

# CATALOG

## 2003-2004



 **CLACKAMAS**  
COMMUNITY COLLEGE

## DATES TO REMEMBER 2003-2004

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

SUMMER TERM	2003
Classes begin .....	Monday, June 23
Independence Day Holiday (college closed) .....	Thursday, July 3
Eight-week session ends .....	Thursday, August 14
Labor Day Holiday (college closed) .....	Monday, September 1
Eleven-week session ends .....	Thursday, September 4
FALL TERM	2003
Inservice week .....	September 22-26
Classes begin .....	Monday, September 29
Veterans' Day Holiday (college closed) .....	Tuesday, November 11
Thanksgiving Holiday (college closed) .....	Thurs.-Fri., November 27-28
<i>(Wednesday evening classes, beginning at 4 p.m. or later, are canceled prior to Thanksgiving)</i>	
Finals week .....	December 8-13
Term ends .....	Saturday, December 13
Winter Holiday (college closed) .....	Wed.-Thurs., December 24-25
WINTER TERM	2004
New Year's Day (college closed) .....	Thursday, January 1
Classes begin .....	Monday, January 5
Martin Luther King, Jr. Holiday (college closed) .....	Monday, January 19
Skills Contest .....	Thursday, February 26
<i>(Day classes canceled at O.C. campus. Evening classes, beginning at 4 p.m. or later, will be held as scheduled.)</i>	
Finals week .....	March 15-20
Term ends .....	Saturday, March 20
Spring Break .....	March 22-27
SPRING TERM	2004
Classes begin .....	Monday, March 29
Memorial Day Observance (college closed) .....	Monday, May 31
Finals week .....	June 7-12
GED & Adult High School diploma Graduation Ceremony .....	Thursday, Jun 10
College Certificate & Degree Graduation Ceremony .....	Friday, June 11
Term ends .....	Saturday, June 12

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**About the cover:**

**CCC — Painting a bright future for the arts community!**

*The art theme shown on the front cover is tied to the "Campaign for the Arts," a \$3 million fund drive to enhance students' educational experience through modern facilities and creative programming. The Clackamas Community College Foundation is seeking \$1.5 million to furnish, equip and complete construction of the new Communication Arts Center and \$1.5 million for an endowment campaign that will fund innovation and creativity in arts education.*

## *Our Credentials*

Clackamas Community College is accredited by the Commission on Colleges of the Northwest Association of Schools & Colleges. 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 Dean of Instructional 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 Director of Counseling at 503-657-6958, ext. 2213.

The information in this catalog reflects current programs, requirements, and costs as of May, 2003. 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.



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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.*



# *Getting Started*

# 1. Fill Out an Application for Admission

## General Admission

**REGISTRAR'S OFFICE**  
503-657-6958, Ext. 2263

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

CCC's general application for admission can be found:

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

Application materials\* can be submitted at the Help Center in the Bill Brod Community Center building at our Oregon City campus or at our other campus locations. They can also be mailed/faxed to:

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

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

## Special Admissions Program

Some of our programs have limited enrollment and 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 your faculty advisor or a staff member in the Advising and Counseling Center. Please note the following special admission programs, requirements and phone extensions for additional information:

### Adult High School Diploma (AHSD)/ General Educational Development (GED)

Ext. 2595

See page 197-198, Special Programs.

### Evening and Weekend Programs

Ext. 3108

See page 200, Special Programs.

### Under-Age Students (16-18)

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

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

### CCC/PSU Co-Admission

Ext. 2263

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

### *International Students/ Program for Intensive English (PIE)*

Ext. 2263

Clackamas Community College is approved by the Department of Homeland Security (DHS) to accept qualified students from other countries. International students may be admitted to the college if they have demonstrated proficiency in English by achieving a score of 523 or better on the International TOEFL (Test of English as a Foreign Language). English as a Second Language (ESL) instruction is offered through the Program for Intensive English (PIE) for students *without* a 523 TOEFL score.

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

### *Clinical Lab Assistant/Medical Assistant*

Ext. 2263

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

## **FREQUENTLY-ASKED QUESTIONS:**

*When should I apply for admission?*

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

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

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

### *Nursing*

Ext. 2263

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

## 2.

## *Arrange for Financial Aid*

### *Office of Student Financial Services*

503-657-6958, Ext. 2745

Clackamas Community College offers a full financial aid program. In 2002-2003, the college awarded \$7 million in financial aid to 2,311 students. You can 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 application packets are available in the Student Financial Services Office. They contain expense budgets for need-based financial aid and information about how financial aid is awarded. The Student Financial Services Office also has sample repayment schedules for Federal Perkins Student Loans, Federal Stafford Student Loans and Federal PLUS Loans.

You must maintain at least a 2.0 (C) grade point average while receiving financial aid. Full-time students receiving financial aid must complete 12 or more credits per term. Students enrolled in a two-year degree program are limited to nine terms of full-time enrollment. Students enrolled in a one-year certificate program are limited to five terms of full-time enrollment. Contact the Student Financial Services Office for information on requirements for part-time students.

*Continued*

If you do not maintain a 2.0 GPA, take minimum credit requirements, or attend through 60% of the term while receiving federal financial aid (Federal Pell Grants, Federal Supplemental Educational Opportunity Grants, Oregon State Need Grants, Federal Work-Study, Federal Perkins Student Loans, Federal Stafford Student Loans, or Federal PLUS Loans), you may be required to repay some of the aid you've received. If you've lost your financial aid eligibility and want to have it reinstated, check with the Student Financial Services Office.

The college will use your financial aid award to pay your tuition and fees. If there is money left over, the Business Office will issue you a check for that amount. Clackamas follows required federal Title IV refund policies.

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

### *How to apply:*

Complete a Free Application for Federal Student Aid (FAFSA). FAFSAs are available from your high school and from the Student Financial Services Office at CCC. You may also apply on the Web at [www.fafsa.ed.gov](http://www.fafsa.ed.gov). It is important that you indicate Clackamas Community College as one of your schools of choice. Be sure to use the CCC Title IV Code: 004878 when applying for aid.

### *Federal & State Financial Aid Programs*

#### **FEDERAL PELL GRANTS**

You may be eligible for up to \$4,050 a year (2003-04), 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 \$1050 a year (2003-04). Part-time students (taking 6-11 credits a term) will receive smaller grants.

#### **OREGON STATE NEED GRANTS**

You must be enrolled full-time (taking 12 or more credits a term) to be eligible for Oregon State Need Grants. Awards are renewable for up to four years. Oregon Need Grants are funded through the Oregon Student Assistance Commission. If you are not an Oregon resident, contact the Scholarship Commission in your home state for eligibility requirements.

#### **FEDERAL COLLEGE WORK-STUDY**

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

#### **FEDERAL PERKINS STUDENT LOANS**

You may be eligible for up to \$2,400 (2003-2004) during your first two years of college. Part-time students (taking 6-11 credits a term) will receive smaller loans. You must begin repaying the loan nine months after you drop below halftime enrollment (under six credits a term). Entrance and Exit Interview counseling sessions are required.

#### **FEDERAL STAFFORD STUDENT LOANS**

If you are an Oregon resident, you may be eligible for a guaranteed student loan from a commercial bank, savings and loan organization, or other participating lender. You may borrow up to \$2,625 a year. You must begin repaying these loans six months after you drop below halftime enrollment (under six credits a term). Entrance and Exit Interview counseling sessions are required.

#### **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*

Ext. 2745

#### **TUITION NEED WAIVERS**

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

## 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.

**SHORT-TERM EMERGENCY LOANS**

If you are a returning student with emergency educational and financial needs, you may be eligible for a short-term emergency loan of up to \$200. You don't need a financial aid form to apply. Contact the Student Financial Services Office for an emergency loan application.

**Scholarships**

Ext. 2373

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

**HIGH SCHOOL SCHOLARSHIPS**

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

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

**TUITION SCHOLARSHIPS**

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

**STUDENT SCHOLARSHIPS**

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

**PRIVATE SCHOLARSHIPS**

A variety of sources offer private scholarships. These scholarships are displayed in the scholarship rack located in the Community Center. Scholarship opportunities can be viewed online in the Career Center. For an appointment contact the Career Center, ext. 2213.

**FREQUENTLY-ASKED QUESTIONS:**

*How do I apply for financial aid?*

The first step is to complete the FAFSA (Free Application for Federal Student Aid). You may complete and mail the paper application, or 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 receive your information electronically from the processing center and contact you at that time for further documentation.

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

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

*Is there financial help other than federal financial aid?*

Yes. Clackamas Community College has a wide range of scholarship opportunities for students who are enrolled or planning on enrolling. Some are available for part-time students as well. The open enrollment period for each year is from the end of January to mid-March. There is an application that must be completed and returned for you to be considered. Contact the Scholarship Coordinator, ext. 2373, for more information.

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

*When do I apply for financial aid?*

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

**Veterans Benefits**

Ext. 2554

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

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

*Continued*

Students receiving benefits must:

- have credits for prior civilian or military training evaluated.
- must 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.)
- must enroll for the full credit limit on variable credit and open entry/exit classes.
- must follow term schedule and attend all scheduled class meeting times.

### 3.

## *Visit the Testing/ Assessment Center*

### *Testing/Assessment Center*

503-657-6958, Ext. 2269

Call for testing hours.

The Testing/Assessment Center is one of the first stops for new students. To be properly placed in courses new students must have skills determined by one of the following:

#### **PLACEMENT ASSESSMENT IN READING, WRITING AND MATH**

If you have not taken the ACT or SAT and do not have previous writing and/or math courses on a college transcript you will take the placement assessment.

Phone the Testing/Assessment Center for hours.

#### **EVALUATE ACT OR SAT SCORES**

If you have taken the ACT or SAT and your scores are high enough you may be placed based on these scores. If scores are not high enough you will take the placement assessment.

- Bring a copy of your scores to the Testing/Assessment Center to be evaluated.

#### **EVALUATE PRIOR COURSEWORK**

If you have taken and passed writing or math courses at another college you may be placed based on previous coursework.

- Bring a copy of your previously attended college transcripts to the Registrar's Office for recommended placements in writing and math courses at Clackamas Community College.

## 4.

# *Talk to an Advisor*

### *Advising & Counseling Center*

503-657-6958, Ext. 2213

If you are new to Clackamas Community College and you submitted an application for admission, you will receive an invitation for a group advising session. This one-hour session will provide you with general information about the college, and the registration process. Advisors and faculty will work with you individually to help you plan and schedule classes. The advising sessions are a valuable opportunity to get to know the resources of the college and the keys for successful completion of your college goals.

Once you have determined your program of study and would like additional information or assistance, you may contact a staff member in the Advising & Counseling Center, or schedule an appointment with the faculty advisor in your program area. Your faculty advisor can provide specific information about your program of study, as well as serve as a mentor. Your faculty advisor's name, email address, extension number and office number are listed in the *Schedule of Classes* published each term.

If you haven't decided on your program of study, make an appointment with a staff member in the Advising & Counseling Center to help you develop an educational plan. Staff in the Advising & Counseling Center are available to help you choose the right program, select classes, as well as help you resolve personal problems that could interfere with your studies. Drop in for help or call to make an appointment.

If you plan to transfer to a four-year institution, work closely with an advisor to be sure you are fulfilling that school's transfer requirements. Catalogs for all Oregon colleges and universities are available in the Advising & Counseling Center. There is also access to thousands of college catalogs via CD-ROM.

No matter what program you are working on, you should work with an advisor to be sure that you're taking classes that meet your goals. Periodically throughout your program, request an official evaluation to check your progress.

## 5. Register for Classes

### Registrar's Office

503-657-6958, Ext. 2262

Registration is available for currently enrolled, returning and new students via the Web, by phone, 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.cc.edu](http://www.clackamas.cc.edu)

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

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

Registration assistance is available at the Help Center in the Community Center or by calling the Registrar's Office at 503-657-6958 ext. 2262.

## 6. Pay for Classes

### Cashier's Office

503-657-6958, Ext. 2253

#### 2003-2004 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*
<b>In-state students OR/CA/ID/NV/WA**:</b>		
1-15 billing credits	\$51/credit	\$4/credit
15-18 billing credits	\$765	\$60
Above 18 billing credits	\$51/credit	\$4/credit

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

1-15 billing credits	\$174/credit	\$4/credit
15-18 billing credits	\$2610	\$60
Above 18 billing credits	\$174/credit	\$4/credit

#### Other fees

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

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

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

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

#### Factors That Determine Your Tuition

##### IN-STATE TUITION

To qualify as an In-State student for tuition purposes, you must be an American citizen, immigrant, refugee or permanent resident of Oregon, California, Idaho, Nevada or Washington and have resided there 90 days prior to the first day of class.

Continued

**OUT-OF-STATE TUITION**

You are an Out-of-State student for tuition purposes if your permanent residence is outside the states of Oregon, California, Idaho, Nevada or Washington or are an international student.

**INTERNATIONAL STUDENT TUITION**

You are an international student if you are a citizen of another country and require an I-20 to attend college. (International students do not become residents, regardless of the length of their stay.)

**SENIOR CITIZEN TUITION BENEFIT**

If you are 62 years of age or older, you are eligible for Gold Card status. Once your student record reflects your gold card status, tuition will be charged at the rate of 1/2 of the in-state rate for all CCC sponsored credits classes (fees excluded). Tuition and fee charges must be paid on or before the second Friday of the term to avoid late payment fees. Fees may not be deferred, however, tuition may be paid in installments (See *Paying in Installments* in the *Schedule of Classes*. Contact the Cashier's Office for procedures to follow. Gold Card holders are also entitled to free admission to many college special events and athletic activities. For community education Gold Card tuition benefit policies, see individual Community School listings in the *Schedule of Classes*. To obtain a Gold Card, contact your local Community School or stop by the Help Center in the Community Center.

*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 2 weeks or less:**  
Add/Drop request must be received before the beginning of class.
- **Classes scheduled to meet 3-4 weeks:**  
Add/Drop request must be filed during the first week of class.
- **Classes scheduled to meet 5 weeks or more:**  
Add/Drop request must be filed during the first two weeks of the class.

Refund requests are processed via the official college registration request form, Web, or Telephone Registration Systems. 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 Cashier's Office at ext. 2253. You can also refer to the *Schedule of Classes* for additional information.

**Canceled Class**

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

**FREQUENTLY-ASKED QUESTIONS:**

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

Come by the Advising & Counseling Center in the CCC Community Center and you can get advice and information to help you plan your educational experience. You can also call ext. 2213 to make an appointment or have questions answered.

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

If you haven't decided on your program of study, make an appointment with a counselor to develop an educational and career plan. Contact the Advising & Counseling Center at ext. 2213 to make an appointment.

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

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

*Degrees, Certificates &  
Approved Courses*



# Degrees, Certificates & Approved Courses

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

ASSOCIATE OF ARTS OREGON TRANSFER • ASSOCIATE OF GENERAL STUDIES • ASSOCIATE OF APPLIED SCIENCE  
Certificates of Completion (CC) are also offered in a variety of occupational content areas.

## 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. These schools include the University of Oregon, Oregon Institute of Technology, Oregon State University, Portland State University, Western Oregon University, Eastern Oregon University and Southern Oregon University. General requirements for obtaining the AAOT from CCC are as follows:

- Earn a minimum of 90 credits of college level course work
- Complete a core of recognized general education courses (see the AAOT worksheet/student planner)
- Establish a cumulative 2.0 GPA at CCC
- Establish residency by earning a minimum of 24 credits at CCC.
- Satisfy a computer literacy requirement (see page 21 for a list of approved courses)

See pages 16 & 17 for the AAOT worksheet/student planner and additional information.

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

The Associate of Applied Science degrees and Certificates of Completion are professional technical in nature and are designed to prepare students for entry into the workforce. Occupational licensure, career advancement and further study at a four year college or university are additional possible opportunities for students earning an AAS degree or certificate of completion at CCC. Certificates of Completion are generally less than a 1 year program and are designed with occupational content. See pages 20 & 22 for additional information.

## 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 a minimum of 18 credits of general education course work from: communication, computation, computer science, human relations and physical education/health (see the AGS worksheet/student planner and additional information on pages 18-20)
- Complete 24 credits of college level course work in a focus area (see page 20 for a list of approved courses)
- Establish a cumulative 2.0 GPA at CCC
- Establish residency by earning a minimum of 24 credits at CCC
- Satisfy a computer literacy requirement (see page 21 for a list of approved courses)

### Undecided About Your Program of Study?

We recommend the following as a good start in any program of study. Work with your faculty advisor or a staff member in the Advising & Counseling Center to develop an educational plan for subsequent terms. Call 503-657-6958, ext 2213 for more information.

