel and the rights and responsibilities of a free press in a democracy. Writing for different media including print, blogs, documentary films and radio. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

J-218 Editing & Design
4 credits, Winter

Introduces copy editing, headline writing, page design, layout, desktop publishing and photography while using Adobe PhotoShop and InDesign to create documents such as newspaper and magazine pages. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

J-220 Introduction to Broadcast Journalism
4 credits, Fall/Winter/Spring

Offers students interested in broadcast journalism basic skills of writing, reporting, and camera operation for broadcast. Lab component included. Recommended: Pass WR-095 or placement in WR-121.

J-221 Broadcast Journalism
4 credits, Fall/Winter/Spring

Offers students interested in broadcast journalism intermediate skills of editing, compression, and uploading for broadcast. Lab component included. Recommended: Pass WR-095 or placement in WR-121. Prerequisite: Pass J-220 with "C" or better or instructor consent.

J-222 Advanced Broadcast Journalism
4 credits, Fall/Winter/Spring

Offers students interested in broadcast journalism advanced skills of managing reporters, videographers, and a web presence in a broadcast newsroom. Lab component included. Recommended: Pass WR-095 or placement in WR-121. Prerequisite: Pass J-220 and J-221 with "C" or better or instructor consent.

J-226 Newspaper Production
4 credits, Fall/Winter/Spring

Weekly production of The Clackamas Print, the college newspaper. Write headlines, design and lay out pages and ads. May be repeated up to 12 credits. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

J-230 Multimedia Reporting
4 credits, Winter

Provides students with hands-on training in news reporting for the Internet, including writing, blogging, podcasting, digital photography and audio slide shows. Recommended: pass WR-095 or placement in WR-121.

J-280 Journalism/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.

J-280A Public Relations/CWE
2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job experience and training related to public relations. Required: Instructor consent & a CWE seminar.

LIB**Library****LIB-101 Introduction to Library Research**

1 credit, Fall/Winter/Spring

Trains students in the use of a variety of print and electronic information resources, search tools, and source citation. Excellent preparation for term papers and other research assignments. Recommended: 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 career 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 healthcare 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. Corequisites: MA-110 and MA-145.

MA-115 Phlebotomy
1 credit, Fall/Spring

Develops basic understanding and application of blood specimen collection and handling techniques used in the ambulatory care setting and hospital laboratory setting. Restricted: Clinical Laboratory Assistant and Medical Assistant students only. Required: Instructor consent. Prerequisites: 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. Required: Instructor consent. Prerequisites: Pass MA-110, MA-112 and MA-145. Corequisites: MA-117, MA-118 and 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 and MA-145. Corequisites: MA-116, MA-118 and 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 and MA-145. Corequisites: MA-116, MA-117 and 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 eight hours community service. Prerequisites: Pass MA-115 and 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 eight 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 and 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. Restricted: Medical Assistant students only. Required: Instructor consent. This course will NOT meet the requirement for the Medical Office Administrative Assistant certificate. Corequisites: MA-110 and 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 career technical credits for the AAOT or ASOT-Business

Mechanical Engineering Technology

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

MET-150 Principles of Engineering-PLTW
6 credits, not offered every term

Helps students understand the field of engineering/engineering technology. Explores various technology systems and manufacturing processes and how math, science and technology are used in the engineering problem solving process. Includes concerns about social and political consequences of technological change. This course is part of the national Project Lead the Way curriculum.

MET-151 Introduction to Engineering Design-PLTW
6 credits, not offered every term

Emphasizes problem-solving skills by using a design development process. Models of product solutions are created, analyzed and communicated using solid modeling computer design software. This course is part of the national Project Lead the Way curriculum.

MET-152 Digital Electronics-PLTW
6 credits, not offered every term

Covers applied logic that encompasses the application of electronic circuits and devices, as well as AC and DC electrical fundamentals. Uses computer simulation software to design and test digital circuitry prior to the actual construction of circuits and devices. This course is part of the national Project Lead the Way curriculum.

MET-153 Computer-Integrated Manufacturing-PLTW
6 credits, not offered every term

Applies the principles of robotics and automation to engineering and manufacturing. Students use CNC equipment to produce actual models of their three-dimensional designs. This course is part of the national Project Lead the Way curriculum.

MET-170 Introduction to Manufacturing Processes
3 credits, Spring

This is a survey course to introduce students to the fundamental processes that are used to manufacture everyday products. Includes machining, casting, forming, welding, molding, composites and microelectronics fabrication.

MFG

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

Manufacturing Technology

The Manufacturing Department has a variety of programs and classes. For additional information contact the Manufacturing Department at 503-594-3318.

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.

MFG-048 Manufacturing Specialist II 10 credits, not offered every term

A continuation of MFG-047.

MFG-101 Essential Skills for Manufacturing 1-6 credits, not offered every term

This course focuses on the basic skills for entry-level operator, processor and assembler jobs in the manufacturing and logistics industries. Specialized curriculum covers print reading, precision measurement, manufacturing processes, shop math, safety, workplace readiness, team building and communication. No prior experience is necessary.

MFG-102 Essential Skills for Manufacturing II 1-6 credits, not offered every term

This course is designed to provide students with entry-level skills to better enable them to secure work with a minimum of training. Focuses on the basic skills required for entry-level operator, processor, and assembler jobs in the manufacturing and logistics industry. No prior experience is necessary.

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 & First Aid 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, and back injuries. Instruction in Red Cross first aid, AED, and CPR.

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. Recommended: MFG-104 and 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. Includes surface grinding and selection of abrasive grinding wheels. 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, and cylindrical grinding. Recommended: MFG-111 and MFG-112.

MFG-123 Instrumentation and Controls 3 credits, not offered every term

This course is intended to provide the industrial maintenance technician with knowledge and skills in the areas of process measurement, control and data acquisition. Students will become familiar with common sensors and actuator and their applications. Instruction will also be given on application development in NI LabView to create process control programs. Prerequisites: MFG-130 and MFG-131.

MFG-124 Statistical Process Control 3 credits, not offered every term

Concepts and methods to organize and implement an ongoing quality improvement program. Integrates Dr. Demings management philosophy with problem solving and charting techniques. Covers 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 and 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 and 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 and 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 and 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
3 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 and 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-238 CNC Programming, G Code
4 credits, not offered every term

Introduction to basic programming techniques. Students will use ISO "G" code programming for lathe and mill programs.

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 275 Mastercam I: Streamingteacher™
3 credits, not offered every term

Mastercam version X3 computer-aided parts creation and programming. Covers the creation and modification of two and three-dimensional wire frame models as well as the creation, verification, and editing of 2-1/2 axis toolpaths. Includes basic exposure to solid modeling. Required: Access to a seat of the "Current Industrial Version" or a current "Student Version" of Mastercam.

MFG-280 Manufacturing Technology/ CWE

1-6 credits
Fall/Winter/Spring/Summer

Cooperative work experience. Practical experience in the manufacturing trades. Coordination of instruction will occur with industry and the manufacturing and cooperative work departments. Required: Instructor consent and 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

This course is designed for career and technical students. The topics covered focus students on critical thinking, problem solving and mathematical communication using applications in applied arithmetic, measurement, geometry, and statistics and probability. Prerequisite: Pass MTH-020 with a "C" or better or placement in MTH-050 or MTH-060.

MTH-054 Math for Healthcare Professionals
4 credits, not offered every term

Topics include problem solving, ratios and proportions, percents, 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

Designed for review or for the beginner, this course is an introduction to topics in algebra. 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, not offered every term

This course is the second in a three-term sequence designed for career and technical students. The topics covered focus students on critical thinking, problem solving, and mathematical communication using applications in arithmetic, algebra, geometry, and trigonometry. Prerequisite: Pass MTH-050 with a "C" or better or instructor consent.

MTH-082A Wastewater Math I**1 credit, Fall/Winter**

Quantitative component to understanding wastewater operations. Simple unit conversions, fraction to decimal conversions and more complicated problem solving as applied to wastewater preliminary and primary treatment. Prerequisite: Pass MTH-065 with a “C” or better or placement in MTH-080 or MTH-095. Corequisite: WQT-110. This course may not be waived.

MTH-082B Waterworks Math I**1 credit, Fall**

Problem solving for waterworks applications. Introduction to basic algebra and math concepts, conversions and calculations encountered in the waterworks industry. Prerequisite: Pass MTH-065 with a “C” or better or placement in MTH-080 or MTH-095. Corequisite: WQT-111. This course may not be waived.

MTH-082C Wastewater Math II**1 credit, Fall/Winter**

Quantitative component to understanding analysis and operations of secondary wastewater systems. Flow rate, chemical dosage, treatment plant loading, treatment process efficiency, unit conversion and process control. Prerequisite: Pass MTH-065 with a “C” or better or placement in MTH-080 or MTH-095. Corequisite: WQT-120. This course may not be waived.

MTH-082D Waterworks Math II**1 credit, Winter**

Problem solving for waterworks applications. Introduction to C.T. calculations, chemical concentrations, Pounds formula, and basic hydraulics. Prerequisite: Pass MTH-065 with a “C” or better or placement in MTH-080 or MTH-095. Corequisite: WQT-121. This course may not be waived.

MTH-082E Math for High Purity Water**1 credit, not offered every year**

Basic math for high purity water concepts. Measurements accuracy, rounding rules and errors, significant figures, scientific notation, metric prefixes, simple statistics—average and standard deviation of a population. Prerequisite: Pass MTH-065 with a “C” or better or placement in MTH-080 or MTH-095. Corequisite: WQT-125. This course may not be waived.

MTH-085 Technical Mathematics III**3 credits, not offered every year**

This course is the third in a three-term sequence designed for career and technical students. The topics covered focus on students on critical thinking, problem solving, and mathematical communication using applications in trigonometry, algebra, analytic geometry, and exponential and logarithmic functions. Prerequisite: Pass MTH-080 with a “C” or better, or instructor consent.

MTH-092 Math for Computer Technicians**4 credits, not offered every term**

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/Summer**

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. Relations and functions are explored symbolically, graphically, numerically, and verbally. Topics include polynomial, rational, radical, piecewise, exponential, and logarithmic functions. 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 or placement in MTH-112.

MTH-211 Fundamentals of Elementary Math I**4 credits, not offered every term**

The first in three-term sequence designed for prospective elementary education majors. Topics include problem solving, set theory, number 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, not offered every term**

The second in a three-term sequence designed for prospective elementary education majors. Topics include integers, rational numbers, 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 or instructor consent.

MTH-213 Fundamentals of Elementary Math III**4 credits, not offered every year**

The third in a three-term sequence designed for prospective elementary education majors. Topics include probability and two- and three-dimensional geometry. 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 or instructor consent.

MTH-243 Statistics I**4 credits, Fall/Winter/Spring/Summer**

Descriptive statistics, observational studies, experiments, elementary probability, random variables, and sampling distributions. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisite: Pass MTH-105 or MTH-111 with a "C" or better or placement in MTH-112.

MTH-244 Statistics II**4 credits, Fall/Winter/Spring/Summer**

Hypothesis tests and confidence intervals for one and two populations, linear regression, inference about regression, chi-square tests, 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 or instructor consent.

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**

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, not offered every term**

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, not offered every term**

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-252 with a "C" or better.

MTH-256 Differential Equations**4 credits, not offered every term**

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 in WR-121. Prerequisite: Pass MTH-252 with a "C" or better.

MTH-261 Linear Algebra**4 credits, not offered every term**

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 or instructor consent.

MTH-280 Mathematics/CWE**2-6 credits, Fall/Winter/Spring**

Cooperative work experience. Practical experience in teaching, tutoring or applying mathematics while supervised by a teacher or mathematician. May be repeated up to 12 credits. Restricted: Math lab tutors.

MUP**Music Performance****MUP-100 Individual Lessons:****Non-Music Majors****1 credit, Fall/Winter/Spring/Summer**

Private lessons for beginners, non-music majors, and students who receive a low rating in MUP 171-191 auditions. Brass, woodwind, percussion, string and keyboard instruments, and voice. May be repeated up to 6 credits.

MUP-102 Concert Band**0-2 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. No audition required. Tuition waivers available. Required: Ability to read music and play a band instrument. May be repeated up to 8 credits.

MUP-104 Pep Band/Combo-Improv**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 required. May be repeated up to 8 credits. Recommended: MUP-105 or MUP-125.