Course	Credits
Writing* (WR-080, WR-090, WR-095 or WR-121) .....	3
Math* (MTH-020, MTH-060, MTH-065, MTH-095, etc.) .....	4
Humanities or Arts course .....	3
HPE-295 or HE-250 or 3 terms of PE-185 (different activities) ..	3
Social Science course .....	3
Lab Science course .....	4
Career Exploration courses (CWE-010, CWE-100, HD-140) .	2-6
Elective in an area of interest .....	3
Computer Literacy class (if necessary)	

\*depends on placement score

## Student Guide 2003-2004

# Associate of Arts Oregon Transfer Degree (AAOT)

Requirements	Courses	
<i>Writing (9 credits)</i>	<b>WR-121, 122, 123 or 227</b> (Must have "C" grade or better)	
<i>Oral Communication/Rhetoric (3 credits)</i>	<b>SP-111</b> (Must have "C" grade or better)	
<i>Mathematics (4 credits)</i>	<b>MTH-105, 111 or higher or MTH-211, 212, 213 sequence excluding MTH-199, 280, 299</b> (Must have "C" grade or better)	
<i>Health &amp; Physical Education (3 credits)</i>	<b>HPE-295, HE-250, or 3 courses of PE-185</b> (different levels/activities)	
<b>MUST EQUAL A COMBINED MINIMUM OF 10 CREDITS</b>	<i>Arts &amp; Letters Sequence</i>	ART-115, 116, 117 ART-131, 132, 133 ART-204, 205, 206 ART-211, 212, 213 ENG-104, 105, 106 ENG-107, 108, 109 ENG-201, 202, 203 ENG-204, 205, 206 ENG-250, 251, 252 ENG-253, 254, 255 * ASL-201, 202, 203 * FR-201, 202, 203 * GER-201, 202, 203 * JPN-201, 202, 203 * RUS-201,202,203
	<i>Arts &amp; Letters Additional Requirements</i>	* SPN-201, 202, 203 HUM-170, 171, 172 HUM-220 – 234 (any 3) * MUS-111, 112, 113 MUS-201 – 203, 205, 206 (any 3) PHL-101, 102, 103, 205, 210, 213, 215 (any 3) R-101, 102, 103 R-204, 205, 206 R-207, 208, 209 SP-112, 126, 218, 219 (any 3) TA-101, 102, 103 TA-141, 142, 143 TA-211, 212, 213 TA-241, 242, 243
<b>MUST EQUAL A COMBINED MINIMUM OF 15 CREDITS</b>	<i>Social Science Sequence</i>	ANT-101, 102, 103, 230, 231, 232 (any 3) EC-201, 202 EC-215, 216, 230 GEO-100, 110, 130, 230 (any 3) HST-101, 102, 103 HST-201, 202, 203 HST-204, 205, 206
	<i>Social Science Additional Requirements</i> (Prefixes different from Sequence)	HST-238, 239, 240 PS-201, 202, 203, 204, 205, 206, 225 (any 3) PSY-200, 205 & 218 or 219 SOC-204, 205, 206 SSC-150,151,152 SSC-160, 161, 162 SSC-220 – 234 (any 3)
<b>MUST EQUAL A COMBINED MINIMUM OF 15 CREDITS</b>	<i>Lab Science Sequence</i>	* ASC-200, 201, 202 GS-104, 105, 106 or 107 * BI-101, 102, 103 * BI-211, 212, 213 * BI-231, 232, 233 BOT-201, 202, 203 * CH-104, 105, 106 * CH-121, 122, 123 * CH-221, 222, 223
	<i>Other Science/Math/Computer Science Selections</i>	* CH-241, 242, 243 ESR-171, 172, 173 G-101, 102, 103 G-201, 202, 203 PH-121, 122, 123 * PH-201, 202, 203 * PH-211, 212, 213 Z-201, 202, 203
<i>Computer Literacy</i>	See list in the Clackamas Community College catalog, page 21.	
<i>Elective Courses</i> Combined with above must equal 90 credits total	Other college level courses numbered 100 or above may also be used in this area. Up to 12 credits of professional/technical may be used if the courses are part of an approved professional/technical program.	

\* Indicates course sequences which must be taken in order.

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 be recommended. See course descriptions.

Note: Courses used must be at least 3 credits each except physical education, computer literacy, and electives.

*Student Planner Worksheet 2003-2004*  
**Associate of Arts Oregon Transfer Degree (AAOT)**

This guide is to be used for educational planning/advising purposes only.  
 Sample transfer curricula can be found on pages 59-77.

Requirements	Credits	CCC Courses	Transferred Courses	Credits Earned	Credits Needed
<i>Writing</i> WR-121, 122 & 123 or 227 (Must complete with a "C" grade or better)	9				
<i>Oral Communications/Rhetoric</i> SP-111 (Must complete with a "C" grade or better)	3				
<i>Mathematics</i> MTH-105, 111 or higher (Must complete with a "C" grade or better)	4				
<i>Health &amp; Physical Education</i> Choose from HPE-295, HE-250, or 3 courses of PE-185 (different levels/activities)	3				
<i>Arts &amp; Letters</i> Select a minimum of 10 credits from at least two disciplines. Must include a sequence and additional courses must be from a different prefix	<i>Minimum of 10 credits</i>				
<i>Social Science</i> Select a minimum of 15 credits from at least two disciplines. Must include a sequence and additional courses must be from a different prefix	<i>Minimum of 15 credits</i>				
<i>Science/Math/Computer Science</i> Select a minimum of 15 credits including a laboratory course sequence of at least 12 credits in biological or physical sciences	<i>Minimum of 15 credits</i>				
<i>Computer Literacy</i>	—				
<i>Additional Courses</i> Combined with above must total at least 90 credits					
<i>Note: All courses must be 100 level or higher</i>	<b>TOTALS</b>				

- |   |  |
|---|--|
| <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"/> Satisfy the Computer Literacy Requirement |

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

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

## Student Planner Worksheet 2003-2004

# Associate of General Studies Degree (AGS)

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

**FOCUS AREA:** \_\_\_\_\_ (see page 19 for list of approved subjects)

	Requirements	CCC Courses	Transferred Courses	Credits Earned	Credits Needed	Courses Needed
<b>Complete 24 credits within the same focus area</b>						
		<i>Total Credits in Focus Area</i>				
<b>Complete a minimum of 18 core general education credits</b>	<i>Communication</i>					
	<i>Computation</i>					
	<i>Human Relations</i>					
	<i>PE/Health</i>					
	<i>Total Core General Education Credits</i>					
<b>Complete additional electives combined with the above to equal 90 credits</b>						
	<i>Computer Literacy</i>					
	<i>See page 21 for a list of approved courses.</i>					
				<b>TOTALS</b>		

- |  |   |
|--|---|
| <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"/> Complete at least 24 credits at CCC      |
| <input type="checkbox"/> Satisfy the Computer Literacy Requirement |   |

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

## *Subjects Approved for the Associate of General Studies Focus Area*

### **Applied Science**

Computer Application Specialist  
Engineering  
Math  
Network & Microcomputer Specialist

### **Art**

Graphic Arts

### **Automotive**

Auto Body  
Auto Mechanics  
Auto Refinishing  
Auto Service  
Collision Repair Refinishing  
Collision Repair Technology

### **Business**

Accounting  
Accounting Clerk  
Business Administration & Technology  
Business Management  
Economics  
Electronic Publishing  
General Clerical  
Marketing  
Marketing Assistant  
Medical Office Assistant  
Medical Receptionist  
Medical Transcription  
Merchandising  
Office Administration  
Office Assistant  
Real Estate  
Supervisory Training

### **Building Construction**

Industrial Technology

### **Communication**

Speech  
Theater Arts

### **Drafting**

CAD/CAM  
CDT/Drafting

### **Education**

Education  
Early Childhood Education

### **Foreign Language**

American Sign Language  
French  
German  
Japanese  
Spanish

### **Horticulture**

### **Human Services**

Family Studies  
Gerontology

### **Humanities**

Art  
English  
Foreign Language  
Journalism  
Language  
Music  
Philosophy  
Religion  
Speech  
Theater Arts

### **Manufacturing Technology**

Electronics  
Quality Control Technician  
Quality Science  
Welding

### **Mathematics**

Computer Science  
Engineering

### **Music**

### **Health Occupations**

Emergency Medical Technician  
Family Studies  
Health  
Medical Assistant  
Nursing  
Nutrition  
Nursing  
Physical Education

### **Public Service**

Corrections  
Criminal Justice  
Emergency Management

### **Science**

Biology  
Botany  
Chemistry  
General Science  
Geology  
Physics  
Zoology

### **Social Science**

Anthropology  
Economics  
Geography  
History  
Political Science  
Psychology  
Sociology

### **Water Quality**

Wastewater  
Waterworks

### **Writing**

Advanced Fiction Writing  
Creative Writing  
Journalism  
Literature

Please check with instructional departments for updated subjects approved for the AGS focus area.

## Approved General Education 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 a minimum total of **18 general education credits** must be completed from the following core requirement areas:

- 1 course in **Communication**
- 1 course in **Computation**
- 1 course in **Human Relations**
- 1 course in **Physical Education/Health**

### *Certificate of Completion (CC)*

For a *Certificate of Completion* that is at least one academic year in program length a total minimum of **9 general education credits** must be completed from the following core requirement areas:

- 1 course in **Communication**
- 1 course in **Computation**
- 1 course in **Human Relations**

Elective credit may also be taken from the following approved list of courses.

### *List of Approved Courses:*

The following represent general education core requirement and elective courses.

#### **Business**

BA-131, BT-160, 176

#### **Communication**

WR-101, 121, 123, 227

#### **Computation**

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

#### **Computer Science**

CS-120, 121

#### **Human Relations**

Anthropology: ANT-102, 103  
Business: BA-285  
Education: ED-121, 122, 258  
History: HST-101, 102, 103, 201, 202, 203  
Political Science: PS-203, 205  
Psychology: PSY-101, 110, 142, 200, 205, 215, 219, 221, 231, 240  
Sociology: SOC-204, 205, 206, 223, 225, 230  
Speech: SP-100, 115, 126, 218

#### **Humanities/Arts**

Art: ART-115, 116, 117, 204, 205, 206  
Foreign Language: ASL-101, 102, 103 FR-101, 102, 103, 201, 202, 203 GER-101, 102, 103, 201, 202, 203; JPN-101, 102, 103, 201, 202, 203 SPN-101, 102, 103, 201, 202, 203  
Humanities: HUM-170-234; J-211, 216, 218  
Literature: ENG-104, 105, 106, 107, 108, 109, 116, 121, 201, 202, 203, 204, 205, 206, 210, 250, 251, 252, 253, 254, 255, 266, 275

Music: MUS-111, 112, 113, 201, 202, 203, 205, 206; MUP 100 and above  
Philosophy: PHL-101, 102, 103, 205, 210, 213, 215  
Religion: R-101, 102, 103, 204, 205, 206, 207, 208, 209  
Speech: SP-111, 126, 211, 212, 218, 219  
Theatre Arts: TA-141, 142, 143, 211, 213, 241, 242, 243  
Writing: WR-241, 242, 243, 244, 245, 246, 247

#### **Nutrition**

FN-110, 225

#### **Physical Education/Health**

Health: HE-151, 204, 205, 207, 249, 250, 251, 252, 255, 261  
Physical Education: HPE-295, PE 131, 185, 194, 260, 292, 293, 294

#### **Reading/Study Skills**

EL-111, RD-115

#### **Science**

ASC-200, 201, 202 GE-101A, 101B, 102, 115, 211, 212, 213, TPH-100; All BI, BOT, CH, ESR, G, GS, PH, SC and Z prefixes

#### **Social Science**

Anthropology: ANT-101, 230, 231, 232  
Business: BA-218  
Economics: EC-115, 201, 202, 203, 216, 230  
Education: ED-121, 122  
Geography: GEO-100, 110, 120, 121, 122, 130, 220  
History: HST-204, 205, 206, 238, 239, 240, 251, 252, 253  
Political Science: PS-201, 202, 204, 206, 225, 251, 252, 253  
Psychology: PSY-216, 218, 238  
Social Science: SSC-150 – 234  
Sociology: SOC-231, 232  
Women's Studies: WS-101

## *Approved Courses for Computer Literacy*

ASSOCIATE OF ARTS OREGON TRANSFER • ASSOCIATE OF GENERAL STUDIES • ASSOCIATE OF APPLIED SCIENCE • CERTIFICATES\*

You must satisfy CCC's computer literacy requirement in order to receive a degree or certificate of completion. The requirement may be satisfied by passing a computer literacy examination (check with Testing/Assessment, ext. 2269) or, satisfactorily completing one of the approved classes listed below.

### *List of Approved Courses:*

ART-225	Computer Graphics I [C]	J-226	Electronic Newspaper Production [C]
ART-226	Computer Graphics II [C]	MFG-109	Computer Literacy for Technicians [C]
ART-227	Computer Graphics III [C]	MFG-209	Programming & Automation for Manufacturing [C]
BA-131	Introduction to Business Computing [C]	MUS-101L	MIDI Lab [C]
BA-205	Solving Communication Problems with Technology [C]	MUS-102L	MIDI Lab [C]
BC-100	Construction Orientation: Overview of Construction Industry [C]	MUS-103L	MIDI Lab [C]
BC-107	Construction Career Portfolio [C]	MUS-105	Music Appreciation [C]
BC-112	Construction Specification Fundamental Practices [C]	MUS-111L	MIDI Lab [C]
BC-121	Professional Computing for Construction [C]	MUS-112L	MIDI Lab [C]
BC-201	Project Management I: Developing Project Expectations [C]	MUS-113L	MIDI Lab [C]
BC-202	Project Management II: Managing Project Expectations [C]	MUS-120	Finale I [C]
BC-203	Project Management III: Evaluating Project Expectations [C]	MUS-121	Finale II [C]
BC-210	Construction Project Model Development [C]	MUS-122	Finale III [C]
BT-120	Personal Keyboarding [C]	MUS-124	Jazz Arranging/Finale [C]
BT-150	WordPerfect for Windows [C]	MUS-143	MIDI Sequencing [C]
BT-160	MS Word for Windows [C]	MUS-211L	MIDI Lab [C]
BT-161	Intermediate Microsoft Word [C]	MUS-212L	MIDI Lab [C]
BT-170	Access [C]	MUS-213L	MIDI Lab [C]
BT-176	Excel for Windows [C]	SKH-030	Computer Access [C]
BT-262	Advanced Microsoft Word [C]	SKH-035	Computer Access [C]
CDT-104	Professional computing Basics [C]	SP-111*	Public Speaking
CS-091	Computer for New Users [C]	SSC-150	The Columbia Basin [C]
CS-120	Survey of Computing [C]	SSC-151	The Columbia Basin [C]
CS-121	Computer Applications [C]	SSC-152	The Columbia Basin [C]
CS-161	Computer Science [C]	SSC-160	Faith & Reason [C]
HOR-222	Horticulture Computer Applications [C]	SSC-161	Faith & Reason [C]
HUM-170	Metamorphoses [C]	SSC-162	Faith & Reason [C]
HUM-171	Metamorphoses [C]	SSC-233	Electronic Culture [C]
HUM-172	Metamorphoses [C]	SSC-234	Freedom, Privacy, and Technology [C]
HUM-233	Electronic Culture [C]	WR-121*	English Composition
HUM-234	Freedom, Privacy, and Technology [C]	WR-122*	English Composition
J-215	Publications Lab [C]	WR-165	Writing on the Web [C]
J-216	Reporting [C]	WR-227	Technical Report Writing [C]
J-218	Editing & Design [C]	WR-246	Editing & Publishing [C]

\* Only certain sections meet the computer literacy requirements.

\* Certificates are one academic year in program length or more.

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

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

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. Clackamas Community College offers an AAS and/or certificate of completion in the following areas:

Program Area	AAS	CC
Accounting	■	
Accounting Clerk		■
Automotive Service Technology	■	
Building Construction Technology	■	■
Business Management		■
Business Technology	■	
Clinical Laboratory Assistant		■
Collision Repair/Refinishing		■
Collision Repair Technology	■	
Computer-Aided Drafting/ Computer-Aided Manufacturing	■	
Computer Application Specialist	■	■
Corrections	■	
Corrections/Juvenile		■
Criminal Justice	■	
Drafting Technology	■	
Early Childhood Ed. & Family Studies		■
eBusiness Administration	■	■
Electronic Publishing		■
Electronics Systems Technology**	■	■
Emergency Management	■	
Energy & Resource Management**	■	■
Gerontology		■
Horticulture	■	■
Hospitality & Tourism Management		■
Human Services	■	
Industrial Technology	■	
Instructional Assistant		■
Manufacturing Technology	■	■
Marketing		■
Marketing & Management	■	
Medical Assistant		■
Medical Office Administrative Assistant		■
Microelectronics Systems Technology	■	■
Music Technology*		■
Network & Microcomputer Specialist	■	■
Nursing	■	
Occupational Skills Training		■
Office Assistant		■
Quality Control Technician		■
Real Estate		■
Supervisory Training		■
Water & Environmental Technology	■	■
Welding Technology	■	■

\* Pending official approval.

\*\* Certificate pending official approval.

### Acquire Practical Marketable Skills

#### PROFESSIONAL/TECHNICAL PROGRAMS (AAS) (CC)

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

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

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

*Professional/Technical  
Programs*



## *Professional/Technical Programs*

Accounting . . . . .	26
Accounting Clerk . . . . .	26
Automotive Service Technology . . . . .	27
Building Construction Technology . . . . .	28
Business Management . . . . .	29
Business Technology . . . . .	29
Clinical Laboratory Assistant . . . . .	30
Collision Repair/Refinishing . . . . .	30
Collision Repair Technology . . . . .	31
Computer-Aided Drafting/Computer-Aided Manufacturing (CAD/CAM) . .	31
Computer Application Specialist . . . . .	32
Corrections . . . . .	33
Corrections/Juvenile . . . . .	33
Criminal Justice . . . . .	34
Drafting Technology . . . . .	35
Early Childhood Education & Family Studies . . . . .	36
eBusiness Administration . . . . .	36
Electronic Publishing . . . . .	38
Electronics Systems Technology . . . . .	38
Emergency Management . . . . .	39
Emergency Medical Technology . . . . .	39
Employment Skills Training . . . . .	40
Energy & Resource Management . . . . .	40
Gerontology . . . . .	41
Horticulture . . . . .	42
Hospitality & Tourism Management . . . . .	44
Human Services . . . . .	44
Industrial Technology . . . . .	45
Instructional Assistant . . . . .	45
Manufacturing Technology . . . . .	46
Marketing . . . . .	47
Marketing & Management . . . . .	47
Medical Assistant . . . . .	48
Medical Office Administrative Assistant . . . . .	48
Microelectronics Systems Technology . . . . .	49
Music Technnology* . . . . .	50
Network & Microcomputer Specialist . . . . .	50
Nursing . . . . .	51
Occupational Skills Training . . . . .	53
Office Assistant . . . . .	53
Supervisory Training . . . . .	53
Water & Environmental Technology . . . . .	54
Welding Technology . . . . .	55

\* Pending official approval

## Accounting

### ASSOCIATE OF APPLIED SCIENCE DEGREE

The Accounting program at Clackamas emphasizes developing an advanced understanding of accounting principles. The curriculum prepares the student to be able to record day-to-day financial transactions and to prepare summary statements of business conditions. The courses offered emphasize the development of analytical skills and the capacity to solve problems. Students should have the ability to reason, read with comprehension and compute math problems.

The accounting program at CCC 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 Linfield, George Fox and Marylhurst.

#### CAREERS

Career opportunities may be found as a bookkeeper, accounting clerk, payroll clerk, accounting associate, cost accountant, financial accountant or tax accountant. Jobs are available in business, industry, government agencies, service industries and banks.

For information contact John Olds, ext. 2408 or [johno@clackamas.edu](mailto:johno@clackamas.edu)

#### ACCOUNTING ASSOCIATE DEGREE: 1ST YEAR

FALL TERM	CREDITS
BA-101 Introduction to Business	4
BA-211 Financial Accounting I	4
BT-104* Business Math	3
BT-120 Personal Keyboarding [C]	2
WR-121 English Composition	3

#### WINTER TERM

BA-131 Introduction to Business Computing [C]	4
BA-156 Applied Economics	3
BA-177 Payroll Accounting	3
BA-212 Financial Accounting II	4
BA-251 Office Management	3

#### SPRING TERM

BA-205 Solving Communication Problems w/Tech. [C]	4
BA-213 Decision Making with Accounting Information	4
BA-226 Introduction to Business Law I	4
BA-285 Human Relations in Business	4

#### ACCOUNTING ASSOCIATE DEGREE: 2ND YEAR

FALL TERM	CREDITS
BA-223 Principles of Marketing	4
BA-240 Government Accounting	4
BA-256 Income Tax	3
PE/HE/HPE Physical Education/Health	3
SP-111 Public Speaking	3

#### WINTER TERM

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

#### SPRING TERM

BA-218 Personal Finance	3
BA-225 Business Report Writing	3
BA-248 Auditing	3
BA-280 Business/CWE	3
BT-105 Computerized Accounting	3

*Minimum credits required for degree* 95

\* For this degree, this course meets the General Education Computation requirement.

## Accounting Clerk

### CERTIFICATE

This certificate program prepares students to perform full-cycle 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. Typical duties include completing journal entries, assisting with tax, audit and other accounting procedures, preparing reports, communicating results and general office responsibilities.

Full-cycle proprietorship, partnership and corporate journalizing are covered, along with posting, preparation of period-end worksheets, entries, financial statements and payroll.

#### CAREERS

Career opportunities may be found in bookkeeping and accounting firms, accounting departments at all kinds of businesses, and for small and medium-sized service companies.

For information contact John Olds, ext. 2408 or [johno@clackamas.edu](mailto:johno@clackamas.edu)

#### ACCOUNTING CLERK CERTIFICATE

FALL TERM	CREDITS
BA-101 Introduction to Business	4
BA-211 Financial Accounting I	4
BT-104* Business Math	3
BT-120 Personal Keyboarding [C]	2
WR-121 English Composition	3

#### WINTER TERM

BA-131 Introduction to Business Computing [C]	4
BA-156 Applied Economics	3
BA-177 Payroll Accounting	3
BA-212 Financial Accounting II	4
BA-251 Office Management	3

#### SPRING TERM

BA-205 Solving Communication Problems w/Tech. [C]	4
BA-213 Decision Making with Accounting Information	4
BA-226 Introduction to Business Law I	4
BA-280 Business/CWE	3
BA-285 Human Relations in Business	4

*Minimum credits required for certificate* 52

\* For this degree, this course meets the General Education Computation requirement.

## Automotive Service Technology

### ASSOCIATE OF APPLIED SCIENCE DEGREE INTERNSHIP PROGRAM

Auto technicians maintain and repair passenger cars and light trucks. The work involves repairing air conditioning systems, engine and transmission rebuilding,

- Test center for the National Institute for Automotive Service Excellence (ASE)
- ASE certified instructors
- Master Certification from the National Automotive Technician's Education Foundation (NATEF)
- AAA approved training center

front-end repair and alignment, brake service, starting and charging system repair, and the diagnosis and repair of electronic engine controls and safety systems.

Coursework includes cooperative work experience working for a local employer, and those who

wish to specialize may take advanced mechanic studies courses for more in-depth experience. Students may enter the program any term.

#### AUTOMOTIVE TECHNICIAN'S INTERNSHIP PROGRAM

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

#### TOYOTA "T-TEN" INTERNSHIP PROGRAM

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

#### CAREERS

While training is specific to car and light truck repair, entry-level automotive technicians also find employment in equipment sales, service management, education, RV and marine repair, truck repair, lift truck service and other related fields.

#### PREREQUISITES

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

For information contact the Automotive Department, 503-657-6958, ext. 2354.

### AUTOMOTIVE SERVICE TECHNOLOGY ASSOCIATE DEGREE: 1ST YEAR

FALL TERM		CREDITS
AM-121	General Auto Repair I	3
AM-133	Engine Systems	7
MFG-109	Computer Literacy for Technicians [C]	3
PSY-101	Human Relations	3

WINTER TERM		CREDITS
AM-122	General Auto Repair II	3
AM-129	Electrical Systems	7
MTH-050	Technical Mathematics I	3
SP-100	Basic Speech Communication	3

SPRING TERM		CREDITS
AM-123	General Auto Repair III	3
AM-130	Brake Systems (corequisite: AM-131)	4
AM-131	Chassis Systems (corequisite: AM-130)	4
WR-101	Communication Skills: Occupational Writing	3

### AUTOMOTIVE SERVICE TECHNOLOGY ASSOCIATE DEGREE: 2ND YEAR

FALL TERM		CREDITS
AM-235	Power Transmission Systems	7
AM-245	Automatic Transmission Systems	7
HE-252	First Aid/CPR	3

WINTER TERM		CREDITS
AB-112	Collision Repair Welding I	2
AM-228	Service Shop Management	4
AM-243	Fuel & Emission Control Systems (prerequisite or corequisite: AM-129)	7
— —	General Education Elective	3

SPRING TERM		CREDITS
AM-224	Comfort Systems	4
AM-244	Advanced Electrical & Fuel Systems (prerequisites: AM-129 & AM-243)	7
AM-280	Auto Mechanics/CWE	6

Minimum credits required for degree (requirements + electives) 96

*Note: An alternative course schedule is available. Contact the Advising & Counseling Center or the Automotive Department for information.*

#### RECOMMENDED ELECTIVES

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

## Building Construction Technology

### CERTIFICATE ASSOCIATE OF APPLIED SCIENCE DEGREE

The Building Construction program utilizes research, documentation and hands-on applications to learn about the industry. Construction procedures, methods, standards and techniques are explored. The one-year certificate program is an exploration program designed to assist a student in pursuing a career option. Second-year students focus on basic project management skills that can be directly applied in the field. Students who meet state requirements may apply to an area trade apprenticeship program.

#### CAREERS

Skilled workers in the construction infrastructure trades are in high demand. The Building Construction certificate prepares students for entry-level construction positions such as general laborer, field trade assistant or various positions with construction suppliers. The two-year Building Construction associate degree prepares students for construction positions as estimators, schedulers, project managers, professional assistants.

For information contact Bob Topping, ext. 4636 or [bobt@clackamas.edu](mailto:bobt@clackamas.edu)

#### ARCHITECTURAL PROJECT MANAGEMENT (PSU ARTICULATION AGREEMENT)

This program enables students who attend CCC to meet the requirements to articulate to Portland State University School of Architecture. To qualify for PSU's Architectural Project Management option, the student must meet PSU transfer requirements and complete CCC Project Management courses plus two additional 200-level elective courses from the PSU suggested offerings. For PSU requirements, see program advisor.

#### CONSTRUCTION PROJECT MANAGEMENT (MARYLHURST TRANSFER AGREEMENT)

This program enables students who attend CCC to meet the requirements to transfer with Junior standing to Marylhurst University for a business degree that emphasizes Construction Project Management.

#### BUILDING CONSTRUCTION TECHNOLOGY CERTIFICATE

FALL TERM		CREDITS
BC-100	Construction Orientation [C]	6
BC-101	Building Trades Print Reading	4
— —	Building Construction Electives	6

#### WINTER TERM

WR-101*	Communication Skills	
or WR-121	English Composition	3
MTH-050	Technical Mathematics I	
or MTH-065*	Algebra II	3 or 4
— —	Building Construction Electives	8

#### SPRING TERM

BC-107	Construction Career Portfolio [C]	6
BC-180	Building Construction Technology/CWE or Building Construction Electives	3
— —	Human Relations Elective	3
— —	General Education Elective (CS-120 recommended)	3

*Minimum credits required for certificate* 45-46

\*Substitute these courses if you plan to continue your education at a higher education institution. It is recommended that you consult with an advisor concerning the transfer requirements of the specific advanced program or school.

#### BUILDING CONSTRUCTION TECHNOLOGY ASSOCIATE DEGREE: 1ST YEAR

Complete certificate program.

#### BUILDING CONSTRUCTION TECHNOLOGY ASSOCIATE DEGREE: 2ND YEAR

FALL TERM		CREDITS
BC-201	Project Management I [C] or Building Construction/200-Level electives	12
— —	General Education Electives (HE-252 recommended)	3

#### WINTER TERM

BC-202	Project Management II [C] or Building Construction/200-Level electives	12
— —	General Education Electives	3

#### SPRING TERM

BC-203	Project Management III [C] or Building Construction/200-Level electives	12
BC-280	Construction Projects/CWE	6

*Minimum credits required for degree* 93

#### BUILDING CONSTRUCTION ELECTIVES

100-LEVEL ELECTIVES:		CREDITS
BC-104	Basic Carpentry	6V
BC-105	Basic Electricity	6V
BC-106	Basic Plumbing	6V
BC-108	Basic Concrete and Masonry	6V
BC-109	Basic Mechanical Systems	6V
BC-110	Interior Surface Systems	6V
BC-111	Basic Interior Finish	6V
BC-112	Construction Specifications [C]	12V
BC-113	Construction Spec Administration	12V
BC-114	Basic Estimating	6V
BC-115	Basic Scheduling	6V
BC-121	Professional Computing for Construction	4V
BC-170	Industrial Performance, Health & Safety I	12V
BC-180	Building Construction Tech./CWE(certificate)	6V

#### 200-LEVEL ELECTIVES:

BC-204	Residential Construction Codes	12V
BC-205	Commercial Construction Codes	12V
BC-206	Construction Site Compliance	12V
BC-210	Construction Project Scheduling: Advanced	12V
BC-211	Organizational Leadership	12V
BC-230	Home Inspection I	12V
BC-231	Home Inspection II	12V
BC-232	Home Inspection III	12V
BC-233	Beyond ADA Standards	12V
BC-270	Industry Performance, Health & Safety	12V
BC-286	Advanced Construction Applications	12V

## Business Management

### CERTIFICATE

This program covers basic management and leadership skills, motivation, situational analysis, ethics, work flow analysis, ergonomics, personality and human relations, communications, technological innovations, and adapting to change.

Typical duties include budgeting, scheduling, planning, organizing, critical thinking, decision making, and managing scarce and diminishing resources.

### CAREERS

Career opportunities for entry-level employees include management-training positions in financial institutions, small and medium-sized retail and service companies.

For information call John Olds, ext. 2408 or johno@clackamas.edu; Joan Ryan, ext. 2363 or joanr@clackamas.edu

### BUSINESS MANAGEMENT CERTIFICATE

FALL TERM		CREDITS
BA-101	Introduction to Business	4
BA-211	Financial Accounting I	4
BT-104*	Business Math	3
BT-120	Personal Keyboarding [C]	2
WR-121	English Composition	3

### WINTER TERM

BA-131	Introduction to Business Computing [C]	4
BA-156	Applied Economics	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 w/Tech. [C]	4
BA-217	Budgeting for Managers	3
BA-218	Personal Finance	3
BA-224	Human Resource Management	3
BA-280	Business/CWE	3

Minimum credits required for certificate 51

\* For this degree, this course meets the General Education Computation requirement.

## Business Technology

### ASSOCIATE OF APPLIED SCIENCE DEGREE

The Business Technology program provides students with a strong foundation of basic skills and courses in business administration, with an emphasis on critical thinking and human relations skills.

The two-year program includes general education requirements, industry standard computer programs, and more advanced business administration courses.

### CAREERS

Career opportunities may be found as administrative assistants, legal assistants, legal secretaries, medical secretaries, receptionists, office managers, office assistants, word processors and transcriptionists.

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

### BUSINESS TECHNOLOGY ASSOCIATE DEGREE: 1ST YEAR

FALL TERM		CREDITS
BA-101	Introduction to Business	4
BT-104*	Business Math	3
BT-122	Keyboarding Skill Building	2
BT-124	Business English I	3
BT-160	Microsoft Word [C]	3

### WINTER TERM

BA-285	Human Relations in Business	4
BT-115	Intro. to General Accounting & Bookkeeping	3
or BA-211	Financial Accounting I	4
BT-125	Business English II	3
BT-161	Intermediate Microsoft Word [C]	3
BT-176	Excel	3

### SPRING TERM

BA-218	Personal Finance	3
BT-170	Access [C]	3
BT-240	Filing Records Management	3
BT-262	Advanced Word	3
WR-121	English Composition	3

### BUSINESS TECHNOLOGY ASSOCIATE DEGREE: 2ND YEAR

FALL TERM		CREDITS
BA-131	Introduction to Business Computing [C]	4
BA-224	Human Resource Management	3
BA-226	Introduction to Business Law I	4
SP-111	Public Speaking	3
— —	Elective	3

### WINTER TERM

BA-156	Applied Economics	3
BA-205	Solving Communication Problems w/Tech. [C]	4
BA-251	Office Management	3
BT-220P	Desktop Publishing I: PageMaker	3
HE-249	Mental Health	3
or HPE-295	Health & Fitness for Life	

### SPRING TERM

BA-225	Business Report Writing	3
BA-280	Business/CWE	6
BT-190	Business Graphics	3
BT-191	Document Design & Publishing	3

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

\* For this degree, this course meets the General Education Computation requirement.

### RECOMMENDED ELECTIVES

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

## Clinical Laboratory Assistant

### CERTIFICATE

The Clinical Laboratory Assistant program at Clackamas Community College is designed to prepare students for entry-level positions in clinical laboratory settings such as medical center clinical laboratories, reference laboratories, research laboratories, and physician office laboratories (POLs). Program approval by the National Accrediting Agency for Clinical Laboratory Science (NAACLS) is pending.

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

Admission into the Clinical Laboratory Assistant program is during summer term by special application only. Specific skill levels are required in reading, writing, and math. Applicants are advised that a high level of dexterity, the ability to multi-task, and a high degree of attention to detail are required for the successful completion of this program. Application packets with admission procedures and requirements are available from the Help Center, the Advising & Counseling Center, or go to <http://depts.clackamas.cc.or.us/healthsciences>

Upon successful completion of the program, students will be eligible to sit for the National Phlebotomy Certification exam and/or the American Medical Technologist (AMT) Certified Office Laboratory Technician (COLT), and Laboratory Assistant exam.

For information contact Maureen Mitchell, ext. 2910 or [maureenm@clackamas.edu](mailto:maureenm@clackamas.edu)

### CLINICAL LABORATORY ASSISTANT CERTIFICATE

FALL TERM		CREDITS
BI-055	Introduction to Human Biology	3
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	3
WINTER TERM		
CLA-102	Clinical Laboratory Assistant Skills II	4
CLA-115	Laboratory Administrative Skills	2
CLA-119	Phlebotomy/Laboratory Practicum I	2
CS-120	Survey of Computing [C]	4
MTH-050	Technical Mathematics I	3

### SPRING TERM

CLA-103	Clinical Laboratory Assistant Skills III	4
CLA-120	Phlebotomy/Laboratory Practicum II	4
PSY-101	Human Relations	3
SP-100	Basic Speech Communication	3

*Minimum credits required for certificate* 45

Current First Aid and CPR/American Heart Association certificates are required during practicums and must be taken prior to winter term practicum.

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

## Collision Repair/Refinishing

### CERTIFICATE

Refinishing technicians prepare vehicles for paint, mix and tint paint, do spot repairs and overall refinishing.

Coursework covers the use of urethane systems including single, two stage, and tri-coat color applications. Skills needed by refinishing technicians include the ability to machine- and hand-sand, work with hazardous materials, and use product application techniques.

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

### CAREERS

Career opportunities in auto refinishing may include work with independent repair shops, auto dealerships, paint suppliers, heavy equipment dealers or truck painting facilities.