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. May be repeated up to 8 credits. Recommended: MUP-102 & MUP-104.

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 required. May be repeated up to 8 credits.

MUP-122 Chamber Choir
2 credits, Fall/Winter/Spring

Select vocal ensemble which rehearses and performs choral music from the Renaissance to the 21st century. Provides preparation for entering professional fields of music and performance. Emphasis on a cappella singing applied to appropriate chamber music. Recommended for vocal music majors. By audition. May be repeated up to 8 credits.

MUP-125 Vocal Jazz Ensemble: Mainstream

2 credits, Fall/Winter/Spring

Performing ensemble that cultivates musical, professional, and personal growth through rehearsal and performance with rhythm section of jazz, rock, pop, funk, and fusion. Includes study of jazz as it applies to vocal ensemble combined with rhythm section. Emphasis on style, improvisation, and techniques. By audition. May be repeated up to 8 credits. Recommended: MUP-104.

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. May be repeated up to 8 credits. Required: Instructor consent.

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. May be repeated up to 8 credits. 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. May be repeated up to 8 credits. Recommended: MUP-102 or MUP-122.

MUP-171J 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-174J 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-178J 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-180J 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-181J 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-183J 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-184J 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-186J 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-188J 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-191J 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

0-2 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. No audition required. Tuition waivers available. Required: Ability to read music and play a band instrument. May be repeated up to 8 credits.

MUP-204 Pep Band/Combo-Improv

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 required. May be repeated up to 8 credits. Recommended: MUP-205 or MUP-225.

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. May be repeated up to 8 credits. Recommended: MUP-202 & MUP-204.

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 required. May be repeated up to 8 credits.

MUP-222 Chamber Choir

2 credits, Fall/Winter/Spring
Select vocal ensemble which rehearses and performs choral music from the Renaissance to the 21st century. Provides preparation for entering professional fields of music and performance. Emphasis on a cappella singing applied to appropriate chamber music. Recommended for vocal music majors. By audition. May be repeated up to 8 credits.

MUP-225 Vocal Jazz Ensemble: Mainstream**2 credits, Fall/Winter/Spring**

Performing ensemble that cultivates musical, professional, and personal growth through rehearsal and performance with rhythm section of jazz, rock, pop, funk, and fusion. Emphasis on style, improvisation, and techniques. By audition. May be repeated up to 8 credits. Recommended: MUP-204.

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. May be repeated up to 8 credits. Required: Instructor consent.

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. May be repeated up to 8 credits.

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. May be repeated up to 8 credits. Recommended: MUP-202 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. May be repeated up to 6 credits.

MUP-271J 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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

MUP-274J 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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

MUP-278J 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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

MUP-280J 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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

MUP-281J 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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

MUP-283J 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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

MUP-284J 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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

MUP-286J 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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

MUP-288J 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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

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. May be repeated up to 6 credits.

MUP-291J 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. May be repeated up to 6 credits.

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-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-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-105 Music Appreciation

3 credits, Fall/Winter/Spring/Summer
Explores music from the Medieval through the twentieth 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 music majors and non-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 and 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.

MUS-111L MIDI Lab I**1 credit, Fall**

Introduces students to Finale (music notation software) on Macintosh computers. Required for first-year music majors.

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. Prerequisites: Pass MUS-111 and MUS-111L.

MUS-112L MIDI Lab I**1 credit, Winter**

Introduces students to Finale (music notation software) on Macintosh computers. Required for first-year music majors.

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. Prerequisites: Pass MUS-112 and MUS-112L.

MUS-113L MIDI Lab I**1 credit, Spring**

Introduces students to Finale (music notation software) on Macintosh computers. Required for first-year music majors.

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.

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. 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. Prerequisite: Pass MUS-115.

MUS-117 Sight-Reading**1 credit, Fall/Winter/Spring**

Learning to read and sing music by sight. Students will spend time practicing sightsinging, starting with easy exercises and moving to more difficult exercises as the term progresses.

MUS-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, MUS-113L and 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 approaches 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.

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.. 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. 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 Group Piano: Piano for Pleasure**1 credit, Fall**

Beginning classroom piano instruction for non-music majors. Includes reading, theory, technique, exercises, and the opportunity to share your music with others. All levels welcome, beginners through advanced.

MUS-132 Group Piano: Piano for Pleasure**1 credit, Winter**

Beginning classroom piano instruction for non-music majors. Includes reading, theory, technique, exercises, and the opportunity to share your music with others. All levels welcome, beginners through advanced.

MUS-133 Group Piano: Piano for Pleasure**1 credit, Spring**

Beginning classroom piano instruction for non-music majors. Includes reading, theory, technique, exercises, and the opportunity to share your music with others. All levels welcome, beginners through advanced.

MUS-134 Group Voice: Anyone Can Sing**1 credit, Fall**

Basic vocal techniques for the solo and ensemble singer. For music and non-music majors, voice and music education majors, and/or students who received low rating on MUP-174 audition.

MUS-135 Group Voice: Anyone Can Sing**1 credit, Winter**

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: Anyone Can Sing**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 their 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 their 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 their 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. Required course for the Music Technology certificate.

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. 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 and 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, filmmakers, 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 non-jazz sections at the MUP 171-191 and MUP 271-291 levels. Each student must perform as a soloist on his/her major instrument at least once a term and must be present for performances of classmates. Performers will be critiqued by the instructor. Students will be required to attend approved concerts.

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 term

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. Prerequisites: Pass MUS-113, MUS-113L, MUS-116 and MUS-129.

MUS-211L MIDI Lab II

1 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. 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. Prerequisites: Pass MUS-211L and MUS-211.

MUS-212L MIDI Lab II

1 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. 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. Prerequisites: Pass MUS-212L & pass MUS-212.

MUS-213L MIDI Lab II

1 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. 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. 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. 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. 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. 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. 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. Prerequisite: Pass MUS-225.

MUS-230 Music & Media: Sex, Drugs, Rock & Roll
4 credits, Fall/Winter/Spring

Explores history and development of the pop music, pop culture and media industries in America.

MUS-247 Music, Sound & Moviemaking
3 credits, 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. Explores the basic components of commercial film/video production as they relate to music and sound.

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, MUS-140 and 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. Restricted: Admitted CCC Nursing students only.

NRS-110C Foundations of Nursing - Health Promotion Clinical
4 credits, Fall

Clinical application of NRS-110 content.

NRS-111 Foundations of Nursing - Chronic Illness I
2 credits, Winter

Introduces nursing care 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. Restricted: Admitted CCC Nursing students only. Prerequisite: NRS-110. Corequisites: NRS-230 and NRS-232.

NRS-111C Foundations of Nursing in Chronic Illness I Clinical
4 credits, Winter

Clinical application of NRS-111 content. Restricted: Admitted CCC Nursing students only.

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. Focus is on disease/illness trajectories and their translation into clinical practice guidelines and/or standard procedures. Restricted: Admitted CCC Nursing students only. Prerequisite: NRS-111. Corequisites: NRS-231 and NRS-233.

NRS-112C Foundations of Nursing in Acute Care I Clinical
4 credits, Spring

Clinical application of NRS-112 content. Restricted: Admitted CCC Nursing students only.

NRS-221 Foundations of Nursing in Chronic Illness II & End of Life
3 credits, Winter

Evidence base related to family care giving and symptom management is a major focus. Ethical issues related to advocacy, self determination, and autonomy are explored. Complex skills associated with symptom management are included. Restricted: Admitted CCC Nursing students only. Prerequisite: Completion of the first year of nursing curriculum.

NRS-221C Foundations of Nursing in Chronic Illness II & End of Life Clinical
6 credits, Winter

Clinical application of NRS-221 content. Restricted: Admitted CCC Nursing students only.

NRS-222 Foundations of Nursing in Acute Care II & End of Life
3 credits, Fall

Focuses on complex and unstable patient care situations which may require strong recognitional skills and rapid decision making. Cultural variables and legal aspects of care frame the ethical decision-making for treatment or palliative care. Restricted: Admitted CCC Nursing students only. Prerequisite: Completion of the first year of nursing curriculum.

NRS-222C Foundations of Nursing in Acute Care II & End of Life Clinical
6 credits, Fall

Clinical application of NRS-222 content. Restricted: Admitted CCC Nursing students only.

NRS-224 Integrative Practicum
2 credits, Spring

This course is designed to formalize the clinical judgments, knowledge and skills necessary in safe, registered nurse practice. The practicum provides a context that allows the student to experience the nursing work world. Required for AAS and eligibility for RN licensure. Restricted: Admitted CCC Nursing students only.

NRS-224C Integrative Practicum Clinical
7 credits, Spring

Clinical application of NRS-224 content. Restricted: Admitted CCC Nursing students only.

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. Restricted: Admitted CCC Nursing students only. Prerequisite: 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. Restricted: Admitted CCC Nursing students only. 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. Restricted: Admitted CCC Nursing students only. Prerequisite: BI-234.

NRS-233 Pathophysiological Processes II
3 credits, Spring

Continues to explore additional pathophysiological processes not covered in NRS-232. Assists students in learning how to make selective clinical decisions regarding using current, reliable sources of pathophysiology information for diverse populations. Restricted: Admitted CCC Nursing students only. 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 career technical credits for the AAOT or ASOT-Business.

Nursing**NUR-090 Nursing Assistant I**
7 credits, Fall/Winter/Spring/Summer

Prepares the student to perform routine nursing assistant tasks to clients in sub-acute care settings as well as in the community. Includes 75 hours of didactic and skills lab instruction. May not be challenged.

NUR-090C Nursing Assistant I Clinical
0 credit, Fall/Winter/Spring/Summer

Prepares the student to perform routine nursing assistant tasks to clients in hospitals, long-term and skilled care facilities, as well as in the community. Includes 75 hours of clinical practicum. May not be challenged.

NUR-096 Certified Nursing Assistant 2-Acute

3 credits, Fall/Winter/Spring/Summer
Prepares the student to perform routine nursing assistant tasks that are needed in the acute care setting. Includes 64 hours of didactic and skills lab instruction. May not be challenged.

NUR-096C Certified Nursing Assistant 2-Acute Clinical

0 credit, Fall/Winter/Spring/Summer
Prepares the student to perform routine nursing assistant tasks to clients in the acute care setting. Includes 24 hours of clinical practicum. May not be challenged.

NUR-160 Fluid and Electrolytes
2 credits, not offered every term

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, not offered every term

Course focuses on developing skills in arrhythmia recognition and interpretation. Overview of cardiac A & P and electrophysiology. 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 term

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.

OST

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

Occupational Skills Training/CWE**OST-180 Occupational Skills Training/CWE**

1-12 credits

Fall/Winter/Spring/Summer

Provides students hands-on training in a specific occupational area. The class and program are designed for students who need work-based training and classroom instruction to be competitively employable.

PE**Physical Education****PE-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-207 Sports Administration and Officiating
2 credit, not offered every year

This course introduces students to the profession of sports officiating. Through lectures, group discussions and sport specific seminars, students will gain an understanding of the qualities necessary to be successful as a sports official.

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 credit, not offered every year

Advanced team skills and strategies courses. Activity groupings offered align with seasonal sports and athletics. Course offerings are; basketball, baseball, softball, volleyball, cross-country, track and field, soccer and wrestling.

PE-294A Philosophy of Coaching
2 credits, Fall/Winter/Spring

This course is designed to enhance the leadership, teaching, and management skills of coaches as they relate to 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****PH-104 Descriptive Astronomy**
4 credits, not offered every year

Survey of astronomy for non-science majors. A lab course discussing the 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

A lab course discussing the history of astronomy, the Earth and moon, all planets in our solar system, along with asteroids, meteors, and comets. 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/Spring

A lab course discussing the properties of our sun and other stars, and stellar evolution. Prerequisite: Pass PH-121 or GS-107.

PH-123 General Astronomy
4 credits, Spring

A lab course discussing star clusters, the properties of our own galaxy, the other galaxies, and cosmology. Prerequisite: Pass PH-122.