For information contact David Bradley, ext. 2628 or [bradleyd@clackamas.edu](mailto:bradleyd@clackamas.edu)

### COLLISION REPAIR REFINISHING CERTIFICATE

FALL TERM		CREDITS
AB-112	Collision Repair Welding I	2
ABR-125	Collision Repair/Refinishing I	12
MTH-050	Technical Mathematics I	3
WINTER TERM		
ABR-127	Collision Repair/Refinishing II (prerequisites: ABR-125 & AB-112)	12
AM-228	Service Shop Management	4
MFG-109	Computer Literacy for Technicians [C]	3

**SPRING TERM**

ABR-129	Collision Repair/Refinishing III (prerequisite: ABR-127)	12
HE-252	First Aid/CPR	3
WR-101	Communication Skills: Occupational Writing	3

**SUMMER TERM**

ABR-180	Auto Body Refinishing/CWE	6
PSY-101	Human Relations	3

Minimum credits required for certificate 63

**WINTER TERM**

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

**SPRING TERM**

AB-224	Advanced Collision Repair IV	10
AB-231	Collision Repair/Electrical II	3
— —	General Education Elective	3

Minimum credits required for degree (requirements + electives) 97

## Collision Repair Technology

### ASSOCIATE OF APPLIED SCIENCE DEGREE

Collision repair technicians repair or replace damaged panels, parts and frames on both unibody and conventional frame vehicles. Coursework covers advanced

- Modern shop facility utilizing advanced frame repair machines
- National Automotive Technician's Education Foundation (NATEF) certified
- InterIndustry Conference for Auto Collision Repair (I-CAR) gold class training facility and program
- I-CAR "Advance Tech" curriculum is used exclusively
- Automotive Service Excellence (A.S.E.) Certified Instructors

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

**CAREERS**

Career opportunities are similar to those for collision repair/refinishing.

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

**RECOMMENDED ELECTIVES**

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

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

### ASSOCIATE OF APPLIED SCIENCE DEGREE

This program combines training in computer-aided drafting (CAD) and computer-aided manufacturing (CAM). Students completing this degree are able to provide a company with the needed support from product design through manufacturing. Coursework emphasizes computer-aided mechanical drafting, machine tool fundamentals, computer numerical control (CNC), and computer-aided manufacturing.

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

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

<b>FIRST TERM</b>		<b>CREDITS</b>
CDT-102	Sketching & Problem Solving	2
CDT-103	Computer-Aided Drafting I	4
MFG-104	Print Reading	2
MTH-050	Technical Mathematics I	3
WR-101	Communication Skills: Occupational Writing	3

<b>SECOND TERM</b>		
CDT-104*	Professional Computing Basics [C]	2
CDT-105	Computer-Aided Drafting II	4
MFG-105	Dimensional Inspection	2
MFG-111	Machine Tool Fundamentals I	6
MTH-080	Technical Mathematics II	3

<b>THIRD TERM</b>		
CDT-107	Computer-Aided Drafting III	4
CDT-108**	CAD 3D	3
MFG-112	Machine Tool Fundamentals II	6
MTH-085	Technical Mathematics III	3

**COLLISION REPAIR TECHNOLOGY ASSOCIATE DEGREE: 1ST YEAR**

<b>FALL TERM</b>		<b>CREDITS</b>
AB-112	Collision Repair Welding I	2
AB-113	Collision Repair I/Nonstructural	12
HE-252	First Aid/CPR	3

<b>WINTER TERM</b>		
AB-111	Collision Repair/Chassis & Brakes	5
AB-123	Collision Repair Welding II	2
AM-228	Service Shop Management	4
MTH-050	Technical Mathematics I	3
WR-101	Communication Skills: Occupational Writing	3

<b>SPRING TERM</b>		
AB-133	Collision Repair II/Structural	12
AB-211	Collision Repair/Electrical I	4
— —	General Education Elective	3

**COLLISION REPAIR TECHNOLOGY ASSOCIATE DEGREE: 2ND YEAR**

<b>FALL TERM</b>		<b>CREDITS</b>
AB-222	Collision Repair III/Advanced Structural	12
SP-100	Basic Speech Communication	3

Continued

**FOURTH TERM**

CDT-109A	Project Drafting I-CAD/CAM	2
CDT-110	Kinematics Drafting	2
CDT-111	Geometric Dimensioning & Tolerancing	
or MFG-106	Applied Geometric Dimensioning & Tolerancing for Manufacturing	3
MFG-201	CNC Programming I	4
MFG-204	Computer-Aided Manufacturing I	4
PSY-101	Human Relations	3

**FIFTH TERM**

HE-252	First Aid/CPR	3
MFG-113	Machine Tool Fundamentals III	6
MFG-202	CNC Programming II	4
MFG-205	Computer-Aided Manufacturing II	4

**SIXTH TERM**

MFG-206	Computer-Aided Manufacturing III	2
MFG-211	Machine Tool Fundamentals IV	6
MFG-221	Materials Science	3
MFG-280	Manufacturing Technology/CWE	4

Minimum credits required for degree: 97

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

\*\* CDT-108A Introduction to Solid Modeling, can be substituted for CDT-108.

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

## Computer Application Specialist

### CERTIFICATE ASSOCIATE OF APPLIED SCIENCE DEGREE

The Computer Application Specialist program prepares students for technical positions using and supporting computer software, with a broad background that includes operating systems, web development, spreadsheet, database, and programming software. Positions could include software installation and maintenance, user support and training, or web development.

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

Prerequisites for first term classes include completed coursework or placement out of CS-120 Survey of Computing, WR-095 Paragraph to Essay, and MTH-065 Algebra II. This program is an open program, meaning that students may take any class in the program for which they have completed the prerequisite.

**CAREERS**

Career opportunities include web developers, database developers, software trainers, software installation and maintenance engineers, computer applications specialists, client support representatives, customer service engineers, help desk technicians, or software consultants.

For information contact Linda Anderson, ext. 2539 or lindaa@clackamas.edu

**COMPUTER APPLICATION SPECIALIST CERTIFICATE**

<b>FALL TERM</b>		<b>CREDITS</b>
CS-121	Computer Applications [C]	3
CS-160	Computer Tech Orientation	2
CS-225	Computer End-User Support	3
CS-140W	Operating Systems I: Windows	4
MTH-092	Math for Computer Technicians	4

**WINTER TERM**

BT-220P	Desktop Publishing I: PageMaker	
or BT-220Q	Desktop Publishing I: Quark XPress	3
CS-125H	Website Design & HTML	3
CS-135W	Advanced Word Processing	3
CS-179	Data Communications	3
WR-101	Communications Skills: Occupational Writing	3

**SPRING TERM**

BA-101	Introduction to Business	4
CS-135I	Advanced Internet Applications	3
CS-280	Computer Science/CWE	3
CS-135S	Advanced Spreadsheet	3
PSY-101	Human Relations	3 or 4
or BA-285	Human Relations in Business	

Minimum credits required for certificate 47-48

**COMPUTER APPLICATION SPECIALIST  
ASSOCIATE OF APPLIED SCIENCE DEGREE: 1ST YEAR**

Complete certificate program.

**COMPUTER APPLICATION SPECIALIST  
ASSOCIATE OF APPLIED SCIENCE DEGREE: 2ND YEAR**

<b>FALL TERM</b>		<b>CREDITS</b>
ART-115	Basic Design	3
CS-140U	Operating Systems I: Linux/Unix	3
CS-133VB	Visual Basic I	3
CS-135DB	Advanced Database	3
— —	Focus Area	3-6

**WINTER TERM**

CS-195	Website Technologies I	3
CS-244	Systems Analysis	3
HE-252	First Aid/CPR	
or HPE-295	Health & Fitness for Life	3
— —	Elective	3
— —	Focus Area	3-6

**SPRING TERM**

BT-183	Introduction to eCommerce	3
CS-280	Computer Science/CWE	6
CS-235	Visual Basic for Applications	3
— —	Focus Area	3-6

Minimum credits required for degree (requirements & electives) 93-96

**ADDITIONAL COURSES FROM FOCUS AREA**

Complete all courses from one of the following Focus Areas (10-12 credits).

**WEB PROGRAMMING**

CS-133S	Web Development I	3
CS-233S	Web Development II	3
CS-234S	Web Development III	3
CS-295	Website Technologies II	3

**WEB DEVELOPMENT**

WR-165	Writing on the Web	3
ART-225	Computer Graphics I [C]	3
ART-226	Computer Graphics II [C]	3
CS-295	Website Technologies II	3

**ACCOUNTING**

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

**DATABASE PROGRAMMING**

CS-233VB	Visual Basic II	3
CS-234VB	Visual Basic III	3
CS-275	Database Programming	4

## Corrections

**ASSOCIATE OF APPLIED SCIENCE DEGREE**

Clackamas Community College offers an associate degree in Corrections. The two-year associate degree provides the skills and knowledge needed to qualify for a job in a federal, state or local corrections system.

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

**CAREERS**

Opportunities include positions in adult and juvenile probation/parole, work release, jail and detention, a prison system, electronic monitoring, and counseling offenders. Corrections professionals are usually qualified to move into other areas of law enforcement or social service.

For information contact Dick Ashbaugh, ext. 2237 or [dicka@clackamas.edu](mailto:dicka@clackamas.edu)

**CORRECTIONS ASSOCIATE DEGREE: 1ST YEAR**

FALL TERM	CREDITS
CJA-110 Introduction to Law Enforcement	3
CJA-130 Introduction to Corrections	3
HPE-295 Health & Fitness for Life	3
PSY-221 Introduction to Counseling	3
WR-121 English Composition	3
<b>WINTER TERM</b>	
CJA-120 Judicial Process	3
CJA-134 Correctional Institutions	3
SP-111 Public Speaking	3
WR-122 English Composition	3
— — Elective	3

**SPRING TERM**

CJA-101	Introduction to Criminology	3
CJA-203	Crisis Intervention	3
CJA-240	Cultural Diversity/Law Enforcement	3
HE-205	Youth Addiction	3
MTH-050	Technical Mathematics I	
— —	or MTH-065 Algebra II	3-4
— —	Elective	3

**CORRECTIONS ASSOCIATE DEGREE: 2ND YEAR**

FALL TERM	CREDITS	
CJA-122	Criminal Law	3
CJA-132	Parole & Probation	3
CJA-232	Corrections Casework	3
HE-207	Stress Management	1
PHL-102	Ethics	3
PSY-101	Human Relations	3
<b>WINTER TERM</b>		
CJA-201	Juvenile Delinquency	3
CJA-213	Interview & Interrogation	3
CJA-243	Narcotics & Dangerous Drugs	3
SOC-206	Institutions & Social Change	3
— —	Elective	3-4
<b>SPRING TERM</b>		
CJA-230	Juvenile Corrections	3
CJA-280	Criminal Justice/Corrections/CWE	6
CS-120	Survey of Computing [C]	4
PS-203	U.S. Government & Local Institutions	3

*Minimum credits required for degree* 95-96

**RECOMMENDED ELECTIVES**

BT-120	Personal Keyboarding [C]
PSY-200	Psychology as a Natural Science
PSY-219	Introduction to Abnormal Psychology
SOC-205	Social Stratification & Social Systems
SOC-225	Social Problems
SOC-204	Introduction to Sociology
SPN-111	Spanish Conversation

## Corrections/Juvenile

**CERTIFICATE**

The Corrections/Juvenile certificate is a one-year program developed in cooperation with the Oregon Youth Authority. It is designed to prepare students for employment in the juvenile justice system. Coursework includes cooperative work experience, hands-on experience in a correctional agency, to supplement and apply knowledge gained in academic courses.

**CAREERS**

Opportunities include positions in adult and juvenile probation/parole, work release, jail and detention, a prison system, electronic monitoring, and counseling offenders. Corrections professionals are usually qualified to move into other areas of law enforcement or social service.

For information contact Dick Ashbaugh, ext. 2237 or [dicka@clackamas.edu](mailto:dicka@clackamas.edu)

*Continued*

**CORRECTIONS/JUVENILE CERTIFICATE**

<b>FALL TERM</b>		<b>CREDITS</b>
CJA-232	Corrections Casework	3
CS-120	Survey of Computing [C]	4
PSY-200	Psychology as a Natural Science	3
PSY-205	Psychology as a Social Science	3
WR-121	English Composition	3

<b>WINTER TERM</b>		
CJA-201	Juvenile Delinquency	3
HE-205	Youth Addiction	3
PSY-219	Introduction to Abnormal Psychology	3
SOC-205	Social Stratification & Social Systems	3
WR-122	English Composition	3

<b>SPRING TERM</b>		
CJA-101	Introduction to Criminology	3
CJA-203	Crisis Intervention	3
CJA-230	Juvenile Corrections	3
MTH-050	Technical Math I or MTH-065 Algebra II	3-4
PSY-215	Introduction to Developmental Psychology	3

**ADDITIONAL REQUIREMENT**

CJA-280	Criminal Justice/Corrections/CWE (can be taken Winter or Spring term)	3
<i>Minimum credits required for certificate</i>		49-50

## Criminal Justice

**ASSOCIATE OF APPLIED SCIENCE DEGREE**

The program prepares students for entry into career positions in law enforcement and related fields. Police officers participate in community policing, investigate criminal activity, patrol neighborhoods, perform benevolent services, collect and examine evidence.

This two-year program covers many of the skills necessary for entry-level employment with a local police agency as well as other opportunities with federal and state agencies. Coursework includes cooperative work experience which affords the student the opportunity for hands-on experience with many local criminal justice agencies. Students may enter this program during any term. (See Criminal Justice, page 64, for a sample transfer curriculum).

**CAREERS**

Employment opportunities include a variety of assignments in federal, state and local law enforcement agencies. Many departments require college coursework or degrees in addition to civil service requirements.

For information contact Dick Ashbaugh, ext. 2237 or [dicka@clackamas.edu](mailto:dicka@clackamas.edu)

**CRIMINAL JUSTICE ASSOCIATE DEGREE: 1ST YEAR**

<b>FALL TERM</b>		<b>CREDITS</b>
CJA-110	Introduction to Law Enforcement	3
CJA-112	Patrol Procedures	3
CJA-200	Community Relations/Policing	3
HPE-295	Health & Fitness for Life	3
WR-121	English Composition	3

**WINTER TERM**

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

**SPRING TERM**

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

**CRIMINAL JUSTICE ASSOCIATE DEGREE: 2ND YEAR**

<b>FALL TERM</b>		<b>CREDITS</b>
CJA-122	Criminal Law	3
CJA-210	Criminal Investigation I	3
CS-120	Survey of Computing [C]	4
HE-207	Stress Management	1
PHL-102	Ethics	3
PSY-101	Human Relations	3

**WINTER TERM**

CJA-211	Criminal Investigation II	3
CJA-220	Substantive Law	3
CJA-243	Narcotics & Dangerous Drugs	3
SOC-206	Institutions & Social Change	3
— —	Elective	3

**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
PS-203	U.S. Government & Local Institutions	3

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

**RECOMMENDED ELECTIVES**

ANT-101	Physical Anthropology
ANT-102	Archaeology & Prehistory
ANT-103	Cultural Anthropology
BT-120	Personal Keyboarding [C]
SPN-111	Spanish Conversation I
SPN-112	Spanish Conversation II
SPN-113	Spanish Conversation III
SOC-204	Introduction to Sociology
SOC-205	Social Stratification & Social Systems
SOC-225	Social Problems

## Drafting Technology

### ASSOCIATE OF APPLIED SCIENCE DEGREE PROFESSIONAL UPGRADE

Drafting is required for the design and fabrication of almost any product. Professional drafters convert engineering sketches and designs into formal drawings for

- Autodesk Authorized Premier Training Center since 1986
  - AutoCAD
  - Autodesk Land Desktop
  - Customized Courses
  - Modeling & Animation
  - Menu Design & Programming
  - Solid Modeling
- Authorized ESRI Learning Center for ArcView
- Solid Works

product manufacturing, building construction or facilities layout. The foundation of the Drafting Technology program is mechanical (manufacturing) drafting with exposure to each of the drafting fields, including architectural, structural, civil, industrial piping and sheet metal drafting. Students may enter the program any term.

Coursework covers the basics of 2D, 3D, modeling, animation, customization and programming. Individual instruction stresses industrial standards and techniques; and building applicable skills, work habits and logic.

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

#### DRAFTING FOR THE DISABLED

The program works with students whose disabilities limit or prevent the use of their hands or arms. The department can assist in customizing a workstation with adaptive equipment. Students pace themselves, allowing additional time for training to learn commands and procedures. Specific needs for adaptive equipment are dealt with on an individual basis.

#### CAREERS

Skilled drafters work in engineering, manufacturing, construction, government, utilities, design, engineering, management, estimating, computer programming and related occupations.

For information contact Michael Jones, ext. 2443 or [mikej@clackamas.edu](mailto:mikej@clackamas.edu)

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

See degree program on pages 31-32.