PH-201 General Physics
5 credits, Fall

A lab course discussing units and vectors, kinematics, forces, Newton's Laws of Motion, circular motion, work and energy, impulse and momentum, rotational motion. Prerequisite: Pass MTH-112 with a "C" or better or placement in MTH-251; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

PH-202 General Physics
5 credits, Winter

A lab course discussing elasticity and simple harmonic motion, fluid statics and dynamics, heat, 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

A lab course discussing 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

A lab course discussing 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; pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

PH-212 General Physics With Calculus
5 credits, Winter

A lab course discussing 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. Prerequisites: Pass MTH-252 and PH-211.

PH-213 General Physics With Calculus
5 credits, Spring

A lab course discussing electric potential and energy, capacitance, Ohm's Law, DC circuits, magnetic field and forces, EM induction, Maxwell's equations, geometric optics, special relativity, and Planck's constant. Prerequisites: Pass MTH-252 and 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.

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-014 Introduction to Business**English A****3 credits, not offered every term**

This course is Part A of a two-part series of classes designed for non-native speakers of English who are considering employment and/or training in a business field. The course teaches students the basic communication skills frequently required in everyday business interactions both in the U.S. and internationally. Required: Instructor consent.

PIE-015 Introduction to Business**English B****3 credits, not offered every term**

This course is Part B of a two-part series of classes designed for non-native speakers of English who are considering employment and/or training in a business field. The course teaches students the basic communication skills frequently required in everyday business interactions both in the U.S. and internationally. 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 level; listening, speaking, reading, and writing in the contexts of work, family, and community. Required: Instructor consent.

PIE-032 Low Intermediate**Conversation****0 credits, not offered every year**

For low-intermediate level ESL students who want to study 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 study 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. Emphasis will be on developing conversational skills as needed for success in meeting personal, educational, family, and workplace goals. 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-037 Conversation Skill Building**0 credit, not offered every year**

This class is for ESL students who want to 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.

PIE-040 Beginning Grammar**0 credit, Fall/Winter/Spring/Summer**

Presentation and practice simple present tense of the verb "to be," 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**

This class will present and practice verb tenses (present simple, past simple, and present progressive), indefinite articles, and nouns in written and spoken English. Required: Instructor consent.

PIE-042 Intermediate Grammar A
3 credits, not offered every term

This course is Part A of a two-part series of classes designed to present and practice the formation and use of the simple present and present progressive with a focus on non-action verbs and extended time, past simple, past progressive, use to, the future, and wh-questions in written and spoken English. Required: Instructor consent.

PIE-043 Intermediate Grammar B
3 credits, not offered every term

This course is part B of a two-part series of classes designed to present and practice past progressive and present perfect with time expressions and adverbs of frequency, modals of ability, permission and advice, and comparative and superlative adjectives in written and spoken English. Required: Instructor consent.

PIE-044 Upper Intermediate Grammar A
3 credits, not offered every term

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, infinitives, and causative verbs. Required: Instructor consent.

PIE-047 Upper Intermediate Grammar B
3 credits, not offered every term

Part B of a two-part series. Presentation and practice of adjective clauses, phrasal verbs, and passive voice in written and spoken English. Required: Instructor consent.

PIE-048 Editing for Better Writing
6 credits, Fall/Winter/Spring/Summer

In this course, upper-intermediate and higher-level ESL students will improve their writing through editing. They will also engage in extended reading to provide a context for writing. 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 and Writing
0 credit, not offered every term

This course is designed to teach beginning-level students who have limited knowledge of written English. Students will practice alphabet recognition, read and write short sentences, study new vocabulary, 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, not offered every term

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

This course is designed for the intermediate-level ESL student who is ready to begin writing at the paragraph level. The major purpose of the course is to improve the student's 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, not offered every term

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 A
3 credits, not offered every term

For intermediate and higher-level 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 Idioms & Conversation A
3 credits, not offered every term

Part A of a two-part series of classes. Introduces common idioms while practicing conversation skills at the upper-intermediate level. Required: Instructor consent.

PIE-064 Idioms & Conversation B**3 credits, not offered every term**

Part B of a two-part series of classes. Introduces common idioms while practicing conversation skills at the upper intermediate level. Required: Instructor consent.

PIE-065 Pronunciation B**3 credits, not offered every term**

This class is for ESL students at the intermediate-level or higher who want to sound more natural when speaking English. Activities will focus on increasing student awareness of the sounds of American English, improving intelligibility, and producing speech more fluently. Required: Instructor consent.

PIE-067 Video and Conversation**0 credit, not offered every year**

Intensifies intermediate/advanced ESL language skills in listening/speaking. Students view Crossroads Café video series, complete workbook exercises, practice listening for specific information, participate in pair, small group, whole class activities. Required: Instructor consent.

PIE-068 Introduction to Communicating with Customers**0 credit, not offered every year**

This course is designed for upper-intermediate and advanced level non-native speakers of English who desire employment in retail and/or customer service. This course teaches students the basics of customer service. Students practice customer service skills. 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 Skills**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-074 Differentiated Writing**Instruction****0 credits, not offered every term**

This course is designed 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-080 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-082 Spelling**3 credits, not offered every term**

This course will present and provide opportunities to practice English spelling patterns and rules and individualize instruction to address spelling challenges. Required: Instructor consent.

PIE-083 Introduction to Spelling**0 credit, not offered every year**

This course will present and provide opportunities to practice English spelling patterns and rules and individualize instruction to address spelling challenges. 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 Editing A**3 credits, not offered every term**

In this course, upper-intermediate and higher-level ESL students will improve their writing through editing. Required: Instructor consent.

PIE-086 Editing B**3 credits, not offered every term**

In this course, upper-intermediate and higher-level ESL students will improve their writing through editing. 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 U.S. Government: National Political Process****4 credits, Fall/Winter**

Focuses on understanding the U.S. Constitution and the Bill of Rights both legally and politically. Moreover, the class examines the Congress, the Presidency and the federal courts. Recommended: Pass RD-090 or placement in RD-115.

PS-202 U.S. Government: National Government Institutions**4 credits, Winter/Spring**

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 U.S. 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, Spring**

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 the study of international relations by examining the institutions that constitute the international system. Special attention will be paid to the conflicts in the Iraq, Afghanistan, and other theatres of combat, as well as diplomacy and terrorism as instruments of foreign policy. Recommended: 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. Also taught in Spanish. 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 a Natural Science
4 credits, Fall/Winter/Spring/Summer

Introduction to physiological psychology, the study of how the nervous system produces behavior and cognition. Further topics 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

Introduction to 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, not offered every term

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

Introduction to 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, Fall/Winter/Spring

Provides an overview of the theoretical background for different approaches to counseling. Practical skills development emphasized. Role playing, instructor demonstrations and experiential exercises will be explored. Recommended: Pass RD-090 or placement in RD-115.

PSY-231 Introduction to Human Sexuality
4 credits, Fall/Winter/Spring/Summer

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 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/Spring

Examines the dynamics of personality and explores techniques for overcoming self-defeating behaviors. Develops methods for making personal changes. Also taught in Spanish. Recommended: Pass RD-090 or placement in RD-115.

PSY-280 Psychology/CWE
2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of psychology. Required: Instructor consent & a CWE seminar.

R**Religious Studies****R-101 Comparative Religions**
4 credits, Fall

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, Winter

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/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, Fall/Winter

Covers early Christianity, the Apostles, and the development of the New Testament. Examines post-apostolic Christianity, developments through the Middle Ages, Renaissance, Reformation and the Modern Age. Contemporary topics include Christianity in conflict, ethical and social religious issues and the face of contemporary Christianity. Recommended: Pass RD-090 or placement in RD-115.

R-210 World Religions
4 credits, Fall/Winter/Spring

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, Winter/Summer

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, Fall/Spring

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-214 The Historical Jesus
4 credits, Spring

An examination of the 'Quest for the Historical Jesus' beginning with Albert Schweitzer through contemporary scholarship. Required: Successful completion of or current enrollment in RD-115.

R-280 Religion/CWE
2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of religion. Required: Instructor consent & a CWE seminar.

RD**Reading**

See also Study Skills (EL).

RD-080 Fundamentals of College Reading
3 credits, Fall/Winter/Spring

This course focuses on fundamental reading skills for non-fiction text, including identifying main ideas, supporting details and organizational patterns. Vocabulary improvement emphasizes dictionary skills. Core reading comprehension strategies and inferences are introduced. 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 comprehension, critical reading and thinking, and vocabulary. 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

Overview of real property concepts and characteristics, legal consideration, value influences, real estate finance, types of value, economic principles, real estate markets and analysis, and ethics in appraisal.

RE-228 Real Estate Appraisal II
3 credits, Winter

Overview of real estate appraisal approaches to valuation procedures, value, property description, residential applications, commercial applications, improvement construction, home inspection, and appraisal math. Prerequisite: Pass RE-118 or instructor consent.

RE-238 Real Estate Appraisal III
3 credits, Spring

Course offers a basic understanding and knowledge of the residential sales comparison and income approaches to appraisal. It includes the valuation principles and procedures applicable to both approaches. 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.

RE-244 Market Analysis/Highest and Best Use**1 credit, not offered every term**

Identifying and analyzing market forces affecting the buyer's and seller's behavior is a key factor in understanding and reporting values. This course is designed to give students the tools needed to properly collect and analyze market data. Markets, sub-markets, market segmentation, supply side analysis, demand analysis and the importance of market analysis to the appraisal process are covered in the first half of this course. The second half focuses on the theory of Highest and Best Use. The two-step analysis along with the four tests for Highest and Best Use are covered in detail.

RE-245 Residential Site Valuation and Cost Approach**1 credit, not offered every term**

This course will help students gain valuable insight and a working knowledge of the various theories and methodologies for arriving at residential site values and applying the Cost Approach in everyday appraisal work. The advantages and disadvantages of using the Cost Approach in residential appraising will be examined. The distinction between Replacement Cost new and Reproduction Cost New will be discussed, along with an in-depth look at several methods for estimating accrued depreciation.

RE-246 Residential Report Writing**1 credit, not offered every term**

This appraisal course introduces theories, techniques, and procedures to help understand the process and how to use various residential forms and reports for appraisal. The course will provide practical application of real estate appraisal report writing procedures through theory and hands-on examples of appraisal processes.

RET

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

Renewable Energy Technology

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

RET-200 Renewable Energy Systems**4 credits, Fall**

This course provides a survey of various renewable energy systems. Participants will learn about the benefits and limitations of each type of energy source as well as their functional principles. Students will participate in several field learning exercises related to energy systems. The intended audiences are technical students wishing to explore the Renewable Energy field and students from the humanities and social sciences wanting a better understanding of this socially important technology.

RET-209 Renewable Energy I: System Fundamentals**3 credits, Winter**

This introductory course in renewable systems will provide in-depth understanding of the technology, economics and policies relevant to each type of energy source. Analysis techniques to evaluate renewable energy applications from a systems design and selection perspective will be presented. Topics include physical operating principles, theoretical vs. actual system output, energy storage, efficiency and cost analysis. Includes hands-on lab exercises. Prerequisite: RET-200.

RET-211 Renewable Energy II: Energy Efficiency**3 credits, Spring**

This second course in the series will concentrate on the conservation of scarce energy resources in residential, commercial and industrial applications. The course will examine the common sources of energy loss in building systems and homes, industrial processes and transportation. Students will be introduced to residential energy audits and mitigation. Topics will also include regenerative transportation systems, LEED certification, test instruments, insulation values, heat exchangers and financial payback period. Includes hands-on lab exercises. Prerequisite: RET-209.

RET-213 Renewable Energy Systems III: Installation and Maintenance**3 credits, Fall**

The third in a series of technical courses, RET III: Installation and Maintenance will provide an introduction to installation and maintenance of renewable energy systems for commercial and residential installations. Students will apply their knowledge of electro-mechanical systems to the application of these systems. Topics covered will include site survey, site preparation, building codes, measurement tools, preventative maintenance and worksite safety. Includes hands-on lab exercises. Prerequisite: RET-211.

RET-215 Renewable Energy IV: Systems Design**3 credits, Winter**

This fourth course in the series will concentrate on systems design for renewable energy applications. Students will work together and apply concepts to evaluate, design and select one or more renewable energy systems for solar, wind or micro-hydro installations. Topics will include site surveys, structural elements, electrical generators, energy storage and electrical inversion. Prerequisite: RET-213.

RET-217 Renewable Energy Capstone Project
3 credits, Spring

This final class in the Renewable Energy series will concentrate on a capstone project. Students will evaluate a proposal for an alternative energy solution and then design an installation to meet the needs of the proposal. Students will be expected to perform a site survey, quantify energy requirements, select appropriate technologies, calculate the payback period and finally fabricate an actual or conceptual energy solution where appropriate. Prerequisite: RET-215.

RET-240 Alternative Fuel Systems
4 credits, not offered every term

Offers students familiarity and entry levels to work with alternative fuel systems. Explores (technically, economically and ecologically) the following alternative fuels: bio-diesel, vegetable oils, electricity, ethanol, hydrogen, propane, methanol, natural gas, heat engines, fuel cell and hybrid vehicles.

RET-280 Renewable Energy/CWE
1-12 credits
Fall/Winter/Spring/Summer

Cooperative work experience. Major emphasis on work-based learning experience in the renewable energy field. Coordination of instruction and evaluation of student job performance will be provided by college faculty in conjunction with employer/supervisor. Required: Instructor consent and a CWE seminar.

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, Fall

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, Winter

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, Spring

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 Small Business Greenhouse
0 credits, Fall/Spring

Two-term intensive training program designed to assist entrepreneurs in planning their business startups, and to develop existing businesses to make them more profitable and to create jobs. Students do extensive individual work on developing business plans with counseling from instructor. (This is a two-term course, beginning fall term and spring term.)

SBM-021 Small Business Management I
0 credit, Fall

First year of a three-year program to help owners and managers of established businesses manage more effectively and achieve success. Monthly class meetings plus individual business counseling. Class topics emphasize financial analysis, goals, and communication.

SBM-022 Small Business Management II
0 credits, Fall

Second year of a three-year program for owners and managers of established businesses. Monthly class meetings plus individual business counseling. Class topics emphasize marketing concepts and strategy.

SBM-023 Small Business Management III
0 credits, Fall

Third year of a three-year program for owners and managers of established businesses. Monthly class meetings plus individual business counseling. Class topics emphasize integrating strategies and business growth.

SM

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

Microelectronics Systems Technology

Courses listed with the SM prefix and courses listed in the Electronics Systems Technology section with the EET prefix are the main core classes for the Microelectronics Systems Technology program. For additional information contact the Manufacturing Department at 503-594-3318.

SM-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 and a CWE seminar.

SOC

Sociology

SOC-204 Introduction to Sociology 4 credits, Fall/Winter/Spring

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 Systems

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-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-280 Sociology/CWE

2-6 credits, Fall/Winter/Spring

Cooperative work experience. Provides students with on-the-job work experience in the field of sociology. 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 and appreciation of listening as a vital element in the 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, not offered every term

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 the Sexes

4 credits, Fall/Winter

Examines ways women and men are different and similar in their communication behaviors. Traditions, myths, social roles and current issues are discussed. Recommended: 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 year

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 year

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 year

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 SP-111; and pass WR-121.

SP-212 Mass Media & Society

4 credits, not offered every term

Introductory class provides an understanding of the development and operations of media. Includes discussions of newspapers, magazines, electronic media and advertising, and public relations. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SP-218 Interpersonal Communication

4 credits, Winter/Spring

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. 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, not offered every year

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, not offered every year

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-150.

SP-223 Speech & Debate: Forensics
1 credit, not offered every year

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-167.

SP-224 Speech & Debate: Forensics
1 credit, not offered every year

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-229.

SP-225 Speech & Debate: Forensics
1 credit, not offered every year

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-250.

SP-226 Speech & Debate: Forensics
1 credit, not offered every year

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 and 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 year

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 year

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 year

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. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SPN-102 First-Year Spanish
4 credits, Winter/Spring/Summer

Second of a three-term foundational, multimedia course for beginners. Initial emphasis is on speaking and listening comprehension, with secondary emphasis on reading and writing. Various cultural themes are presented. SPN-101/102/103 must be taken in sequence. 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. 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 healthcare 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 the second year of 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 the second year of 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 the second year of 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. 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-160 Faith & Reason****5 credits, Winter/Spring/Summer**

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-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-180 Pathway to Sustainability**5 credits, Fall**

Can we create a more sustainable and just world? We will question our assumptions regarding economic models, democracy, our relationships with the environment, 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, Winter**

Can we create a more sustainable and just world? How do socially meaningful changes come about? What are the ecological and social repercussions of the choices we make? Are ecological and social justice concerns linked? Recommended: Pass RD-090 or placement in RD-115.

SSC-182 Pathway to Sustainability**5 credits, Spring**

Can we create a more sustainable and just world? What can our personal roles in change be? How can we stimulate local sustainable economies? What analysis is useful in assessing ecological impacts? Recommended: Pass RD-090 or placement in RD-115.

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-230 Gender & Material Culture
4 credits, not offered every year

Provides an in-depth study of social and cultural significance of material culture as it applies to gender, within a historical context. Focus 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 year

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.

SSC-235 Perspectives on Terrorism
4 credits, not offered every term

Examines multiple perspectives of terrorism and investigates their assumptions and beliefs. Perspectives will include historical and psychological approaches as well as those of other academic disciplines. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

SSC-240 American Military Conflict: Total War
4 credits, not offered every term

Provides students with the fundamental knowledge of the politics and geography of United States military operations when conducting "Total War" as applied in conflicts from The Civil War through WWII. Recommended: Pass RD-090 or placement in RD-115.

SSC-241 The American Military Conflict: The Cold War
4 credits, not offered every term

Provides students with the fundamental knowledge of the politics and geography of United States military operations when conducting "The Cold War" as applied in conflicts in Korea, Vietnam and the planned defense of Western Europe. Recommended: Pass RD-090 or placement in RD-115.

SSC-242 The American Military Conflict: The War on Terror
4 credits, not offered every term

Provides students with the fundamental knowledge of the politics and geography of United States military operations when conducting "The War on Terror" as applied in conflicts in Libya, Iraq, Afghanistan, and various other parts of the world. Recommended: Pass RD-090 or placement in RD-115.

TA**Theatre Arts****TA-101 Appreciation of Theatre Arts**
4 credits, not offered every term

Develop personal understanding of theatre by attending productions. Plays are reviewed and evaluated in written form and in group discussions. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

TA-102 Appreciation of Theatre Arts
4 credits, not offered every term

Develop personal understanding of theatre by attending productions. Plays are reviewed and evaluated in written form and in group discussions. Recommended: Pass RD-090 or placement in RE-115; pass WR-095 or placement in WR-121.

TA-103 Appreciation of Theatre Arts
4 credits, not offered every term

Develop personal understanding of theatre by attending productions. Plays are reviewed and evaluated in written form and in group discussions. Recommended: Pass RD-090 or placement in RD-115; 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 and successful audition.

TA-195 Student Performance Showcase

1-3 credits, Fall/Winter/Spring

Training in special forms of theatrical presentation through in-class intensive preparation, study, and program development for public presentation including comedy improv, stand-up comedy, and student directed one-act plays. Required: Instructor consent and successful audition.

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, TA-112 and 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, TA-112 and 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, TA-112 and 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, TA-142 and 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 theatre. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121. Prerequisites: Pass TA-141, TA-142 and 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, TA-142 and 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 and successful audition.

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 Student Performance Showcase

1-3 credits, Fall/Winter/Spring

Training in special forms of theatrical presentation through in-class intensive preparation, study, and program development for public presentation including comedy improv, stand-up comedy, and student directed one-act plays. Required: Instructor consent and successful audition.

TTL

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

Transportation & Logistics

TTL-101 Introduction to Transportation & Logistics

4 credits, Fall/Winter/Spring/Summer
Introduction to logistics and commercial vehicle operation, covering control systems, coupling procedures, cargo handling and pre-trip inspections. Covers regulations and requirements for CDL, speed management, road conditions, and accident scene management.

TTL-121 Practical Applications in Transportation & Logistics

6 credits, Fall/Winter/Spring/Summer
Demonstration of skill development related to safe commercial vehicle operation. In-depth coverage of logistics, business processes and communication skills development. Covers delivery vehicle basics, including backing, visual search, shifting, turning, space and speed management.

TTL-124 Fundamentals of Material Handling and Logistics

4 credits, not offered every term
Fundamental concepts of materials handling tools, equipment, techniques and logistics. Emphasis on efficiency of movement and storage, and importance of control and protection. Includes a facility tour and viewing web resources. Recommended: Placement in RD-090.

TTL-141 Transportation Customer Service Skills

3 credits, Fall/Winter/Spring/Summer
Focuses on building necessary skills for outstanding customer service, including effective listening, conflict resolution, and communication. Identify internal and external customers, learn how to handle potentially unproductive interactions, and create positive experiences for all customers.

TTL-180 Transportation & Logistics/CWE

6 credits, Fall/Winter/Spring/Summer
Work-based learning experience in the Transportation & Logistics field. Supervision and evaluation of the student's job performance will be provided by qualified staff of the College and employer.

TTL-180b Logistics Internship

**1-12 credits
Fall/Winter/Spring/Summer**
The internship is an opportunity to develop entry level skills in the logistics industry, and via a seminar, practice the basic career management skills necessary to obtain, sustain, and advance employment.

WLD

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

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 503-594-3203.

WLD-100 Welders' Print Reading I

3 credits, Fall/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 Blacksmithing and 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-104 Introduction to CNC Plasma Cutting

2 credits, not offered every term
Introduces the student to the basics of CNC plasma cutting. Learn operation and set-up procedures as well as geometry creation and programming.

WLD-110 Welder Certification

1-4 credits, Fall/Winter/Spring
Provides theory and practical instruction in welder certification. Choose FCAW, SMAW, or GTAW for certification.

WLD-111 Shielded Metal Arc Welding (STICK)

8 credits, not offered every term
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-111A Shielded Metal Arc Welding (STICK)

4 credits, not offered every term
Part one of a two-part course which provides opportunity to acquire knowledge and skills to perform fillet and groove welds in all positions with the SMAW process.

WLD-111B Shielded Metal Arc Welding (STICK)

4 credits, not offered every term
This course is a continuation of WLD-111A with additional opportunity to perform various welds and positions with the SMAW process. Prerequisite: WLD-111A.

WLD-112 Intro to SMAW Pre-Pipe Welding

2 credits, Fall, Winter, Spring
Provides beginning theory and practical instruction in SMAW as it relates to pipe welding. Stringer, fillet, root groove welds, and oxy-fuel cutting will be covered.

WLD-113 GMAW/FCAW (Wirefeed)
8 credits, not offered every term

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-113A GMAW/FCAW (Wirefeed)
4 credits, not offered every term

Part one of a two-part course, this section provides opportunity to acquire knowledge and skills to perform fillet and groove welds in all positions with GMAW and FCAW processes.

WLD-113B GMAW/FCAW (Wirefeed)
4 credits, not offered every term

This course is a continuation of WLD-113A with additional opportunity to perform various welds and positions with the GMAW and FCAW processes. Prerequisite: WLD-113A.

WLD-115 Gas Tungsten Arc Welding (GTAW)
8 credits, not offered every term

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-115A Gas Tungsten Arc Welding (GTAW)
4 credits, not offered every term

Part one of two-part course that provides opportunity for students to acquire knowledge and skills to perform fillet welds on steel, stainless steel and aluminum with the GTAW process.

WLD-115B Gas Tungsten Arc Welding (GTAW)
4 credits, not offered every term

This course is a continuation of WLD-115A with additional opportunity to perform various welds and positions with the GTAW process on steel, stainless, and aluminum. Prerequisite: WLD-115A.

WLD-150 Welding Processes

4 credits, Fall/Winter/Spring/Summer
Covers oxy-acetylene welding, brazing, cutting, stick welding, wire feed, oxy-fuel and plasma cutting. Includes: safety, electrical fundamentals, routine maintenance, minor 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, not offered every term
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 Welding

2 credits, Fall/Winter/Spring
This course provides 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, not offered every term
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, not offered every term
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, not offered every term
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. Recommended: Previous welding experience.

WLD-251 Welding Fabrication II Intermediate Project

4 credits, not offered every term
Students will be assigned an intermediate fabrication project based on skills learned in WLD-250. Prerequisite: WLD-250.

WLD-252 Welding Fabrication III Advanced Project

4 credits, not offered every term
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. Prerequisite: WLD-251.

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. May be repeated for credit. Required: prior welding experience.