#### DRAFTING TECHNOLOGY ASSOCIATE DEGREE

FIRST TERM		CREDITS
CDT-101	Drafting Technology Survey	2
CDT-102	Sketching and Problem Solving	3
CDT-103	Computer-Aided Drafting I	4
CDT-104	Professional Computer Basics [C]	2
CDT-120	Student Success	2
MTH-050	Technical Mathematics I	3
SECOND TERM		
CDT-105	Computer-Aided Drafting II	4
CDT-106	Applied Descriptive Geometry	3
MTH-080	Technical Mathematics II	3
WR-101	Communication Skills: Occupational Writing	3
— —	Human Relations Elective (SP-100 recommended)	3
THIRD TERM		
CDT-107	Computer-Aided Drafting III	4
CDT-108	CAD 3D	3
CDT-202	Architectural Drafting I	4
CDT-204	Civil Drafting	3
MTH-085	Technical Mathematics III	3
FORTH TERM		
CDT-108A	Introduction to Solid Modeling	3
CDT-109	Project Drafting I	5
CDT-110	Kinematics Drafting	3
CDT-111	Geometric Dimensioning & Tolerancing	3
CDT-201	CAD Menu Design	3
FIFTH TERM		
CDT-203	Sheet Metal Drafting	3
CDT-206	CAD/CAM Integration	2
CDT-208	Schematic Drafting	3
CDT-209	Structural Drafting I	3
TPH-100	Technical Physics (Winter term only)	3
— —	PE/Health Elective	1
SIXTH TERM		
CDT-207	Introduction to AutoLISP	3
CDT-210	Industrial Pipe Drafting	3
CDT-211	Technical Communication	3
CDT-280	Drafting Technology/CWE	6
<i>Minimum credits required for degree</i>		96

#### ARCHITECTURAL OPTION

This degree option allows students to receive an Associate of Applied Science degree in Drafting Technology with 27 credits completed in residential and structural drafting in place of advanced mechanical drafting classes.

#### DRAFTING TECHNOLOGY ASSOCIATE DEGREE: ARCHITECTURAL OPTION

FIRST TERM		CREDITS
CDT-101	Drafting Technology Survey	2
CDT-102	Sketching and Problem Solving	3
CDT-103	Computer-Aided Drafting I	4
CDT-104	Professional Computer Basics [C]	2
CDT-120	Student Success	2
MTH-050	Technical Mathematics I	3

*Continued*

**SECOND TERM**

CDT-105	Computer-Aided Drafting II	4
CDT-106	Applied Descriptive Geometry	3
MTH-080	Technical Mathematics II	3
WR-101	Communication Skills: Occupational Writing	3
— —	Human Relations Elective (SP-100 recommended)	3

**THIRD TERM**

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

**FOURTH TERM**

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

**FIFTH TERM**

CDT-203	Sheet Metal	3
CDT-211	CAD Technical Communication	3
CDT-213	Architectural Drafting III	4
CDT-215	Structural Drafting II	4
TPH-100	Technical Physics (Winter term only)	3

**SIXTH TERM**

CDT-216	Structural Drafting III	4
CDT-217	Introduction to Remodeling	4
CDT-280	Drafting Technology/CWE	6
— —	PE/Health Electives	1-3

Minimum credits required for degree 97-99

**RECOMMENDED**

CDT-207	Introduction to AutoLISP	3
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## Early Childhood Education & Family Studies

**CERTIFICATE**

This program provides a foundation in early childhood care and education core knowledge areas. Coursework will be taught following Developmentally Appropriate Practice (DAP) principles, outlined by National Associate for the Education of Young Children (NAEYC).

Upon completion of this certificate program, participants will have completed the education/training required for application to either the CDA (Child Development Associate) national credential and/or to Oregon's Early Childhood Care and Education Professional Development Registry (PDR) at Level II.

**CAREERS**

Career opportunities may be found as childhood care and education practitioners (home or center based), preschool teachers, paraprofessionals in child and family support systems.

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

**EARLY CHILDHOOD ED. & FAMILY STUDIES CERTIFICATE**

**SUMMER CREDITS**

MTH-050	Technical Mathematics I	3
WR-121	English Composition	3
or WR-101	Communication Skills	

**FALL**

CS-120	Survey of Computing [C]	4
ECE-150*	Intro. & Observation in Early Childhood Ed.	3
HDF-260	Child Abuse & Neglect	3
HDF-225**	Prenatal, Infant & Toddler Development	3
FN-225	Nutrition	4

**WINTER**

ECE-209	Theory & Practicum (on campus)	3
ECE-240***	Lesson & Curriculum Planning	3
HDF-247	Preschool Development	3
HS-154	Community Resources	3
ECE-154	Language & Literacy	3

**SPRING**

ECE-280	Early Childhood Education/CWE	3
HDF-140	Contemporary American Families	3
ECE-239	Helping Children & Families Cope w/Stress	3
SP-115	Introduction to Intercultural Communication	
or ED-258	Multicultural Education	3
HE-261	Community/CPR (Includes Infant CPR)	1

Minimum credits required for certificate 51

\* Non-childhood care & education students can substitute HDF-141 Effective Parenting I for ECE-150.

\*\* ECE-175 Infant/Toddler Caregiving (3 credits) can be substituted for HDF-225.

\*\*\* Non-childhood care & education students can substitute HDF-142 Effective Parenting II for ECE-240.

An Associate of Applied Science Degree in Human Services is available for Early Childhood Education & Family Studies. This certificate program would meet first year requirements.

## eBusiness Administration

**CERTIFICATE**

This one-year certificate program prepares students to perform the business related eCommerce skills including a basic background of business functions in accounting, general business, management, sales, and marketing. This certificate is designed to accompany an associate degree in a related field and to give the student eCommerce exposure as it relates to business administration skills needed to work cooperatively with and communicate effectively with programmers, designers, artists, and other technicians.

**CAREERS**

Career opportunities include research assistant, database manager, systems support specialist, web support supervisory, and management trainee.

For information contact Joan Ryan, ext. 2363 or joanr@clackamas.edu

**eBUSINESS ADMINISTRATION CERTIFICATE**

<b>FALL TERM</b>		<b>CREDITS</b>
BT-104*	Business Math	3
BT-183	Introduction to eCommerce	3
BA-101	Introduction to Business	4
BA-131	Introduction to Business Computing [C]	4
WR-121	English Composition	3

<b>WINTER TERM</b>		
BT-184	eBusiness Applications	3
BA-205	Solving Communication Problems w/Tech. [C]	4
BA-211	Financial Accounting I	4
BA-223	Principles of Marketing	4
BA-285	Human Relations in Business	4

<b>SPRING TERM</b>		
BA-226	Introduction to Business Law I	4
BA-238	Sales	3
BA-250	Introduction to Small Business	3
BA-266	Advanced eMarketing	3
BA-280	Business/CWE	3
<i>Minimum credits required for certificate</i>		52

\* For this degree, this course meets the General Education Computation requirement.

## *eBusiness Administration*

### ASSOCIATE OF APPLIED SCIENCE DEGREE

The eCommerce program emphasizes a managerial and decision-making approach to business administration, both traditional and on the web. All successful businesses have a vital and engaging web presence. This curriculum prepares the student to work cooperatively with web designers, graphic artists, systems support, and technical engineers, in order to enhance functional and productive systems. Students will explore cross-departmental course work to learn skills in web design, team management, HTML, graphics, computer applications, business analysis, advertising and marketing, design, and workplace employability skills such as planning, time management, critical thinking, problem solving, and compliance with high ethical and privacy standards.

This program is designed to transfer seamlessly to Oregon Technical Institute where the student will have four possible four-year degree options (Management Information Systems, Information Technology (IT), Computer Software Engineering, and Industrial Management). Most of the course work will also transfer to many four-year institutions as required course work and electives.

### CAREERS

Career opportunities include project manager, business manager, web designer, web support personnel, database analyst, website administrator, systems analyst, and a host of related occupations that pay competitive salaries and benefits.

For information contact Joan Ryan, ext. 2363 or joanr@clackamas.edu

### eBUSINESS ASSOCIATE DEGREE: 1ST YEAR

<b>FALL TERM</b>		<b>CREDITS</b>
ART-115	Basic Design	3
BT-183	Introduction to eCommerce	3
BA-101	Introduction to Business	4
BA-131	Intro to Business Computing [C]	4
WR-121	English Composition	3

<b>WINTER TERM</b>		
ART-116	Basic Design	3
BA-156	Applied Economics	3
BT-184	eBusiness Applications	3
HPE-295	Health & Fitness for Life	3
BA-223	Principles of Marketing	4

<b>SPRING TERM</b>		
CS-125H	Website Design & HTML	3
BA-226	Introduction to Business Law I	4
BA-285	Human Relations in Business	4
BA-280	Business/CWE	3
— —	Political Science or Sociology Elective	3

### eBUSINESS ASSOCIATE DEGREE: 2ND YEAR

<b>FALL TERM</b>		<b>CREDITS</b>
BA-205	Solving Communication Problems w/Tech. [C]	4
BA-211	Financial Accounting I	4
BA-267	Project Team Tools	3
MTH-111	College Algebra	
	or MTH-105 Introduction to Contemporary Mathematics	4

<b>WINTER TERM</b>		
BA-239	Advertising	4
BA-265	eManagement	3
CS-135I	Advanced Internet Applications	3
WR-165	Writing on the Web	3
— —	Political Science or Sociology Elective	3

<b>SPRING TERM</b>		
BA-238	Sales	3
BA-250	Introduction to Small Business	3
BA-266	Advanced eMarketing	3
BA-280	Business/CWE	3
CS-135DB	Advanced Database	3

*Minimum credits required for degree* 96

## Electronic Publishing

### CERTIFICATE

The program covers techniques required to produce professional-looking reports, forms, newsletters, technical and academic papers, display advertising, brochures and business presentations. Course work will focus on the key skill areas needed for success: communications, design, computer applications and production.

### CAREERS

The Electronic Publishing Certificate program is designed to provide students with the skills and knowledge to qualify for jobs in the growing number of fields involved in electronic publishing, both printed and on-line. This program focuses on the high-tech administrative assistant skills needed for a high-end administrative support position.

For information contact Bill Symes, ext. 2440 or [bills@clackamas.edu](mailto:bills@clackamas.edu); Joan Ryan, ext. 2363 or [joanr@clackamas.edu](mailto:joanr@clackamas.edu)

### ELECTRONIC PUBLISHING CERTIFICATE

#### FALL TERM

		CREDITS
BA-101	Introduction to Business	4
BA-131	Introduction to Business Computing [C]	4
BT-183	Introduction to eCommerce	3
MTH-050	Technical Mathematics I	3
WR-121	English Composition	3

#### WINTER TERM

ART-116	Basic Design: Color Theory & Composition	3
BA-285	Human Relations in Business	4
BT-104	Business Math	3
BT-124	Business English I	3
BT-181	FrontPage	3
BT-220P	Desktop Publishing I: PageMaker	3

#### SPRING TERM

BA-205	Solving Communication Problems w/Tech. [C]	4
BA-280	Business/CWE	3
BT-190	Introduction to Business Graphics	3
BT-191	Document Design & Publishing	3
J-216	Reporting [C]	3

*Minimum credits required for certificate* 52

## Electronics Systems Technology

### CERTIFICATE

### ASSOCIATE OF APPLIED SCIENCE DEGREE PROFESSIONAL UPGRADE

This program provides students with the knowledge and skills to enter technician-level career paths in a wide variety of industries, such as circuit board manu-

facturing, medical electronics manufacturing, and electronic equipment manufacturing and service. The degree focuses on electronics, engineering design principles and electronics systems and is taught in a team environment whenever possible.

The coursework focuses on traditional electronics foundation material including a basic electronics series, digital logic series, a troubleshooting series, a physics series, and a semiconductor linear circuit series.

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

### CAREERS

Career opportunities may be found with large and small employers in high-tech industries as trained technicians, operators, and processors.

For information contact Sanda Nedelcu, ext. 2335 or [snedelcu@clackamas.edu](mailto:snedelcu@clackamas.edu); or Mike Mattson, ext. 2483 or [mattsonm@clackamas.edu](mailto:mattsonm@clackamas.edu)

### ELECTRONICS SYSTEMS TECHNOLOGY CERTIFICATE: 1ST YEAR

#### FIRST TERM CREDITS

EET-137	DC Circuits	3
EET-139	Principles of Troubleshooting I	2
MFG-107	Industrial Safety & OSHA	3
MTH-065	Algebra II	4
SM-150	Semiconductor Processing I	2
WR-101*	Communication Skills: Occupational Writing	3

#### SECOND TERM

EET-142	AC Circuits	3
EET-157	Digital Logic I	3
MFG-209	Programming & Automation for Manufacturing [C]	
	or MFG-109 Computer Literacy for Technicians [C]	3
MTH-095	Algebra III	4
SP-100*	Basic Speech Communication	3

#### THIRD TERM

EET-127	Semiconductor Circuits I	4
EET-257	Digital Logic II	4
MFG-124	Statistical Process Control	3
MTH-111	College Algebra	4
SM-280	Electronics & Microelectronics/CWE	2

*Minimum credits required for certificate* 50

**ELECTRONICS SYSTEMS TECHNOLOGY ASSOCIATE DEGREE:  
1ST YEAR**

Complete certificate program.

**ELECTRONICS SYSTEMS TECHNOLOGY ASSOCIATE DEGREE:  
2ND YEAR**

<b>FOURTH TERM</b>		<b>CREDITS</b>
EET-215	Principles & Applications of Mfg. Equip. Tech. I	4
EET-227	Semiconductor Circuits II	3
EET-250	Linear Circuits	3
PH-201	General Physics I	5
<b>FIFTH TERM</b>		
EET-239	Principles of Troubleshooting II	3
EET-252	Control Systems	3
EET-254	Micro Computer Projects	4
PH-202	General Physics II	5
<b>SIXTH TERM</b>		
EET-220	Principles & Applications of Mfg. Equip. Tech. II	3
—	PE/Health Electives	3
PH-203	General Physics III	5
SM-280	Electronics & Microelectronics/CWE	2

Minimum credits required for degree (requirements & electives) 93

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

**MANUFACTURING 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 Manufacturing Engineering Technology degree program. Contact Mike Mattson at 503-657-6958, ext. 2483 or mattsonm@clackamas.edu, for a current listing of transferable classes.

**ELECTRONICS ENGINEERING TECHNOLOGY  
(OIT TRANSFER COURSES)**

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

## 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 disaster. This program will assist the student in preparing for an entry-level position with public or private sector agencies responsible for preparedness planning and managing of any type of life-threatening disaster.

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

<http://depts.clackamas.cc.or.us/crimjust/intro.htm>

## Emergency Medical Technology

**CERTIFICATE**

EMTs (Emergency Medical Technicians) give immediate care to critically ill or injured people in the prehospital setting and provide transport to hospitals and nursing homes. The ability to work under pressure, make difficult decisions independently, and perform critical life-saving skills precisely are crucial to success in this career.

EMTs in Oregon must be certified by the state through the Department of Human Services, Health Division, 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 EMT Basic class at CCC prepares candidates to test for both national and state certification. The EMT Intermediate class prepares candidates to test for state certification.

The CCC Emergency Medical Technology college certificate program includes the required Oregon and National EMT Basic certification and satisfies the first year of the AAS-EMT (Associate of Applied Science, Emergency Medical Technology) degree required for certification as a Paramedic. Technicians can pursue advanced training for the paramedic associate and bachelor degree levels upon transfer to an accredited degree-granting institution.

*Continued*

**CAREERS**

EMT's frequently work as volunteer firefighters and BLS (basic life support) transport providers. The certification may qualify you to volunteer as a firefighter or EMT, apply for paid firefighting positions or improve your current job position in the industrial, forestry, or construction fields. The one-year college EMT certificate leads to a career as a paramedic after further education. Demand for skilled emergency medical technicians is strong and growing.

For more information contact Merlin Curry, ext. 2274 or merlinc@clackamas.edu

<http://depts.clackamas.cc.or.us/EMT>

**EMERGENCY MEDICAL TECHNOLOGY CERTIFICATE**

<b>FALL TERM</b>		<b>CREDITS</b>
BI-231	Human Anatomy & Physiology I	4
EMT-105	Introduction to Emergency Medical Service	3
MA-110	Medical Terminology	3
MTH-065	Algebra II	4
WR-121	English Composition	3

**WINTER TERM**

BI-232	Human Anatomy & Physiology II	4
EMT-101	EMT Basic Part I	5
Select one:	PSY-205, 219, 221, SOC-204	3
CS-120	Survey of Computing [C] or Approved Computer Literacy Course	2-4
Select one:	HE-151, HPE-295	3

**SPRING TERM**

BI-233	Human Anatomy & Physiology III	4
CJA-203	Crisis Intervention	3
EMT-102	EMT Basic Part II	5
EMT-106	Emergency Communications & Patient Transport	3
EMT-107	EMT Rescue	3

Minimum credits required for certificate 52-54

**Employment Skills Training**

**CERTIFICATE**

The Employment Skills Training program is part of a statewide effort to meet the needs of students eligible for Workforce Investment Act funding. The program offers the opportunity for students to combine coursework and hands-on training in a specific occupational area based on individual student goals and academic and occupational skills needs. This program is designed to serve as a beginning point for students in preparation for a job or to get a better job while opening the door to further education to expand employment opportunities over time. The program offers students a combination of work-based training and classroom instruction.

The program is open entry/open exit, allowing students to begin their program any term. Individualized training plans are developed in consultation with the student, CCC faculty and/or program director, and in some cases, a cooperative work experience employer. Students in this program are required to participate in a supervised and structured work-based training in addition to classroom instruction. This program utilizes local businesses as training sites for the work-based portion of the program.

To register, students first meet with the Employment Skills coordinator to assess job goals and to design an individualized Employment Skills program.

For information contact the Occupational Skills Training office at ext. 2085/2723.

**EMPLOYMENT SKILLS TRAINING CERTIFICATE**

**PROGRAM REQUIREMENTS**

— —	Occupational Related Courses	12-44
EST-081	Employment Skill Training Seminar	0-3
EST-180	Employment Skills Training	2-6

**GENERAL EDUCATION RECOMMENDATIONS**

May be taken as part of occupational related courses.

WR-101	Communications: Occupational Writing	3
MTH-050	Technical Mathematics I	3
MFG-109	Computer Literacy for Technicians	3
— —	Human Relations	3

Credits required for certificate 12-44

**Energy & Resource Management**

**CERTIFICATE  
ASSOCIATE OF APPLIED SCIENCE**

The success of every economy and industry is dependent upon the wise management of energy resources. This program provides for instruction in traditional and alternative energy generation, distribution, operation, management and leadership. The program provides students an opportunity to prepare for direct entry into the energy/utility workforce, application to a related apprenticeship, or articulate to a university with an energy focus.

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

**CAREERS**

Collectively there are about 18,000 employees in the utility industries and statistics indicate that 55% of this workforce will be retiring in the next 5-10 years.

Career options could include applied trades, support personnel, equipment and plant operations, and/or warehouse and maintenance technicians.

For information contact Bob Topping, ext. 4636 or bobt@clackamas.edu

**ENERGY & RESOURCE MANAGEMENT CERTIFICATE:  
1ST YEAR**

FALL TERM		CREDITS
ERM-100	Orientation to Energy & Resource Management	3
ERM-101	Energy and Resource Technology I	3
ERM-107	Career Portfolio	3
ERM-170	Energy Industry Performance, Health & Safety I or related elective	2
PE-185	Conditioning I	1
WR-121	English Composition	3

**WINTER TERM**

ERM-102	Energy & Resource Technology II: Electricity	3
ERM-170	Energy Industry Performance, Health & Safety I or related elective	4
MTH-065	Algebra II	4
PE-185	Conditioning III - First Aid/CPR Certification	1

**SPRING TERM**

ERM-103	Energy & Resource Technology III: Natural Gas	3
ERM-170	Energy Industry Performance, Health & Safety I or related elective	6
ERM-180	Energy & Resource Management CWE	3
PSY-101	Human Relations or Human Relations Elective	3
— —	General Education Elective	3

Minimum credits required for certificate 45

**ENERGY & RESOURCE MANAGEMENT ASSOCIATE DEGREE:  
2ND YEAR**

FALL TERM		CREDITS
CS-120	Survey of Computing or General Education Elective	4
ERM-201	Energy Applications I: Renew. Energy Resources	6
ERM-270	Energy Industry Performance, Health & Safety II or related elective	3
SSC-150	The Columbia Basin	5

**WINTER TERM**

ERM-202	Energy Applications II	6
ERM-108	Career Marketing Strategies	3
ERM-270	Energy Industry Performance, Health & Safety II	3
SSC-151	The Columbia Basin	5

**SPRING TERM**

ERM-203	Energy Applications III	6
ERM-280	Energy Resource Projects/CWE	3
PE-185	Conditioning II	1
— —	General Education Elective	3

Minimum credits required for degree 93

**RELATED ELECTIVES**

Up to 12 credits from the courses below:

ERM-270	Energy Industry Performance, Health & Safety II
ERM-211	Organizational Leadership
ERM-286	Adv. Energy & Resource Management Applications

*Gerontology*

**CERTIFICATE/HUMAN SERVICES EMPHASIS  
CERTIFICATE/HOUSING MANAGEMENT EMPHASIS**

The Gerontology program offers coursework in the scientific study of aging for anyone interested in working with older people.

Clackamas offers a one-year certificate in gerontology and students may begin any term. Two areas of concentration are available: the human services emphasis prepares students to work directly with older people, while the housing management emphasis prepares students for administrative positions in residential facilities for the elderly.

This one year certificate in Gerontology can serve as the first year of a two-year associate of applied science degree in Human Services (see pages 44-45).

**CAREERS**

Career opportunities may be found in private and governmental social and health service agencies, senior centers, businesses, and retirement/residential facilities.

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

**GERONTOLOGY CERTIFICATE**

FALL TERM		CREDITS
EC-115	Introduction to Basic Economics	
or EC-201	Principles of Economics: Microeconomics	
or BA-156	Applied Economics	3-4
PSY-101	Human Relations	
or BA-285	Human Relations in Business	3-4
SOC-230	Perspectives on Aging	3
WR-121	English Composition	
or WR-101*	Communication Skills: Occupational Writing [C]	3
— —	Gerontology Electives	3

\*See current *Schedule of Classes* for sections to satisfy computer literacy requirement.

**WINTER TERM**

MTH-065	Algebra II	4
SOC-223	Psycho-Social Aspects of Aging	3
SOC-231	Health & Biological Aspects of Aging	3
— —	Gerontology Electives	6

**SPRING TERM**

HS-280	Gerontology/CWE	6
SOC-232	Encounters with Death	3
— —	Gerontology Electives	6

Minimum credits required (requirements + electives) 46-48

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

*Continued*

**GERONTOLOGY RECOMMENDED ELECTIVES:  
HUMAN SERVICES EMPHASIS**

BI-101-103	General Biology
CS-120	Survey of Computing [C]
ED-258	Multicultural Education
FN-110	Personal Nutrition
FN-225	Nutrition
HE-249	Mental Health
HPE-295	Health & Fitness for Life
HS-120	Basic Caregiver Training
HS-165	Activity Director in Long Term Care
HS-170	Introduction to Hospice Care
MA-110	Medical Terminology
PSY-200	Psychology as a Natural Science
PSY-205	Psychology as a Social Science
PSY-219	Introduction to Abnormal Psychology
PSY-215	Introduction to Developmental Psychology
PSY-221	Introduction to Counseling
PSY-231	Introduction to Human Sexuality
PSY-240	Interpersonal Awareness & Growth Techniques
SOC-204-206	Sociology
SP-100	Basic Speech Communication
SP-111	Public Speaking
SP-112	Persuasive Speaking
SP-218	Interpersonal Communications
SP-219	Small Group Communications

**GERONTOLOGY RECOMMENDED ELECTIVES:  
HOUSING MANAGEMENT EMPHASIS**

BA-101	Introduction to Business
BA-131	Introduction to Business Computing [C]
BA-206	Management Fundamentals
BA-211	Financial Accounting I
BA-212	Financial Accounting II
BA-213	Decision Making with Accounting Information
BA-217	Budgeting for Managers
BA-223	Principles of Marketing
BA-224	Human Resource Management
BA-225	Business Report Writing
BA-226-227	Introduction to Business Law I, II
BA-228	Business Presentations
BA-239	Advertising
BA-250	Introduction to Small Business
BA-285	Human Relations in Business
BT-115	General Accounting
BT-210	Intermediate Accounting I & II
CS-120	Survey of Computing [C]
EC-201	Principles of Economics: Micro
EC-202	Principles of Economics: Macro
FN-110	Personal Nutrition
FN-225	Nutrition
HE-249	Mental Health
HPE-295	Health & Fitness for Life
MA-110	Medical Terminology
PS-201-203	U.S. Government
PSY-200	Psychology as a Natural Science
PSY-205	Psychology as a Social Science
PSY-215	Introduction to Developmental Psychology
PSY-219	Introduction to Abnormal Psychology
PSY-221	Introduction to Counseling
PSY-231	Human Sexuality
PSY-240	Interpersonal Awareness & Growth Techniques

## Horticulture

**CERTIFICATE  
ASSOCIATE OF APPLIED SCIENCE DEGREE**

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

The Horticulture program is the only program accredited in Oregon by the Associated Landscape Contractors of America (ALCA). This accreditation provides students with enhanced opportunities to follow national ALCA landscaping standards, to network with the horticulture industry, to extend their knowledge about landscape standards and practices, and to attend the National ALCA Student Career Days each year. Students completing the Horticulture or Landscape Option AAS with 2.5 GPA or higher are eligible to take the Oregon Landscape Contractors License Exam.

Horticulture students have the opportunity to 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, 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.

**CAREERS**

Occupations include nursery and greenhouse work, growing plants, planting shrubs and trees, design, installation and maintenance of landscapes.

Graduates may work in greenhouse production, garden centers, supply and equipment sales, interior plant and landscape installation and maintenance. There are additional opportunities as nursery growers, landscape maintenance workers and managers, and greenhouse growers.

For information contact Elizabeth Howley, Horticulture Advisor, ext. 2389 or [ehowley@clackamas.edu](mailto:ehowley@clackamas.edu)

**OSU TRANSFER AGREEMENT**

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

**TRANSFER ELECTIVES**

HOR-111	Horticulture Practicum	6
HOR-226	Plant Identification/Fall	3
HOR-227	Plant Identification/Winter	3
HOR-228	Plant Identification/Spring	3

**HORTICULTURE CERTIFICATE**

<b>FALL TERM</b>		<b>CREDITS</b>
CS-090	Computers for New Users	2
HOR-111	Horticulture Practicum (Fall)	6
HOR-122	Greenhouse Crops-Potted Plants	
or HOR-123	Landscape Maintenance	3
HOR-222	Horticultural Computer Applications [C]	2
HOR-226	Plant Identification (Fall)	3

**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-227	Plant Identification (Winter)	3
MTH-050	Technical Mathematics I	3

**SPRING TERM**

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

**SUMMER TERM**

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

**HORTICULTURE ASSOCIATE DEGREE: 1ST YEAR**

<b>FALL TERM</b>		<b>CREDITS</b>
CS-090	Computers for New Users	2
HOR-111	Horticulture Practicum (Fall)	6
HOR-122	Greenhouse Crops-Potted Plants	
or HOR-123	Landscape Maintenance	3
HOR-222	Horticultural Computer Applications [C]	2
HOR-226	Plant Identification (Fall)	3

**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-227	Plant Identification (Winter)	3
MTH-050	Technical Mathematics I	3

**SPRING TERM**

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

**SUMMER TERM**

HOR-281	Horticulture/CWE	6
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**HORTICULTURE ASSOCIATE DEGREE: 2ND YEAR**

<b>FALL TERM</b>		<b>CREDITS</b>
WR-101	Communication Skills: Occupational Writing	3
— —	General Education Elective	3
— —	Horticulture Electives	6

**WINTER TERM**

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

**SPRING TERM**

HE-252	First Aid/CPR	3
PSY-101	Human Relations	3-4
or BA-285	Human Relations in Business	
— —	Horticulture Electives	6

*Minimum credits required for degree (requirements + electives) 94-96*

**HORTICULTURE ELECTIVES**

HOR-114	Garden Design	1
HOR-134	Herb Growing & Gardening	1
HOR-144	Basic Pruning	1
HOR-146	Fruit Tree Short Course	1
HOR-211	Native Plant Identification	1
HOR-212	Flower Arranger's Garden (Fall)	3
HOR-213	Computer-Aided Landscape Design	3
HOR-215	Herbaceous Perennial Plants	3
HOR-220	Plant Propagation (Fall)	3
HOR-223	Flower Arranging	3
HOR-224	Landscape Installation	3
HOR-225	Principles of Arboriculture	3
HOR-229	Basic Landscape Design	3
HOR-231	Irrigation & Drainage Design	3
HOR-232	Commercial Floral Design	3
HOR-233	Plant Propagation (Winter)	3
HOR-234	Intermediate Landscape Design	3
HOR-235	Weed Identification	2
HOR-236	Insect Identification	2
HOR-237	Disease Identification	2
HOR-238	Landscape Business Operations	3
HOR-239	Tree Climber Training	2
HOR-240	Irrigation & Drainage Practices	3
HOR-241	Nursery Management	3
HOR-242	Plant Propagation (Spring)	3
HOR-243	Tree & Shrub Pruning (Spring)	3
HOR-244	Environmental Landscape Design	3
HOR-245	Advanced Landscape Design	3
HOR-246	Organic Gardening	3
HOR-247	Hardscape Installation	3
HOR-248	Flower Arranger's Garden (Spring)	3
HOR-250	Western Herbal Medicine	1
HOR-251	Herbal Medicine Making	1
HOR-252	Kitchen Medicine	1
HOR-280	Horticulture/CWE	3
HOR-281	Horticulture/CWE	6
HOR-282	Horticulture/CWE	3

**LANDSCAPE OPTION**

Occupations include working with Landscape and Tree Care firms, installing and maintaining residential and commercial landscapes. Many graduates are Landscape Designers, Landscape Managers and Parks Department employees. There is great demand for trained workers for this expanding segment of the Horticulture industry.

*Continued*

**HORTICULTURE ASSOCIATE DEGREE 1ST YEAR:  
LANDSCAPE OPTION**

FALL TERM		CREDITS
CS-090	Computers For New Users [C]	2
HOR-111	Horticulture Practicum/Fall	6
HOR-123	Landscape Maintenance	3
HOR-222	Horticulture Computer Applications [C]	2
HOR-226	Plant Identification/Fall	3

WINTER TERM		CREDITS
HOR-131	Tree & Shrub Pruning/Winter	3
HOR-132	Pesticide Selection & Use	3
HOR-133	Horticulture Practicum/Winter	6
HOR-227	Plant Identification/Winter	3
MTH-050	Technical Mathematics I	3

SPRING TERM		CREDITS
HOR-140	Soils & Fertilizers	3
HOR-143	Horticulture Practicum/Spring	6
HOR-145	Turf Installation & Maintenance	3
HOR-228	Plant Identification/Spring	3
SP-100	Basic Speech Communication	3

SUMMER TERM		CREDITS
HOR-281	Horticulture/CWE	6

**HORTICULTURE ASSOCIATE DEGREE 2ND YEAR:  
LANDSCAPE OPTION**

FALL TERM		CREDITS
HOR-224	Landscape Installation	3
HOR-225	Principals of Arboriculture	3
HOR-229	Basic Landscape Design	3
HOR-235	Weed Identification	2
HOR-236	Insect Identification	2
WR-101	Communication Skills: Occupational Writing	3

WINTER TERM		CREDITS
HOR-230	Equipment Operation & Maintenance	3
HOR-231	Irrigation & Drainage Design	3
HOR-234	Intermediate Landscape Design	3
HOR-237	Disease Identification	3
or HOR-213	Computer-Aided Landscape Design	2-3
HOR-238	Landscape Business Operations	3

SPRING TERM		CREDITS
BA-101	Introduction to Business	3
HE-252	First Aid/CPR	3
HOR-243	Tree & Shrub Pruning/Spring	3
or HOR-245	Advanced Landscape Design	3
or HOR-240	Irrigation & Drainage Practices	3
HOR-247	Hardscape Installation	3
PSY-101	Human Relations	3

Minimum credits required for degree 97-98

***Hospitality & Tourism Management***  
CERTIFICATE

The Hospitality and Tourism (HTM) certificate is designed to provide students with the knowledge and tools necessary to increase success and upward mobility within the hospitality and tourism industry. The typical student will enter the program after high school or return to school to enhance their opportunities within an existing career path.

The certificate is designed so that students can choose the area of concentration (food, recreation, travel, lodging, etc.) that fits their career path.

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

**HOSPITALITY & TOURISM MANAGEMENT CERTIFICATE**

FALL TERM		CREDITS
BA-101	Introduction to Business	4
BA-285	Human Relations in Business	4
BT-120	Personal Keyboarding [C]	2
HTM-100	Introduction to the Hospitality Industry	3
MTH-050	Technical Mathematics I	3
WR-121	English Composition	3

WINTER TERM		CREDITS
BA-131	Introduction to Business Computing [C]	4
BA-211	Financial Accounting I	4
BT-104	Business Math	3
HTM-102	Hotel, Restaurant, and Travel Law	3
— —	Hospitality & Tourism Management Elective	3

SPRING TERM		CREDITS
BA-205	Solving Communication Problems w/Tech. [C]	3
BA-238	Sales	3
BA-280	Business/CWE	4
HTM-103	Marketing in the Hospitality Industry	3
— —	Hospitality & Tourism Management Elective	3

Minimum credits required for certificate 52

**HOSPITALITY & TOURISM MANAGEMENT ELECTIVES**

HTM-104	Introduction to the Travel and Tourism Industry	3
HTM-105	Introduction to the Food & Beverage Industry	3
HTM-106	Introduction to the Lodging Industry	3
HTM-107	Sanitation & Safety for Managers	3
HTM-111	Cultural Heritage Tourism	3
HTM-112	Bed and Breakfast Operations	3
HTM-119	Introduction to Casino Management	3
HTM-123	Computer Reservation Systems	3
HTM-126	Meeting & Event Planning	3
HTM-127	Travel Sales & eCommerce	3

***Human Services***

**ASSOCIATE OF APPLIED SCIENCE DEGREE**

This two-year program provides a foundation in human services studies, with substantive interdisciplinary knowledge (psychology, sociology, family/human services and health & human development).

The Human Services Degree will prepare participants to 1) assist social group workers and caseworkers with developing, organizing and conducting programs to prevent and resolve problems relevant to human systems and relationships, and/or 2) assist and provide support in diverse settings, such as community-based child and family support agencies, early childhood care and education, school systems, aging services field, community outreach organizations and state/local law enforcement agencies.

**CAREERS**

Opportunities in the human services field encompass many diverse occupations, such as social service technicians, early childhood care and education personnel, criminal/juvenile justice personnel, gerontology support personnel and other related occupations.