WLD-280 Welding Technology/CWE
1-6 credits

Fall/Winter/Spring/Summer

Cooperative work experience. Work-based learning experience in the welding trades. Coordination of instruction will occur with industry and the welding and cooperative work departments. Required: Instructor consent and 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 career 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-082A.

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. Prerequisite: Pass MTH-065 or placement in MTH-080. Corequisite: MTH-082B.

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-082C.

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. Prerequisite: Pass WQT-111. Corequisite: MTH-082D.

**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, degasification, and microfiltration. Prerequisite: Pass CH-104. Corequisite: MTH-082E.

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

A lab course providing 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, not offered every year

A lab course focusing on the operation of equipment and unit processes in the production of high purity water. Emphasis on process equipment sizing and design, process control and troubleshooting. Prerequisite: 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-199 Hydraulics of Centrifugal Pumps

1 credit, Summer

Basic pump hydraulics, maintenance, troubleshooting and software training. Pumping systems and its mechanical components will be discussed. Hydraulic laws of pump flow, affinity, and NPSH will be demonstrated. This class is a combination of lecture and lab demonstrations.

WQT-241 Aquatic Microbiology
4 credits, Fall

A lab course with topics in applied microbiology. Methods to detect coliform group in water and wastewater, identification of filamentous bacteria in activated sludge, and identification of indicator protozoa in activated sludge. A bacteriological stream survey project is included. 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

A lab course introducing methods used to monitor and control treatment processes in wastewater, water and high purity water facilities. Advanced water analysis to include typical monitoring of 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

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

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-090 or placement in WR-095.

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
4 credits, Fall/Winter/Spring/Summer

Reviews and expands the academic essay; teaches students to analyze and develop a topic, write grammatically correct and organized essays, read professional writing, and apply writing techniques to a range of academic essay styles. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-095 or placement in WR-121.

WR-122 English Composition
4 credits, Fall/Winter/Spring/Summer

Introduces the major principles of argumentation and persuasion in reading and writing. Students will write a variety of persuasive essays and learn how to research, analyze, and document sources. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-121 with a "C" or better.

WR-123 English Composition
3 credits, Fall/Winter/Spring/Summer

The research paper. Further focus on correctness and style. Introduces a variety of research techniques and develops the organizational skills necessary to complete the kind of longer research paper required at the university level. Recommended: Pass RD-090 or placement in RD-115. Prerequisites: Pass WR-121 and WR-122.

WR-127 Scholarship Essay Writing
1 credit, Fall/Winter

Introduces scholarship resources and the application process. Examines and applies the concept of “telling the story of me,” and drafting, revising, and editing a complete scholarship application essay.

WR-140 Introduction to Writing Creatively
4 credits, Fall/Winter/Spring

Guides students through the discussion and practice of writing creatively in many genres, primarily poetry, fiction, drama, and creative nonfiction in a workshop format. May also include screenwriting, film, and performance genres. Recommended: Pass RD-090 or placement in RD-115; pass WR-095 or placement in WR-121.

WR-146 Publishing Chapbooks
1 credit, not offered every term

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-222 English Composition
4 credits, Fall/Winter/Spring

Prepares students to write university-level research papers and pursue lifelong learning; introduces peer-reviewed academic publications. Topics include understanding scholarly writing, conducting original research, writing a research paper, working in teams and presenting. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-121 & pass WR-122.

WR-227 Technical Report Writing
4 credits, Fall/Winter/Spring/Summer

Introduction to report and proposal writing, stressing organization, form and style. Emphasis on materials gathered from professional fields such as medicine, dentistry, government, criminal justice, business, engineering, technology, science and public relations. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-121 with a “C” or better.

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/Winter/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, Winter/Spring

For students with an interest in creative writing and/or literary journal design, layout, and publication who wish to develop editing and publishing skills. Includes the production of a literary journal. Recommended: 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, Fall/Spring

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-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 & Production
4 credits, not offered every year

Exploration of the process of translating a written work into an image-based medium. Recommended: Pass RD-090 or placement in RD-115. Prerequisite: Pass WR-090 or placement in WR-121 or instructor consent.

WR-265 Advanced Screenwriting & Production

4 credits, not offered every year

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 or instructor consent.

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, healthcare, 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.

Academic Regulations



*We believe
students must
take an active
role in their own
learning.*



Adding & Dropping Classes

- To officially add or drop a course you must file a request with the Registrar's Office via myClackamas, 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. There is a late registration fee for adding courses after they have begun. See the current *Schedule of Classes* for more information.
- 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 sixth 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 Financial Aid 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 will 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 Financial Aid Office for more information, 503-594-6082.*

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 myClackamas, 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.

Note: If you are put into a class from the wait list, you will be notified through your CCC email account.

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 Student Success 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 19 credits per term without approval from an advisor.

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 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 Student Success 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 Student Success 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 Student Success Department, 503-594-3475.

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 sixth 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 vary 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 sixth week of the term. Please note that this grade option may mean the course is no longer transferable to a four-year institution and may not count toward a degree or certificate.

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.

Academic Standing

All degree/certificate seeking students enrolling in six credits or more each term will be required to maintain a minimum term GPA of 2.0 and complete at least 50% of their attempted credits. (Credits attempted does not include credit hours dropped prior to the sixth week of the term or credit hours changed to audit.)

Students will be evaluated for academic standing by the Registrar's Office at the end of each term. Notification will be sent to students who have not met satisfactory academic standing as follows:

- The first term that a student does not meet academic standing requirements will result in an *Academic Alert* status. Students in this status will be provided with and encouraged to take advantage of academic support resources to assist them with areas of concern.
- If there is a second consecutive term that a student does not meet one or more of the academic standing requirements, he/she will be placed in an *Academic Probation* status. Students in this status will be required to meet with an academic advisor during the academic probation term in order to determine a course of action and the resources needed to support the student's success. Students who do not meet with an academic advisor will be restricted from enrolling in a subsequent term.
- If there is a third consecutive term that a student does not meet one or more of the academic standing requirements, he/she will be placed in an *Academic Suspension* status. Students in this status will be required to meet with an academic advisor and will be restricted from enrolling at CCC until intervention strategies have been accomplished. Student appeals will be considered quarterly by the Academic Standing Committee, for academic suspension status only.

Students receiving Financial Aid or that are enrolled in programs with additional academic performance requirements (e.g., Nursing, Allied Health, International/PIE) will be subject to higher academic standing criteria.

Transcripts

Official transcripts of your coursework at CCC may be ordered online, in person, by written request or fax through the Registrar's Office. Official transcripts are \$10.00 each; unofficial transcripts are available by going to the Web at <http://my.clackamas.edu>

For more information call the Transcript Request Line, 503-594-6102.

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, Student Success Center, Registrar's Office, or by going to the Web at www.clackamas.edu

Students will be evaluated for degree and/or certificate requirements under the current catalog year unless a request for a prior catalog year is indicated on the student's petition for graduation. A catalog year is based on Clackamas Community College's academic year.

Students may request to be evaluated for degree and/or certificate requirements from a prior year catalog provided all of the following conditions have been met.

- The students must petition for graduation within one calendar year from the date they completed requirements for the degree and/or certificate; and
- The prior catalog cannot be more than five years old, e.g. in 2010-11 the oldest catalog that can be used is the 2005-06 catalog; and
- For the catalog selected the students must have earned at least one credit in that calendar year.

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 course work 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.

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 Academic Foundations and Connections 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 Restrict Directory Information 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.

Student Right to Know and Other Notification Requirements

Clackamas Community College information regarding academic programs, student completion/graduation rates, financial assistance, athletics, institutional financial support, privacy rights (FERPA), campus security, crime statistics and other Student Right to Know items as listed in 34 CFR Part 668 may be obtained by going to www.clackamas.edu. Printed copies of this information may also be obtained by contacting the Registrar's Office at 503-594-3370 or registrar@clackamas.edu

Campus Security Report – Jeanne Clery Act

The "Jeanne Clery Disclosure for Campus Security Policy and Campus Crime Statistics Act" (formerly the Campus Security Act) is a federal law that requires institutions of higher education to disclose campus security information, including crime statistics for the campus and surrounding area. As a current or prospective CCC student or employee, you have a right to obtain a copy of this information. You may review this information by accessing the federal government web site (enter "Clackamas Community College" in the search field) or in the CCC student handbook. You may also obtain a hard copy of this information upon request by contacting the CCC Department of Public Safety at 503-594-6234.



Student, Community & Business Resources



*We believe
that academic
freedom and the
free exchange of
ideas are essential
elements of the
college.*



Student, Community & Business Resources

Student Resources

Academic Advising

Student Success Department

CCC OREGON CITY CAMPUS, COMMUNITY CENTER

503-594-3475

<http://depts.clackamas.edu/advising>

CCC HARMONY CAMPUS, HARMONY BUILDING, H125 & H126

503-594-0625

CCC WILSONVILLE CAMPUS

503-594-0944

Academic advisors are available on a drop-in and appointment 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 and career planning, and transfer information.

Throughout the year academic advisors present advising sessions for new students, pre-nursing students, and others. Please visit the website for more information, including hours, transfer information, and a multitude of other resources.

Associated Student Government

CCC OREGON CITY CAMPUS, COMMUNITY CENTER, CC152

503-594-3040

<http://depts.clackamas.edu/asg/>

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.

Intramurals

503-594-3931

Clackamas offers opportunities for students to participate in a variety of intramural sports activities, including fun runs, softball, basketball, flag football, Badminton, dodge ball, ultimate Frisbee, and soccer, (not all activities are offered each year).

Athletics

CCC OREGON CITY CAMPUS, RANDALL HALL

503-594-3043

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.

Bookstore

CCC OREGON CITY CAMPUS, MCLOUGHLIN HALL

503-594-6500

CCC HARMONY CAMPUS, HARMONY BUILDING

503-594-0647

The Bookstore is the place to shop for almost everything a student needs for college. Items in stock include new and used textbooks, e-books, study aids, calculators, flash drives, art, drafting and office supplies, sundries, stamps, school supplies, greeting cards, general books, CCC clothing, snacks, candy, cold drinks and ice cream. Tri-Met bus passes and tickets are available at the Oregon City store only. The Harmony store also stocks items needed for the Nursing and Allied Health programs including scrubs, lab coats, name tags and stethoscopes. The Bookstore offers a special order service for many items not normally stocked.

Textbooks are available for shipment or reservation online at www.cccbooks.com

Students may sell their unwanted new and used books for cash at the Bookstore. Books may be worth up to 50% of the original price. Receipts are not needed for textbook buyback. While textbook buyback is open most of the year, students are encouraged to sell their books at term ending when prices are usually better.

Hours are posted in the *Schedule of Classes*, as well as the website www.cccbooks.com

Both stores are open extended hours the first week of fall, winter and spring terms.

Campus Tours

CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-594-6240

CCC tours are provided for prospective students and community members to view campus life. Drop-in tours are available, please see the CCC tour webpage for specific tour times. Call to schedule an individual or group tour, or email ambtour@clackamas.edu

Career Information

Student Success Department

CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-594-3475

<http://depts.clackamas.edu/advising>

CCC HARMONY CAMPUS
503-594-0623

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
- Career and job search classes
- Career counseling
- Many of these resources are available online

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
503-594-3933

<http://depts.clackamas.edu/clubs/>

Some of the clubs active on campus include Landscape, NW Collegiate Ministries, Chrysalis, Computer, Deutschen Veren (German), Fellowship of Christian Athletes, Spectrum/Gay/Straight Alliance, Horticulture, International, Lacrosse, Latter Day Saints Student Association (LDSSA), Pacific Northwest Clean Water Association Students, Phi Theta Kappa, Spanish, Speech and Debate, Veteran's, Welding, and Writers. New interest groups are free to organize under the student constitution and the regulations of the college.

College Counselors

Student Success Department

CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-594-3475

CCC HARMONY CAMPUS
503-594-0623, 503-594-0625

College counselors are available by appointment and can help with a wide array of personal, academic, retention and other student 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. Crisis counseling is available Monday–Friday.

Computer Labs

CCC OREGON CITY CAMPUS
503-594-6310

CCC HARMONY CAMPUS
503-594-0620

The college has computers available for student use, with lab assistance, in several major lab areas. Streeter Hall, the OIT library are the only general access labs 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.