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

**HUMAN SERVICES ASSOCIATE DEGREE: 1ST YEAR**

<b>FALL TERM</b>		<b>CREDITS</b>
HS-100	Introduction to Human Services	3
PSY-215	Introduction to Developmental Psychology	3
WR-101	Occupational Writing	
or WR-121	English Composition	3
— —	Electives	6

**WINTER TERM**

CS-120	Survey of Computers	4
MTH-050	Technical Mathematics	
or MTH-065	Algebra II or above (except MTH-199, MTH-299)	4
PSY-221	Introduction to Counseling	3
— —	Electives	6

**SPRING TERM**

HDF-140	Contemporary American Families	3
HS-170	Introduction to Field Experience	3
SOC-205	Social Stratification and Systems	3
— —	Electives	6

**HUMAN SERVICES ASSOCIATE DEGREE: 2ND YEAR**

<b>FALL TERM</b>		<b>CREDITS</b>
HE-261	Community CPR	1
HS-280	Cooperative Work Experience - Practicum I	4
SOC-225	Social Problems	3
— —	Electives	6

**WINTER TERM**

HS-154	Community Resources	3
HS-281	Cooperative Work Experience - Practicum II	4
PSY-219	Abnormal Psychology	3
— —	Electives	6

**SPRING TERM**

ANT-103	Cultural Anthropology	
or SP-115	Introduction to Intercultural Communication	3
HS-282	Cooperative Work Experience - Practicum III	4
— —	Electives	9-10

*Minimum credits required for degree* 92

**ELECTIVES**

Elective courses must be 100 level or above. They may be chosen from a variety of disciplines depending on student goals for career and further degree completion. For information contact the Human Services Advisor. There are many certificate programs that may be used to satisfy the elective requirements for this degree.

- Business Management
- Corrections/Juvenile
- Early Childhood Education & Family Studies
- Emergency Medical Technician
- Gerontology
- Instructional Assistant
- Medical Assistant

*Industrial Technology*

**ASSOCIATE OF APPLIED SCIENCE DEGREE**

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

For information contact Connie Hetterly, ext. 2689 or connieh@clackamas.edu

**INDUSTRIAL TECHNOLOGY ASSOCIATE DEGREE REQUIREMENTS**

**RELATED CLASSES**

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

**GENERAL EDUCATION COURSES**

A minimum of 18 credits as specified in this catalog under "Approved General Education Courses" (see page 20). The computer literacy requirement must also be satisfied.

**ELECTIVE OCCUPATIONAL COURSES**

May be included to complete the minimum credit hours required.

*Minimum credits required for degree (requirements + electives)* 91

*Instructional Assistant*

**CERTIFICATE**

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

Coursework includes general education requirements, cooperative work experience and core courses in education scheduled in late afternoons to meet the needs of currently employed teacher assistants and students exploring educational careers.

**CAREERS**

The No Child Left Behind Act of 2002 now mandates that instructional assistants who work in Title I schools have two years of college, an associate of arts degree, or pass a competency test equivalent to sophomore level coursework in reading, writing, math, and teaching strategies. Completion of the Instructional Assistant Certificate program provides more than half the necessary credits for the two-year requirement as well as a strong foundation in education and teaching.

*Continued*

Career opportunities may be found in a variety of educational settings such as private and public elementary and secondary schools, childcare centers and residential care facilities.

For information contact Shera Hunn, ext. 5047 or sherah@clackamas.edu

**INSTRUCTIONAL ASSISTANT CERTIFICATE**

**CORE COURSES**

ED-110	Psychology of Learning	3
ED-123	Classroom Techniques in Reading & Language Arts	3
ED-124	Classroom Techniques in Math & Science	3
ED-130	Comprehensive Classroom Management	3
ED-131	Teaching Strategies	3
ED-212	Schools and Society	3
ED-213	Advanced Instructional Techniques in Reading	3
ED-214	Adv. Instructional Techniques in Math & Science	3
ED-258	Multicultural Education	3
ED-268	Educating Mildly and Severely Disabled	3
ED-269	Overview of Students with Special Needs	3
ED-280	Education/CWE (Concurrent with ED-212)	3-6

**GENERAL EDUCATION**

CS-121	Computer Applications [C]	3
MTH-095	Algebra III	4
SP-111	Public Speaking	3
WR-121	English Composition	3

Minimum credits required for certificate 49-52

## Manufacturing Technology

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

Coursework in Manufacturing Technology prepares students for careers in high-tech manufacturing by producing products to exacting industrial standards utilizing

- Authorized Mastercam Training Center
- Okuma Turning Center
- Haas Machining Centers
- Hansvedt EDM
- NOCTI Certification
- SME

current manual and computer-aided machine tool technology. Our instructional philosophy promotes integrating real world manufacturing situations with structured theory and practicum in the classroom and labora-

tory. Many of our 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 our courses to upgrade existing job skills and several of our courses satisfy the continuing education unit (CEU) requirements of local apprenticeships and trade organizations.

**CAREERS**

Employment opportunities include machine tool operator, CNC programmer/operator, computer-aided manufacturing technician, quality control technician, plant maintenance, CAD/CAM, apprentice machinist leading to tool and die maker, maintenance machining, modelmaker or millwright.

For information contact Mike Mattson, Department Chair, ext. 2483 or mattsonm@clackamas.edu; or the Manufacturing Department, ext. 2062.

**MANUFACTURING ENGINEERING TECHNOLOGY (OIT TRANSFER COURSES)**

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

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

See degree program on pages 31-32.

**MANUFACTURING TECHNOLOGY CERTIFICATE**

FALL TERM		CREDITS
MFG-104	Print Reading	2
MFG-105	Dimensional Inspection	2
MFG-107	Industrial Safety & OSHA	3
MFG-111	Machine Tool Fundamentals I	9
MTH-050	Technical Mathematics I (or higher level)	3

**WINTER TERM**

MFG-109	Computer Literacy for Technicians [C]	3
	or MFG-209 Programming and Automation for Mfg. [C]	3
MFG-112	Machine Tool Fundamentals II	9
WR-101	Comm. Skills: Occup. Writing (or higher level)	3
— —	Human Relations Elective	3

**SPRING TERM**

MFG-113	Machine Tool Fundamentals III	6
MFG-221	Materials Science	3
MFG-280	Manufacturing Technology/CWE	4
WLD-150	Welding Processes	4

Minimum credits required for certificate 54

**MANUFACTURING TECHNOLOGY ASSOCIATE DEGREE**

<b>FIRST TERM</b>		<b>CREDITS</b>
MFG-104	Print Reading	2
MFG-105	Dimensional Inspection	2
MFG-111	Machine Tool Fundamentals I	9
MTH-050*	Technical Mathematics I (or higher level)	3
<b>SECOND TERM</b>		
MFG-107	Industrial Safety & OSHA	3
MFG-109	Computer Literacy for Technicians [C]	
or MFG-209	Programming and Automation for Mfg. [C]	3
MFG-112	Machine Tool Fundamentals II	9
WR-101*	Comm. Skills: Occup. Writing (or higher level)	3
<b>THIRD TERM</b>		
MFG-113	Machine Tool Fundamentals III	9
WLD-150	Welding Processes	4
— —*	Human Relations Elective	3
<b>FOURTH TERM</b>		
MFG-106	Applied Geometric Dimensioning & Tolerancing	
or CDT-111	Geometric Dimensioning & Tolerancing	2-3
MFG-201	CNC Programming I	4
MFG-204	Computer-Aided Manufacturing I	4
MFG-211	Machine Tool Fundamentals IV	6
MTH-080*	Technical Mathematics II	3
<b>FIFTH TERM</b>		
MFG-202	CNC Programming II	4
MFG-205	Computer-Aided Manufacturing II	4
MFG-280	Manufacturing Technology/CWE	4
— —*	PE/Health Elective	3
<b>SIXTH TERM</b>		
MFG-203	CNC Programming III - Electrical Discharge Mach.	3
MFG-206	Computer-Aided Manufacturing III	2
MFG-221	Materials Science	3
— —*	General Education Elective	3

*Minimum credits required for degree* 95-96

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

## Marketing

### CERTIFICATE

This certificate is recommended to students who wish to work for or operate a business organization. Coursework includes identifying customer needs, developing goods and services to satisfy those needs, communicating information about products/services to potential customers and distributing the product.

#### CAREERS

The Marketing certificate prepares students for entry-level marketing positions in areas such as retail and wholesale sales, market research, advertising, and distribution.

For information contact Dale Hatfield, ext. 2361 or [daleh@clackamas.edu](mailto:daleh@clackamas.edu); Joan Ryan, ext. 2363 or [joanr@clackamas.edu](mailto:joanr@clackamas.edu)

### MARKETING CERTIFICATE

<b>FALL TERM</b>		<b>CREDITS</b>
BA-101	Introduction to Business	4
BA-285	Human Relations in Business	4
BT-120	Personal Keyboarding [C]	2
SP-111	Public Speaking	3
WR-121	English Composition	3
<b>WINTER TERM</b>		
BA-131	Introduction to Business Computing [C]	4
BA-223	Principles of Marketing	4
BA-156	Applied Economics	3
BT-104*	Business Math	3
<b>SPRING TERM</b>		
BA-205	Solving Communication Problems w/Tech. [C]	4
BA-211	Financial Accounting I	4
BA-226	Introduction to Business Law I	4
BA-238	Sales	3
BA-280	Business/CWE	3

*Minimum credits required for certificate* 48

\* For this degree, this course meets the General Education Computation requirement.

## Marketing & Management

### ASSOCIATE OF APPLIED SCIENCE DEGREE

The Marketing & Management program at Clackamas leads to an Associate of Applied Science degree. This program includes identifying customer needs, developing goods and services to satisfy those needs, communicating information about products to potential customers, and distributing the product to customers.

#### CAREERS

Students with this associate degree may work in areas such as retail and wholesale sales, marketing management, market research, advertising and distribution.

For information contact Dale Hatfield, ext. 2361 or [daleh@clackamas.edu](mailto:daleh@clackamas.edu); Joan Ryan, ext. 2363 or [joanr@clackamas.edu](mailto:joanr@clackamas.edu)

### MARKETING & MANAGEMENT ASSOCIATE DEGREE: 1ST YEAR

<b>FALL TERM</b>		<b>CREDITS</b>
BA-101	Introduction to Business	4
BA-285	Human Relations in Business	4
BT-120	Personal Keyboarding [C]	2
SP-111	Public Speaking	3
WR-121	English Composition	3
<b>WINTER TERM</b>		
BA-131	Introduction to Business Computing [C]	4
BA-156	Applied Economics	3
BA-223	Principles of Marketing	4
BT-104*	Business Math	3

*Continued*

**SPRING TERM**

BA-205	Solving Communication Problems w/Tech. [C]	4
BA-211	Financial Accounting I	4
BA-226	Introduction to Business Law I	4
BA-238	Sales	3

**MARKETING & MANAGEMENT ASSOCIATE DEGREE: 2ND YEAR**

**FALL TERM**

		<b>CREDITS</b>
BA-206	Management Fundamentals	4
BA-212	Financial Accounting II	4
BA-239	Advertising	4
PE/HE/HPE	Physical Education/Health	3

**WINTER TERM**

BA-213	Decision Making w/Accounting Information	4
BA-222	Financial Management	3
BA-227	Introduction to Business Law II	4
EC-201	Economics	4
— —	Sociology Course	3

**SPRING TERM**

BA-224	Human Resource Management	3
BA-225	Business Report Writing	3
BA-228	Business Presentations	3
BA-261	Consumer Behavior	4
BA-280	Business/CWE	3

*Minimum credits required for degree* 44

\* For this degree, this course meets the General Education Computation requirement.

## Medical Assistant

### CERTIFICATE

Medical assisting is an allied health profession whose practitioners function as members of the health care delivery team and perform administrative, clinical, and transdisciplinary functions. The Medical Assistant program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), on recommendation of the Curriculum Review Board of the American Association of Medical Assistants' Endowment (AAMAE) and is designed to prepare students for entry-level employment in the ambulatory care setting.

Admission to the Medical Assistant program is during spring term to enroll for fall classes. This is by special application process only. Specific skill levels are required in reading, writing, and math. Placement tests are required prior to admission to the program. Applicants are advised that there is a certain level of dexterity and physical strength involved for successful completion of the program. A physical examination by a physician and an interview may be necessary.

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

Upon successful completion of the program students will be eligible to take the National Certification exam (AAMA).

For information contact Maureen Mitchell, ext. 2910 or [maureenm@clackamas.edu](mailto:maureenm@clackamas.edu)

### MEDICAL ASSISTANT CERTIFICATE

**FALL TERM**

		<b>CREDITS</b>
BI-055	Introduction to Human Biology	3
BT-145	Medical Insurance & Billing	3
CS-120	Survey of Computing [C]	4
MA-110	Medical Terminology	3
MA-112	Medical Office Practice	3

**WINTER TERM**

MA-116	Introduction to Medications	2
MA-117	Clinical Lab Procedures I	2
MA-118	Examination Room Techniques	3
MA-119	Medical Assistant Practicum I	4
WR-101	Communication Skills: Occupational Writing	3
MTH-054	Math for Health Care Professionals	3

**SPRING TERM**

MA-115	Phlebotomy	1
MA-120	Medical Assistant Practicum II	6
MA-121	Clinical Lab Procedures II	2
MA-125	Fundamentals of Human Development	3
PSY-101	Human Relations	3
SP-100	Basic Speech Communication	3

*Minimum credits required for certificate* 51

Current First Aid and CPR certificates are required during practicums, and must be taken prior to winter term practicum.

Note: All clinical/practicum courses are "Pass/No Pass". All other courses are letter grades and must be passed with "C" or better.

## Medical Office Administrative Assistant

### CERTIFICATE

The Medical Office Assistant certificate prepares students for work in a medical office.

**CAREERS**

Career opportunities are with physicians' offices, hospitals, drug firms, insurance companies, and medical departments of the government or large corporations.

For information contact Carol Middendorff, ext. 2412 or [carolm@clackamas.edu](mailto:carolm@clackamas.edu)

### MEDICAL OFFICE ASSISTANT CERTIFICATE

**FALL TERM**

		<b>CREDITS</b>
BI-055	Introduction to Human Biology	3
BT-124	Business English I	3
BT-160	MS Word for Windows [C]	3
MA-110	Medical Terminology	3
MA-112	Medical Office Practice	3

**WINTER TERM**

BA-211	Financial Accounting I	4
BA-285	Human Relations in Business	4
BT-104*	Business Math	3
BT-125	Business English II	3
BT-145	Medical Insurance & Billing	3

**SPRING TERM**

BA-101	Introduction to Business	4
BA-280	Business/CWE	3
BT-129	Medical Transcription I	3
BT-240	Filing & Records Management	3
WR-121	English Composition	3
— —	BA/BT Elective	3

Minimum credits required for certificate 51

\*For this certificate, this course meets the General Education Computation requirement.

## Microelectronics Systems Technology

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

This program prepares students for entry into the microelectronics and semiconductor industries.

Coursework focuses on wafer manufacturing, inte-

- Semiconductor Workforce Consortium
- Intel Workstudy Program
- MATEC Curriculum
- NOCTI Certification

grated 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.

**CAREERS**

Career opportunities may be found with large and small employers in high tech industries as trained technicians, operators, and processors.

For information contact Sanda Nedelcu, ext. 2335 or snedelcu@clackamas.edu; Mike Mattson, ext. 2483 or mattsonm@clackamas.edu

**MICROELECTRONICS SYSTEMS TECHNOLOGY CERTIFICATE**

**FIRST TERM**

EET-137	DC Circuits	3
EET-139	Principles of Troubleshooting I	2
MFG-107	Industrial Safety & OSHA	3
MTH-050*	Technical Mathematics I	3
SM-150	Semiconductor Processing I	2
WR-101*	Communication Skills: Occupational Writing	3

**SECOND TERM**

EET-142	AC Circuits	3
EET-157	Digital Logic I	3
ESH-100	Environmental Regulations	2
MFG-109	Computer Literacy for Technicians [C]	3
MTH-080*	Technical Mathematics II	3
SM-160	Semiconductor Processing II	2

**THIRD TERM**

EET-127	Semiconductor Circuits I	4
MTH-085*	Technical Mathematics III	3
SM-136	Photolithography	2
SM-170	Semiconductor Processing III	2
SM-280	Electronics & Microelectronics/CWE	2
SP-100*	Basic Speech Communication	3
— —*	General Education Elective	3

Minimum credits required for certificate 51

**MICROELECTRONICS SYSTEM TECHNOLOGY ASSOCIATE  
DEGREE: 1ST YEAR**

Complete certificate program.

**MICROELECTRONICS SYSTEMS TECHNOLOGY ASSOCIATE  
DEGREE: 2ND YEAR**

**FOURTH TERM**

BA-206	Management Fundamentals	4
CH-104	Introductory Chemistry	5
EET-215	Principles & Applications of Mfg. Equip. Tech. I	4
MFG-104	Print Reading	2

**FIFTH TERM**

EET-239	Principles of Troubleshooting II	3
MFG-105	Dimensional Inspection	2
MFG-209	Programming and Automation For Manufacturing [C]	3
SM-280	Electronics & Microelectronics/CWE	2
TPH-100	Technical Physics	3

**SIXTH TERM**

EET-220	Prin & Apps of MFG Equip Tech II	3
MFG-221	Materials Science	3
MFG-124	Statistical Process Control	3
SM-229	Vacuum Technology	2
— —	PE/Health Electives	3

Minimum credits required for degree (requirements & electives) 93

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

**MANUFACTURING 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 Manufacturing Engineering Technology degree program. Contact Mike Mattson at 503-657-6958, ext. 2483 or mattsonm@clackamas.edu, for a current listing of transferable classes.

## Music Technology

### CERTIFICATE

*Pending official approval.*

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

### CAREERS

Career opportunities in music may 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, sound technical development for software companies.