Streeter Hall Academic Computing Lab

CCC OREGON CITY CAMPUS, STREETER HALL
503-594-6310

Computers in the Streeter Lab are available to any Clackamas student upon presentation of a current CCC student ID card with a current term sticker. 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, presentation, database, and spreadsheet programs and lab tutors. Computers in the Streeter Lab have Internet access.

Lab hours posted at <http://cs.clackamas.edu/cs/streeter/hours.php>

Business Computer Lab

CCC OREGON CITY CAMPUS, MCGLOUGHLIN HALL, M133
503-594-6621

The Business Department computer lab offers a significant advantage to business students. A separate conference facility is available for group projects. This facility includes computers and work tables. Instructor assistants are available to help students.

The lab is open Monday through Thursday. Hours are posted at <http://depts.clackamas.edu/business/labhours.htm> and in McLoughlin Hall outside room M133. The lab is closed weekends, summer and when the college is closed. Students traveling a distance may want to call ahead to confirm lab availability.

Music Technology and Audio Recording Labs

NIEMEYER CENTER, N216
503-594-3337

The Music Technology Labs and Audio Recording Studio enable students to compose, record, print and produce music. The facilities are available to CCC students enrolled in music classes which use related Music Technology hardware and software. The CCC Music Technology Labs house 25 state-of-the-art music computer work stations.

Software includes Finale, ProTools, Reason, Ableton Live, Digital Performer, Flash, Final Cut Pro, Practica Musica, and Band in a Box.

Disability Resource Center

Student Success Department
CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-594-6357

<http://depts.clackamas.edu/advising>

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 hard of hearing, note taking options, proctored testing, electronic text, 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 coordinator
- 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 coordinator

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 student with a disability who feels that they have been discriminated against or harassed due to their disability should contact the Disability Resource Center Coordinator.

Enrollment Services Center

CCC OREGON CITY CAMPUS, ROGER ROOK HALL
503-594-3432

CCC HARMONY CAMPUS, HARMONY BUILDING
503-594-0620

CCC WILSONVILLE CAMPUS
503-594-0940

The Enrollment Services Center provides information and assistance with admissions, registration, transcript requests, education charges, student ID cards, payment and general financial aid.

Financial Aid

CCC OREGON CITY CAMPUS, ROGER ROOK HALL
503-594-6082

Financial Aid services provide students with information, applications and required forms 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.

Scholarships

503-594-3421

Financial aid advisors help students with information regarding scholarships and provides assistance throughout the application process. General financial aid and scholarship advising sessions are offered on a weekly basis.

Veterans Education Benefits

503-594-3422

The Veterans Benefits Specialist provides assistance to veterans, spouses and children eligible for veterans educational benefits. See page 9 for details about educational benefits.

Work Study

503-594-3428

The Work Study program is a federal financial aid program providing temporary employment. The program is based on financial need and available to eligible students who apply early and are enrolled in at least six credits of course work in a degree or certificate program. Applicants should use the Free Application for Federal Student Aid (FAFSA) to apply for financial aid.

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

503-594-3040 or 503-594-3041

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. 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, CC152.

Information Technology Services

CCC OREGON CITY CAMPUS, BARLOW HALL, B104
503-594-3500

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 Area

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
503-594-6041

The library has a collection of over 52,000 books and compact disks and offers electronic access to the complete text of more than 4,500 journals, 1700 newspapers, and over 8,000 e-books. With a student ID number, all databases may be accessed from home through the library's web page, library.clackamas.edu. Librarians assist students in the use of library and Internet resources and provide formal library instruction in LIB-101. Electronic reference assistance, interlibrary loan, and reserve materials are also available. Quiet study space is available throughout the library and group study rooms can be reserved for group projects. The library is available for use by student, faculty, staff and the general public.

Music

CCC OREGON CITY CAMPUS, NIEMEYER CENTER
503-594-3337

The Music Department sponsors a number of vocal and instrumental performing groups which are open to students and to the community. Groups include Concert Band, Jazz Ensemble, Chamber Singers, Vocal Jazz Ensemble, Chamber Ensemble, Orchestra, Jazz Combo/Improvisation and Pep Band (pop/blues/rock/R&B). Some ensembles require an audition. Scholarship funds and work-study positions may be available for students who participate in music groups or activities (need not be a music major).

The Music Department offers group instruction on guitar, voice, and piano. In addition, individual (private) lessons are available for almost all instruments.

Music Technology Labs and Audio Recording Studios enable students to compose, record, print and produce music. Software includes Finale, ProTools, Reason, Ableton Live, Digital Performer, Flash, Final Cut Pro, 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
503-594-3041

The Service Learning program provides volunteer/community service opportunities for CCC students. Service Learning is a 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
503-594-3155

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, CC152
503-594-3040

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, intramurals, health and wellness events, and other programs of interest to students. The office is also the location for calculator and locker rentals, as well as the campus Lost & Found.

Student Ambassadors

CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-594-6051

Student Ambassadors are part of the student leadership team and 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 Accounts

503-594-6068

Student Accounts services provide students with information regarding amounts owed to the college and education regarding college policy for the payment of tuition/fees. For more information regarding payment and refund of tuition and other charges, see pages 11-12.

Student Publications

CCC OREGON CITY CAMPUS, ROGER ROOK HALL, RR135
503-594-3261 or 503-594-3264

The Clackamas Print is an award-winning student-run newspaper published weekly during the school year.

Clackamas News Online trains students in broadcast journalism. *Clackamas Literary Review* is a nationally distributed literary magazine designed and edited by students that publishes poetry, fiction, and essays, and offers a student writing contest. Together, these student-run media provide the opportunity to gain practical experience in writing, broadcast journalism, publishing, photography, multimedia reporting, illustration, layout, desktop publishing and graphic design. Tuition waivers are available to student editors. For more information contact Rita Shaw at ritas@clackamas.edu or 503-594-3254.

Testing/Assessment

CCC OREGON CITY CAMPUS, ROGER ROOK HALL, RR136
503-594-3283

<http://depts.clackamas.edu/testing>

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
503-594-0636

- Placement assessment
- Make-up exams (by instructor arrangement)
- Computer Science Placement
- Computer Competency Exam
- Distance Learning proctored testing

CCC WILSONVILLE CAMPUS

503-594-0944

- Placement assessment
- Distance Learning proctored testing
- Make-up exams (by instructor arrangement)
- Computer Competency Exam
- State of Oregon Tax Board Exams

Tutorial Services

Student Success Department
CCC OREGON CITY CAMPUS, COMMUNITY CENTER
503-594-6357

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
503-594-3942

Tutors are available in the Streeter Hall lab for basic computer skills including Microsoft Office.

At least one of the following is available for every level of math skill: math tutors, computers with course-related software and/or video tapes.

Veterans Center

CCC OREGON CITY CAMPUS, DEJARDIN HALL
503-594-3442

The Veteran Education and Training Center is a service of Clackamas Community College dedicated in gratitude to providing hospitality, advocacy, and the highest quality of service to all Veterans. The VET Center's staff goal is to support every Veteran's transition from warrior to student to graduate and finally to working professional. Staffed by Veterans for Veterans, the VET Center will ensure every individual Veteran's unique needs are met. Clackamas Community College recognizes and honors the Military Veterans of our community and their families. Please allow us the honor and privilege of serving you!

Weight Room

CCC OREGON CITY CAMPUS, RANDALL HALL
503-594-3043

The CCC weight room facilities are open to students and staff 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.

Writing Center

CCC OREGON CITY CAMPUS, MCMOUGHAN HALL, M112
503-594-6275, or writing@clackamas.edu
<http://depts.clackamas.edu/writingcenter>

The Writing Center offers students one-to-one feedback on any writing assignment, for any class or project. Online tutoring may be available. 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
503-594-3034

<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
503-594-3034

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

503-594-3111

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.

Music

CCC OREGON CITY CAMPUS, NIEMEYER CENTER
503-594-3337

The Music Department stages many popular events each year including Christmas by Candle Light, Instrumental and Vocal Jazz Festivals, the Invitational Concert Band Festival, evening classical and jazz concerts, and the Hakanson Piano Recital. The department offers lecture courses that encompass the history, theory, and practice of music. In addition, the department offers group and individual lessons on most instruments, has a full slate of performing groups (open to students and community members), a working recording studio, and two music technology labs. Students in need of financial assistance may qualify for tuition waivers, scholarship awards, or work-study.

Theatre

CCC OREGON CITY CAMPUS, NIEMEYER CENTER
503-594-3157

www.theatreccc.org

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.

Clackamas Repertory Theatre

CCC OREGON CITY CAMPUS, NIEMEYER CENTER

503-594-6047

www.clackamasrep.org

Founded in 2005 as an extension of the CCC Theatre Department, Clackamas Repertory Theatre is a professional theatre company which produces a three-play season July through October. CRT features current and former CCC Theatre Department students both on stage and behind the scenes, as well as professional Portland area actors and directors. For information on our current season see our web site at www.clackamasrep.org

CCC Foundation

CCC OREGON CITY CAMPUS, BARLOW HALL, B233

503-594-3131

depts.clackamas.edu/foundation/

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

503-594-0627

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.

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	503-266-0040
Estacada Community School	503-630-6871, ext. 2860
Gladstone Community School	503-650-2570
N. Clackamas Community Ed./Milwaukie	503-794-8001
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 503-594-0627.

Community Gardens

CCC OREGON CITY CAMPUS

503-594-3040

The Community Gardens at Clackamas Community College provides an economical, convenient spot for the public to grow their own vegetables and flowers. Each plot is \$40 per year. For information on the Community Gardens, contact Student Activities at 503-594-3040. You can also e-mail: communitygarden@clackamas.edu

Community Recreation/Facilities

CCC OREGON CITY CAMPUS, RANDALL HALL
503-594-3034

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 weekdays 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
503-594-0629

The Driver Education program offers 33 hours of classroom instruction and 12 hours of in-car instruction/observation in a dual controlled vehicle by professionally trained, ODOT approved instructors. 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
503-594-3233
CCC HARMONY CAMPUS, H170
503-594-0638

Clackamas Community College offers English as a Second Language (ESL) for residents of the community, and the Program for Intensive English (PIE) for international students and international visitors. Both credit and noncredit classes are offered.

Facility Use

CCC OREGON CITY CAMPUS, GREGORY FORUM
503-594-3308 or facilityresv@clackamas.edu
CCC HARMONY CAMPUS, HARMONY BUILDING, H102
503-594-0620
CCC WILSONVILLE CAMPUS
503-594-0940 or wildesk@clackamas.edu

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.

John Inskeep Environmental Learning Center

CCC OREGON CITY CAMPUS
503-594-3696

<http://depts.clackamas.cc.or.us/elc>

The John Inskeep 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
503-594-6044

<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 a 6" refractor telescope, and we view a variety of objects such as nebulae, galaxies, star clusters, and any available planets. For further information and hours, please call 503-594-6044 or 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 Science: Physical Science and Science: Physics in a current *Schedule of Classes*.

Workforce Services

CCC OREGON CITY CAMPUS, COMMUNITY CENTER, CC100
503-594-6246

Laid off? Looking for career advancement? Need employees for your business? WorkSource Clackamas can help! We are the leading source for employment and training solutions in Clackamas County. We provide career planning, training, placement services and more. Our website is a great resource for both job seekers and employers. Preview our services at www.worksource-clackamas.org

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
7726 S.E. HARMONY ROAD, MILWAUKIE
 503-594-0738 or bizcenter@clackamas.edu

Clackamas Community College, in partnership with the U.S. Small Business Administration and the Oregon Department of Business Development, offers services to current and prospective small business owners and managers.

Contact the Business Development Center (SBDC) for:

Small Business 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.

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 503-594-0738 for an appointment.

Resource Center: Books, periodicals, and a computer 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 at www.bizcenter.org

Customized Training & Development Services

CCC OREGON CITY CAMPUS, DEJARDIN HALL
 503-594-3203

Customized Training & Development Services at Clackamas Community College has been helping businesses succeed for more than 25 years.

We continue to grow and answer the needs of our clients. Being integrated with Clackamas Community College and working closely with our workforce, business, and economic development partners provides advantages.

Flexibility. We offer any training in any format that makes sense for our clients. Training can be as diverse as:

- Leadership and Supervisor Academies
- Team Development
- Safety
- Welding
- Employee and/or Organizational Assessment
- Lean Training
- Truck Driver Certification
- Professional Development
- Computer Applications
- And more...

Location. We offer training at your place or ours. When we come to you, it reduces the amount of downtime for your employees and saves fuel. If you come to us, we're easy to find and parking is always free.

Customized Learning. Our Business Solutions Project Coordinators will work with you to create a program customized to fit your organization. Create the program to deliver results you need.

Instructors. Our instructors are experts within their respective fields and know the challenges their industry faces. They openly share their experiences and can offer keen insight into how to succeed.

Results-Oriented. Regardless of where training occurs, we use the latest techniques and tools.

Relationships. We believe in establishing long-term relationships. Our business is helping you succeed now and in the future. We do that by providing solutions to help you improve performance and generate results.

For more information, call 503-594-3203.

Wilsonville Campus

29353 SW Town Center Loop East
Wilsonville, Oregon



College Mission Statement



The college maintains an open and inclusive organizational structure which enables all members of staff to participate in the decision-making process.



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.

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.

CAREER 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 career technical studies judged by the employer as lacking in technical job skills normally expected of an entry-level employee.

SPECIAL CONDITIONS:

Career Technical Studies

Degree

- The graduate must have earned an Associate of Applied Science degree in a college-recognized career technical program as indicated on the student transcript.

Employment

- The employment must be full-time and the job must be verified 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 and/or 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

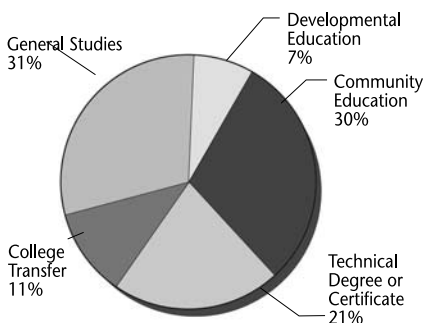
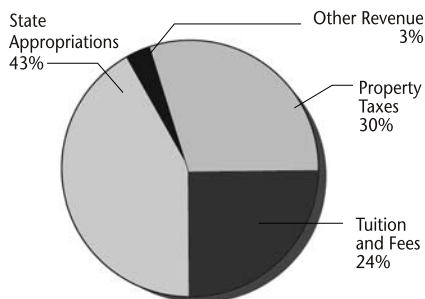
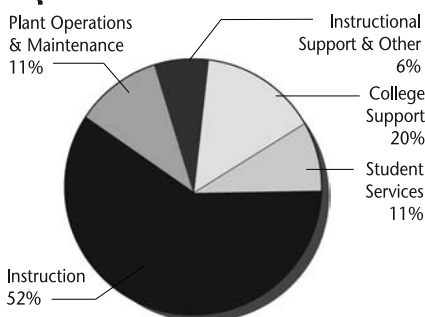
Call Clackamas Community College Registrar’s Office at 503-594-6100.

2008-2009 STATISTICS:**HEADCOUNT**

Headcount	37,551
Full-time students	1,826
Part-time students	14,798
Non-credit students	20,925
Full-time Equivalence	7,770.72
Average age, all students	34
Average age, full-time students	24
Females	15,238
Males	15,827
Racial/ethnic minorities in student body	11%
Students receiving financial aid	2,778
Average amount of aid per student	\$4,628
Total amount of aid received	\$12,855,991
Degrees/certificates awarded	841

For more information on these and other college statistics, contact the Office of Curriculum & Reporting at 503-594-3383 or visit depts.clackamas.edu/collegeadvancement/

Note: Financial aid information does not include institutional or scholarship aid.

Enrollment Breakdown by Student Enrollment 2008-2009**Revenue - General Fund****Expenditures - General Fund****CCC at a Glance**

Numbers reflect 2008-09 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 380,576 (February 23, 2010)
District (81%) = 311,396 (July 1, 2009)

ENROLLMENT

2008-09 Head count: 37,551

2008-09 Full-time Equivalence: 7,770.72

PROGRAMS

Career Technical: CCC offers one-year Certificate of Completion and two-year Associate of Applied Science degree programs in 90 career 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.

CCC President

Dr. Joanne Truesdell

Board of Education

Ron Adams

Jean Bidstrup

Chuck Clemans

Carlotta Collette

Judy Ervin

Richard Oathes

Jane Reid

Faculty & Administration



*Staff members
must develop
and maintain a
strong interest
in the growth of
students and the
community we
serve.*



**CLACKAMAS COMMUNITY COLLEGE
BOARD OF EDUCATION**

	Term ends
Ron Adams	2011
Jean Bidstrup	2013
Chuck Clemans	2011
Carlotta Collette	2011
Judy Ervin	2013
Richard Oathes	2013
Jane Reid	2013

**CLACKAMAS COMMUNITY COLLEGE
PRESIDENT**

Dr. Joanne Truesdell

**2010-11
FACULTY & ADMINISTRATION**
Albers, Richard (2008)

Computer Science
A.A.S. Parkland Community College
B.S. University of Arkansas
M.S. University of Arkansas

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, Debra (2010)

Nursing
R.N. Good Samaritan School of Nursing

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

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

Beining, Steven (2008)

Distance Learning
B.A. University of Wisconsin
M.S. Portland State University

Bello, Chippi (1997)

Director of Financial Aid
B.S.W. Brigham Young University, Hawaii
M.S. Ed. Portland State University

Bjerre, Irma C. (2000)

Foreign Language
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, Arts & Sciences 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

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

Carino, Enrique (2007)

Computer Science
B.S. Portland State University

Christensen, Kathryn (2006)

Business
B.S. Portland State University
M.B.A. Marylhurst University

Clem, Pam (2007)

Customized Training & Development
B.S. Eastern Oregon University
M.S. Eastern Oregon University

Clifford, Tiffanie (2010)

Human Resources Manager
B.S. Western Oregon University
M.B.A. Marylhurst University

Cline, Lonnie (1981)

Music
B.M.E. Idaho State University

Cochran, Bob (2010)

Dean of Campus Services
B.S. Portland State University

Coffey, Amanda L. (1998)

English
B.A. Virginia Commonwealth University
M.F.A. Arizona State University

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
Ph.D. Capella University
- 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
- DelGatto, Robert (2003)**
Manufacturing
- DeSau, Carol (2001)**
Director, Bookstore
B.A. Portland State University
- DeVenney, Jean E. (1999)**
Counseling
B.S. Southern Oregon State College
M.S. Portland State University
- Dickinson, James (1994)**
Astronomy
B.S. Oregon State University
M.S. 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
- 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
- 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
- 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, Technology, Health Occupations
and Workforce Division
State of Oregon Vocational Certification
A.A.S. Clackamas Community College
B.S. Eastern Oregon 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
- 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
- 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
- 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
- Hoyt, Ray (2007)**
Director, Customized Training
B.S. Oregon State University
M.Ed. Oregon State University
M.F. Oregon State University
- Hughes, Kerrie (2007)**
Communications
A.A. Clackamas Community College
B.S. Portland State University
M.A. University of Portland
- Jones, Melissa L. (2007)**
Student Publications/Journalism
B.A. University of California Los Angeles
M.A. University of Michigan
M.A. Portland State University
- 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

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 Washington
 Doctor of Chiropractic, Western States
 Chiropractic College

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

Laugle, Thomas N. (1990)

Apprenticeship/Wildland Fire/ESH
 A.A. Clackamas Community College
 A.A.S. Portland Community College
 B.A. Marylhurst University

Leuck, Jay (2003)

Automotive
 A.S. Southwestern Oregon Community
 College
 B.S. Oregon Institute of Technology

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

Long, Stuart (2003)

Director, Technical Services
 B.A. Virginia Commonwealth University

Luetkenhaus, Rita (2007)

Mathematics
 B.A. University of Portland
 B.S. University of Portland
 M.S.T. Portland State University

Lundy, Elizabeth (2009)

Vice President of Instruction and Student
 Services
 B.S. University of Nebraska
 M.S. Oregon State 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)

Director, Health/Physical Education/
 Athletics
 Title 9 Coordinator
 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)

Executive Director of Foundation
 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 Sciences
 A.G.S. Clackamas Community College
 Registered Medical Assistant
 RPbt (ASCP)
 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)

Education/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)

Foreign Language
 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

Molatore, Dominic (1985)

Computer Science
 B.S. Oregon State University
 B.S.C.S. Portland State University

Moller, Steffen A. (1998)

Dean, Curriculum, Planning,
 and Research
 B.A. Union College
 M.A. Andrews University

- Morris, Sarah (2004)**
Nursing
A.A.S. Portland Community College
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, 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
- Parini-Runge, Shelly (2006)**
Dean of College Advancement/
Government Relations
B.A. Arizona State University
- Parker, Sharon (2007)**
Business
B.S. University of Nevada Las Vegas
M.S. Florida International University
M.B.A. Florida Atlantic 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
- 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
- Robinson, Robin A. (1989)**
Physical Education
B.S. Willamette University
M.A.T. Lewis and Clark College
- Robuck, Chris (2005)**
Director, Financial Services
B.S. University of Montana
M.B.A. Western State College of Colorado
- Rose, Brian (2005)**
Music Technology
- 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
- Schulz, Polly (2007)**
Biology
B.A. University of Oregon
M.S. University of Oregon
- 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, Michelle J. (2002)**
Nursing
B.S.N. University of Portland
M.S. University of Portland
- Smith, Vicki (2006)**
Major Gifts Officer
CFRE
- Smith, Yvonne M.**
Skills Development
B.S. University of Oregon
M.S.W. Portland State University
- 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
- Strickland, Christina (1983)**
Life Science
A.S. Umpqua Community College
B.S. Oregon State University
M.S. Texas Women's University
- Chelminiak, 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)

Tracy, Shelly (2001)

Director, Energy & Utility Resource
Management
AGS Clackamas Community College

True, J. Rick (1995)

Art
B.A. University of New Mexico
M.F.A. Portland State University

Truesdell, Joanne (2006)

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, Regional Educational Services
A.S. Clackamas Community College
B.A. George Fox College
M.B.A. George Fox College

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

Wasson, Thomas (2008)

Art
B.F.A. University of Hawaii
M.F.A. University of Hawaii

Waters, William (2004)

Business
B.S. Portland State University
M.B.A. University of Oregon

Whitten, Christopher (2006)

Theatre
B.S. Western Oregon University

Wiggins, Patricia (2007)

English as a Second Language
A.A. Columbia College
B.S. University of Missouri
M.A. 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

Wilton, Courtney (2007)

Vice President of College Services
B.S. University of Oregon
C.P.A.

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

Yannotta, Mark A. (1998)

Mathematics
B.S.E. Southeast Missouri State
M.A. University of Missouri

Zuelke, William (1997)

Associate Dean, Student Development
B.A. Gonzaga University
M.Div. Weston School, Cambridge, MA
M.S. Loyola College

Glossary, Index, Maps



*We value
interdisciplinary
and college-
wide sharing,
communication
and teamwork.*



Glossary of Terms

Academic Evaluation

The Academic Evaluation is an assessment of a student's progress in satisfying the requirements of a certificate or degree. Students can access an Academic Evaluation through myCougarTrax, which should be used in consultation with an Academic Advisor.

Academic Standing

Completion of at least 50% of your enrolled credits and a term GPA of 2.0 or greater. See page 201 of this catalog for additional information.

Administrative Withdrawal

Administrative Withdrawal allows an instructor to drop you from your class if you did not attend the first class session and did not notify your instructor of your absence. An instructor can also drop you from your class if you are unable to demonstrate completion of course prerequisite requirements. The Registrar's Office will notify you if you have been withdrawn from a class.

Articulation Agreements

A written contract between two schools in which course equivalencies are agreed to by both.

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 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 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.

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.

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.

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

See "Degree Partnership."

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 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. For more information visit the CWE website at <http://depts.clackamas.edu/CWE/>

Corequisite

A second, related course in which a student must be simultaneously enrolled, in addition to the primary course.

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.

Degree Partnerships

Degree Partnerships are designed to allow students to be jointly admitted and eligible to enroll concurrently at CCC and our university partners 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 degree partnership agreement.

Direct Transfer

If you have selected a transfer school or program, you can select CCC courses that meet specific requirements at your school of choice and transfer credits directly to that school. Students should work closely with their advisor at the school they intend to transfer to as well as a CCC advisor.

Enrollment Verification

Enrollment Verifications are accessible through myCougarTrax 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 (six 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.

myAccount - www.clackamas.edu/myaccount

This website allows you to create your CCC email account which you need for myCougarTrax too.

myClackamas - my.clackamas.edu

A website that allows you to access your email, myCougarTrax and more with one user name and password.

myCougarTrax

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.

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. See page 200 of this catalog for additional information.

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.

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

The process of having credits from other regionally accredited colleges/universities evaluated to be used towards a degree or certificate 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.

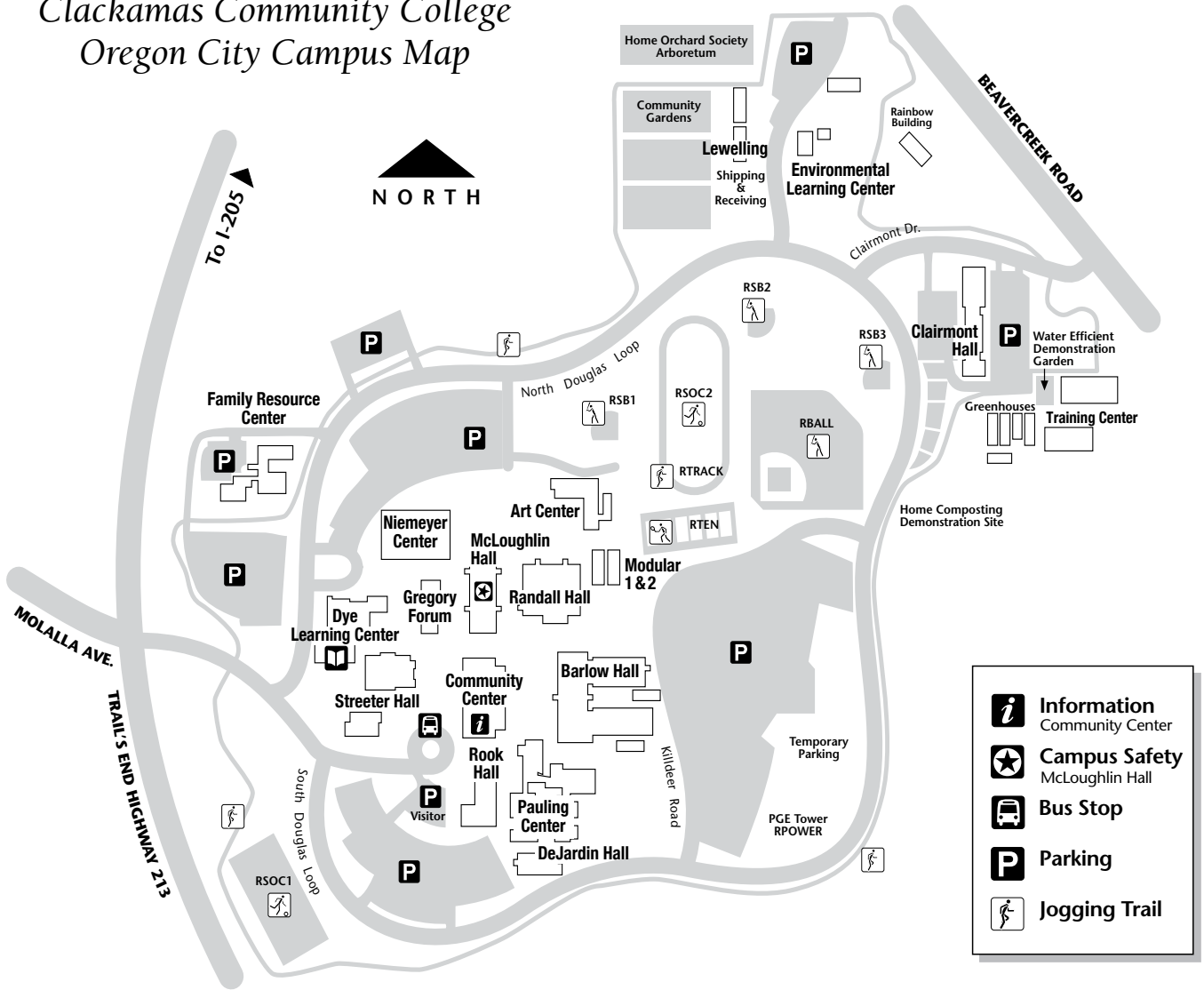
Withdrawal (W)

A registered student may withdraw (drop) from a course during the term without responsibility for a grade by the end of the sixth week of the term. After the sixth week of the term, the instructor determines whether the student may receive a withdrawal (W) or be held responsible for a grade. For classes lasting less than a full-term, seventy percent completion of contact hours is the equivalent of the sixth week. W's have no credit, and no grade points.

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.

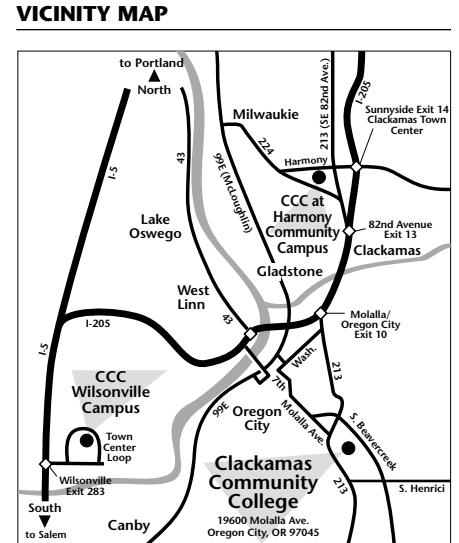
Clackamas Community College Oregon City Campus Map



CODE	BUILDING NAME (OC CAMPUS)
AC	Art Center
B	Barlow Hall
C	Clairmont Hall
CC	Community Center
D	Dye Learning Center
DJ	DeJardin Hall
ELC	Environmental Learning Center
FRC	Family Resource Center
G	Gregory Forum
H	CCC at Harmony Community Campus
M	McLoughlin Hall
MOD1&2	Modulars
N	Niemeyer Center
OIT	Oregon Institute of Technology
P	Pauling Center
R	Randall Hall
RR	Rook Hall
S	Streeter Hall
T	Training Center
W	CCC Wilsonville Campus

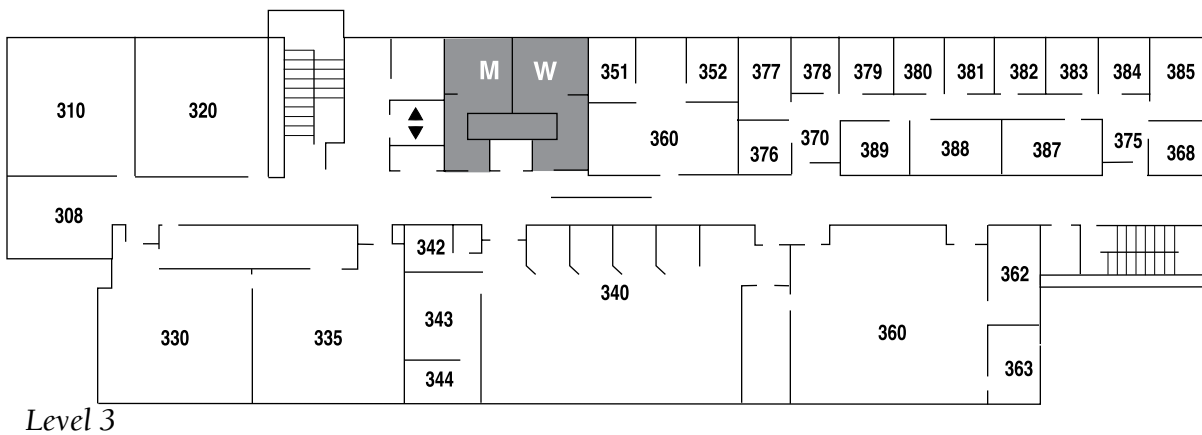
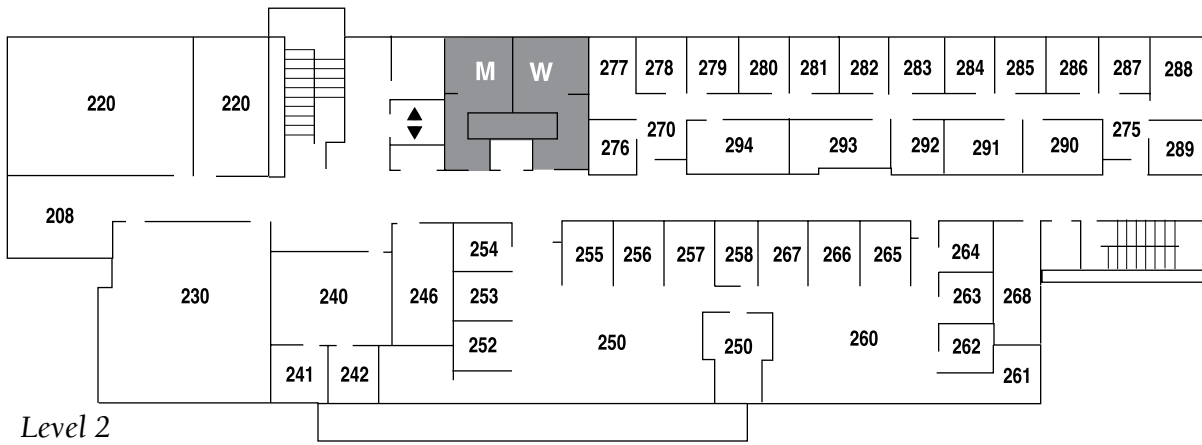
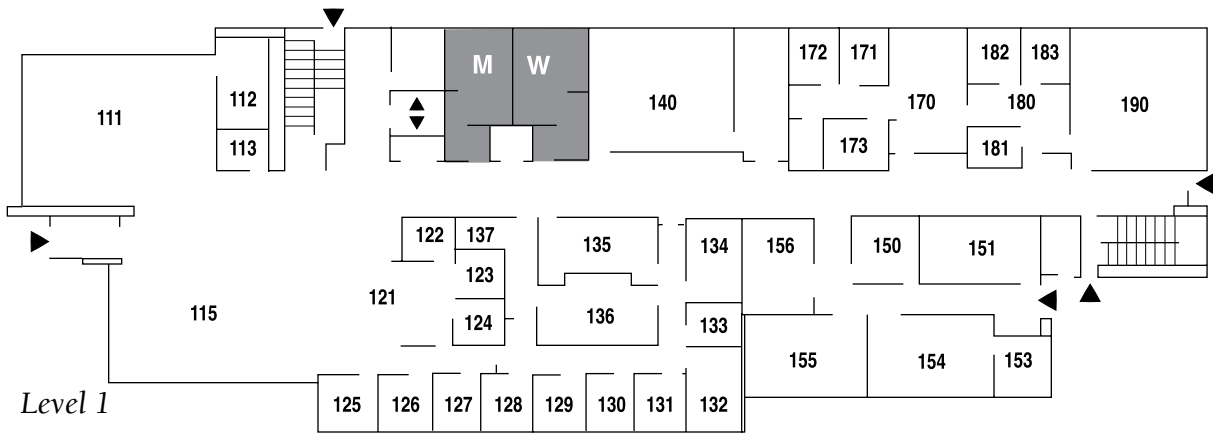
CCC CAMPUS SITES
CCC at Harmony Community Campus 7738 S.E. Harmony Road Milwaukie, OR 97222
CCC Oregon City 19600 Molalla Ave. Oregon City, OR 97045
CCC Wilsonville Campus 29353 SW Town Center Loop E Wilsonville, OR 97070

CCC OFF-CAMPUS SITES
Canby Applied Technology Center 721 S.W. Fourth St., Canby, OR 97013
Estacada High School 355 N.E. 6th, Estacada, OR 97023
Molalla Center (behind Molalla Public Library) 201 East Fifth, Molalla, OR 97308
OIT 7726 S.E. Harmony Road Milwaukie, OR 97222



CCC Harmony Campus

7738 S.E. Harmony Road
Milwaukie, OR 97222-1269



CCC Wilsonville Campus

29353 Town Center Loop E
Wilsonville, OR 97070



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