For information contact Tom Wakeling, ext. 2434 or wakelingt@clackamas.edu

### MUSIC TECHNOLOGY CERTIFICATE

FALL TERM		CREDITS
MUS-142	Intro to Electronic Music: MIDI Sequencing I	3
MUS-107	Intro to Audio Recording I	3
MUS-140	Careers in Music	3
WR-101	Communication Skills: Occupational Writing	3
— —	Music Basics (see list)	3
— —	Music Electives (see list)	2
<b>WINTER TERM</b>		
MUS-143	Intro to Electronic Music: MIDI Sequencing II	3
MUS-108	Intro to Audio Recording II	3
MUS-141	Intro to the Music Business	3
MTH-50	Technical Math	
or MTH-105	Intro to Contemporary Math	3-4
— —	Music Basics (see list)	3
— —	Music Electives (see list)	2
<b>SPRING TERM</b>		
MUS-144	Intro to Electronic Music: MIDI Sequencing III	3
MUS-109	Intro to Audio Recording III	3
SP-100 or	Basic Speech Communication	3
or SP-115, SP-126, SP-218		
— —	Music Basics (see list)	3
MUS-280	Music/CWE	2
<i>Minimum credits required for certificate</i>		48-49

### MUSIC BASICS

Complete 9 credits from the following:

MUP-100	Individual Instruction—Instrument or Voice	1
MUS-101	Music Fundamentals	3
MUS-105	Music Appreciation	3
MUS 131/132/133	Piano for Pleasure I, II, III	1
MUS 134/135/136	Group Voice I, II, III	1
MUS 137/138/139	Group Guitar I, II, III	1
MUS 202	History of Classical Music	3
MUS-205	History of Jazz	3
MUS-206	History of Rock Music	3

### MUSIC ELECTIVES

Complete 6 credits from the following:

MUS-101	Music Fundamentals	3
MUS-105	Music Appreciation	3
MUS-130	Music and Media	1
MUS-131/132/133	Piano for Pleasure I, II, III	1
MUS-134/135/136	Group Voice I, II, III	1
MUS-137/138/139	Group Guitar I, II, III	1
MUS-145	Intro to Digital Sound, Video & Animation	3
MUS-146	Entertainment Law & New Media	3
MUP-100	Individual Lessons: Instrumental/Vocal	1
MUP-102	Concert Band	1
MUP-104	Pep Band/Combo-Improv	1
MUP-105	Jazz Ensemble	2
MUP-121	Clackamas Chorale	2
MUP-122	Chamber Choir	2
MUP-125	Jazz Singers/Mainstream	2
MUS-202	History of Classical Music	3
MUS-205	History of Jazz	3
MUS-206	History of Rock Music	3

## Network & Microcomputer Specialist

### CERTIFICATE

#### ASSOCIATE OF APPLIED SCIENCE DEGREE

The Network & Microcomputer Specialist program prepares students for entry-level positions in network administration and microcomputer support. 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. Microcomputer specialists install, maintain, upgrade, and troubleshoot PC hardware.

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

Prerequisites for first term classes include completed coursework or placement out of CS-120 Survey of Computing, WR-095 Paragraph to Essay, and MTH-065 Algebra II. This program is an open program, meaning that students may take any class in the program for which they have completed the prerequisite.

**CAREERS**

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

For information contact Linda Anderson, ext. 2539 or lindaa@clackamas.edu

**NETWORK & MICROCOMPUTER SPECIALIST CERTIFICATE**

<b>FALL TERM</b>		<b>CREDITS</b>
CS-121	Computer Applications [C]	3
CS-160	Computer Tech Orientation	2
CS-225	Computer End-User Support	3
CS-140W	Operating Systems I: Windows	4
MTH-092	Math for Computer Technicians	4

<b>WINTER TERM</b>		
CS-140D	Operating Systems I: DOS	3
CS-227	PC Repair I	4
CS-240W	Operating Systems II: Windows	3
CS-179	Data Communications	3
WR-101	Communications Skills: Occupational Writing	3

<b>SPRING TERM</b>		
CS-228	PC Repair II	4
CS-279W	LAN I: Windows Server Administration	4
CS-280	Computer Science/CWE	3
CS-125H	Web Site Design and HTML	3
PSY-101	Human Relations	3 or 4
or BA-285	Human Relations in Business	

Minimum credits required for certificate: 49-50

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

Complete certificate program.

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

<b>FALL TERM</b>		<b>CREDITS</b>
CS-135DB	Advanced Database	3
CS-288W	LAN II: Windows WAN	4
CS-140U	Operating Systems I: Linux/Unix	3
CS-229	Network Hardware Repair	4
— —	Recommended Elective	3-4

<b>WINTER TERM</b>		
CS-240U	Operating Systems II: Linux/Unix System Administration	3
CS-244	Systems Analysis	3
CS-279N	LAN I: Novell Administration	4
HE-252	First Aid/CPR	
or HPE-295	Health & Fitness for Life	3
— —	Recommended Elective	3-4

**SPRING TERM**

CS-280	Computer Science/CWE	6
CS-288N*	LAN II: Novell WAN	
or CS-288U	LAN II: Linux/Unix Internetworking	3-4
— —	Recommended Elective	3-4

Minimum credits required for degree (requirements & electives) 95-99

**RECOMMENDED ELECTIVES**

Complete 10-12 credits from the following:		
BA-101	Introduction to Business	4
BT-183	Introduction to eCommerce	3
— —	Any computer science course numbered 125 or above except: CS-178, CS-178E, and CS-295E.	

\*Either CS-288U or CS-288N must be taken. If both are taken, one class fulfills the requirement and the other counts as a recommended elective.

*Nursing*

**ASSOCIATE OF APPLIED SCIENCE DEGREE**

The Nursing program is a limited entry, six term program leading to an Associate of Applied Science in Nursing. Upon completion of the program, graduates

are eligible to take the national examination (NCLEX-RN) for registered nurse licensure.

CCC Nursing Program students who are interested in earning a bachelor's degree may apply for provisional admission to OHSU, Bachelor of Science in Nursing program and have their CCC credits apply toward completion. Information on this articulation is available on the department website or in the Advising and Counseling Center.

Admission into the nursing program is by special application. Information regarding the program, the application process and academic advising sessions is available at <http://depts.clackamas.cc.or.us/healthsciences/nursing.htm>

**CAREERS**

Graduates find employment at area hospitals, nursing homes and ambulatory care settings.

For information contact Judy Andersen, ext. 2429 or judya@clackamas.edu

**NURSING ASSOCIATE DEGREE: PREREQUISITES**

<b>COURSE</b>		
BI-231	Human Anatomy/Physiology I	4
BI-232	Human Anatomy/Physiology II	4
BI-233	Human Anatomy/Physiology III	4
BI-234	Introductory Microbiology	4
WR-121	English Composition	3
— —	Meet Computer Literacy Requirement	0-4

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

*Continued*

**NURSING ASSOCIATE DEGREE: 1ST YEAR**

<b>FALL TERM</b>		<b>CREDITS</b>
MTH-054*	Math For Health Care Professionals	3
NUR-100	Fundamental Frameworks of Nursing I	1
NUR-101	Nursing I	4
NUR-101C	Clinical/Lab Application	4
NUR-112	Discipline of Professional Nursing I	1
PHC-211*	Pharmacology I	2
— —	CPR Certification or PE-185	0-1

<b>WINTER TERM</b>		<b>CREDITS</b>
NUR-102	Nursing II	4
NUR-102C	Clinical/Lab Application	4
NUR-113	Discipline of Professional Nursing II	1
PHC-212*	Pharmacology II	2

<b>SPRING TERM</b>		<b>CREDITS</b>
NUR-103	Nursing III	4
NUR-103C	Clinical/Lab Application	4
NUR-114	Discipline of Professional Nursing III	1

**ADDITIONAL REQUIRED FIRST YEAR COURSES:**

FN-225*+	Nutrition	4
PSY-215*+	Introduction to Developmental Psychology	3
— —*+	Approved Elective	3

**NURSING ASSOCIATE DEGREE: 2ND YEAR**

<b>FALL TERM</b>		<b>CREDITS</b>
NUR-200	Fundamental Frameworks of Nursing II	1
NUR-201	Nursing IV	4
NUR-201C	Clinical/Lab Application	6
NUR-212	Discipline of Professional Nursing IV	1

<b>WINTER TERM</b>		<b>CREDITS</b>
NUR-202	Nursing V	4
NUR-202C	Clinical/Lab Application	6
NUR-213	Discipline of Professional Nursing V	1
— —*	Approved Elective	3

<b>SPRING TERM</b>		<b>CREDITS</b>
NUR-203	Nursing VI	4
NUR-203C	Clinical/Lab Application	6
NUR-214	Discipline of Professional Nursing VI	1
— —*	Approved Elective	3

Minimum credits required for degree 104-109

\* Courses considered support courses and may be taken prior to admission to the Nursing program.

+ Courses which must be completed prior to fall term of the second year.

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

**APPROVED ELECTIVES**

ANT-103	Cultural Anthropology	4
CH-106	Introductory Chemistry	5
HD-144	Introduction to Assertiveness	1
HD-145	Stress Management	1
HD-146	Values Clarification	1
HD-147	Decision Making	1
HD-153	Managing Conflict in Your Life	1
HD-154	Building Self-Confidence	1
HE-151	Body & Drugs	3
HE-205	Youth Addiction	3
HE-249	Mental Health	3
HE-250	Personal Health	3
HE-255	Body & Alcohol	3
MA-110	Medical Terminology	3
MA-115	Phlebotomy	1
MTH-095	Algebra III	4
MTH-111	College Algebra	4
MTH-243	Probability & Statistics	4
PHL-102	Ethics	3
PHL-103	Critical Reasoning	3
PHL-205	Moral Issues	3
PSY-101	Human Relations	3
PSY-142	Personal Development/College Success	3
PSY-200	Psychology as a Natural Science	3
PSY-205	Psychology as a Social Science	3
PSY-214	Introduction to Personality	3
PSY-216	Introduction to Social Psychology	3
PSY-218	Introduction to Experimental Psychology	3
PSY-219	Introduction to Abnormal Psychology	3
PSY-221	Introduction to Counseling	3
PSY-231	Introduction to Human Sexuality	3
PSY-240	Interpersonal Awareness & Growth	3
SOC-204	Introduction to Sociology	3
SOC-205	Social Stratification and Social System	3
SOC-206	Institutions and Social Change	3
SOC-223	Psycho-Social Aspects of Aging	3
SOC-225	Social Problems	3
SOC-230	Perspectives on Aging	3
SOC-231	Health & Biological Aspects of Aging	3
SOC-232	Encounters with Death	3
SP-115	Introduction to Intercultural Communication	3
SP-126	Communication Between Sexes	3
SPN-101	First-Year Spanish	4
SPN-102	First-Year Spanish	4
SPN-103	First-Year Spanish	4
SPN-120	Spanish for Health Professionals	3
SPN-201	Second-Year Spanish	4
SPN-202	Second-Year Spanish	4
SPN-203	Second-Year Spanish	4
WR-122	English Composition	3
WR-123	English Composition	3
WR-227	Technical Report Writing [C]	3

NOTE: Some of the courses listed above have prerequisites. See course descriptions for those requirements.

## 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 work-based training and classroom instruction to be competitively employable. The program is open-entry/open-exit, allowing students to begin their training at any time. Individualized training plans are developed in consultation with the student, work-site trainer, CCC faculty and program coordinator.

Students in this program are required to participate in a supervised and structured work-based training in addition to classroom instruction. The program utilizes local businesses as training sites. Students choose training from many different occupational areas.

To register, the Occupational Skills coordinator and student meet to assess the compatibility of the student's career goals with the Occupational Skills program.

For information contact the Occupational Skills office at ext. 2085 or ext. 2723.

### OCCUPATIONAL SKILLS TRAINING CERTIFICATE

#### PROGRAM REQUIREMENTS

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

#### GENERAL EDUCATION REQUIREMENTS

WR-101	Communication Skills: Occupational Writing	3
MTH-050	Technical Mathematics I	3
— —	Computer Literacy Elective	2-3
— —	Human Relations Elective	3

Minimum credits required for certificate 50-51

## Office Assistant

### CERTIFICATE

The Office Assistant certificate provides students with a strong foundation of basic skills in business administration. Emphasis is placed on critical thinking and human relations skills.

Coursework includes general education requirements, industry standard computer programs, and specific business administration courses.

#### CAREERS

Career opportunities are in a variety of office positions such as administrative assistant, legal assistant, legal secretary, medical secretary, receptionist, office manager, office assistant, word processor or transcriptionist.

For information contact Tanya Patrick, ext. 2426 or [tanyap@clackamas.edu](mailto:tanyap@clackamas.edu)

### OFFICE ASSISTANT CERTIFICATE

FALL TERM		CREDITS
BA-101	Introduction to Business	4
BT-104*	Business Math	3
BT-122	Keyboarding Skill Building	2
BT-124	Business English I	3
BT-160	Microsoft Word [C]	3

WINTER TERM		CREDITS
BA-251	Office Management	3
BA-285	Human Relations in Business	4
BT-125	Business English II	3
BT-161	Intermediate Microsoft Word [C]	3
BT-176	Excel [C]	3

SPRING TERM		CREDITS
BA-280	Business/CWE	3
BT-115	Intro. to General Accounting & Bookkeeping	3
or BA-211	Financial Accounting I	4
BT-170	Access [C]	3
BT-240	Filing/Records Management	3
BT-262	Advanced Word [C]	3
WR-121	English Composition	3

Minimum credits required for certificate 49-50

\* For this degree, this course meets the General Education Computation requirement.

## Supervisory Training

### CERTIFICATE PROFESSIONAL UPGRADE

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.

For information contact Dale Hatfield, [daleh@clackamas.edu](mailto:daleh@clackamas.edu), or ext. 2361.

### SUPERVISORY TRAINING CERTIFICATE

COURSE		CREDITS
BA-205	Solving Comm. Problems w/Technology [C]	4
BA-206	Management Fundamentals	4
BA-217	Budgeting for Managers	3
BA-224	Human Resource Management	3
BA-285	Human Relations in Business	4
WR-121	English Composition	3

Minimum credits required for certificate 21

## Water & Environmental Technology

### CERTIFICATE ASSOCIATE OF APPLIED SCIENCE DEGREE PROFESSIONAL UPGRADE

The Water & Environmental Technology program provides professional/technical classes combined with hands-on 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 and aquatic microbiology and preparation for provisional operator certification exams.

#### ULTRAPURE WATER OPTION

The Ultrapure Water Option provides classes and hands-on experience with advanced water treatment methods used in the high-tech industry. The Ultrapure Water Option has been developed in cooperation with Intel Corporation.

Program math prerequisite, MTH-065 Algebra II, must be completed prior to fall term entry.

#### CAREERS

Water & Environmental Technology program graduates often pursue jobs with city, county, and state agencies. Individuals that complete the Ultrapure Water Option have expanded career opportunities that include the high-tech industry. Graduates are employed as wastewater treatment plant operators, drinking water treatment plant operators, environmental laboratory technicians, ultra-pure water technicians, source control coordinators, engineering consulting technicians, surface water specialists, and environmental regulators.

For information contact Dan Lundy, ext. 2478 or danl@clackamas.edu

#### WATER & ENVIRONMENTAL TECHNOLOGY CERTIFICATE

FALL TERM	CREDITS
CH-104 Introductory Chemistry or CH-221 General Chemistry	5
MTH-082* Math for Water Technology	2
PSY-101 Psychology of Human Relations	3
WQT-110 Wastewater Operations I	3
WQT-111 Waterworks Operations I	3
WR-101 Communication Skills: Occupational Writing or WR-121 English Composition	3
WINTER TERM	CREDITS
BI-204 Elementary Microbiology	4
MTH-082* Math for Water Technology	2
WQT-120 Wastewater Operations II	3
WQT-121 Waterworks Operations II	3
WQT-122 Water Distribution & Wastewater Collect. Systems	3
WQT-123 Environmental Chemistry I	3

#### SPRING TERM

CS-120 Survey of Computing [C]	4
WQT-130 Wastewater Plant Operations III	4
WQT-131 Water Treatment	4
WQT-132 Collection & Distribution Lab	1
WQT-134 Environmental Chemistry II	2
WQT-180 Water & Environmental Projects I	5

Minimum credits required for certificate 57

\*4 credits of MTH-082 are required for the certificate

#### WATER & ENVIRONMENTAL TECHNOLOGY ASSOCIATE DEGREE: 1ST YEAR

Complete certificate program.

#### WATER & ENVIRONMENTAL TECHNOLOGY ASSOCIATE DEGREE: 2ND YEAR

FALL TERM	CREDITS
WQT-241 Aquatic Microbiology	4
WQT-242 Hydraulics of Water & Wastewater	3
WQT-245 Instrumentation & Control	4
WQT-280 Water & Environmental Projects II	5

#### WINTER TERM

GEO-130 Introduction to Environmental Geography	3
MTH-095 Intermediate Algebra or MTH-111 College Algebra	4
SP-100 Basic Speech Communication	3
— — Recommended Elective	3-4

#### SPRING TERM

CS-121 Computer Applications [C]	3
HE-252 First Aid/CPR	3
— — Recommended Elective	3-4

Minimum credits required for degree (requirements + electives) 95-97

#### WATER & ENVIRONMENTAL TECHNOLOGY ASSOCIATE DEGREE: 1ST YEAR - ULTRAPURE WATER OPTION

FALL TERM	CREDITS
CH-104 Introductory Chemistry or CH-221 General Chemistry	5
MTH-082* Math for Water Technology	2
PSY-101 Psychology of Human Relations	3
WQT-110 Wastewater Operations I	3
WQT-111 Waterworks Operations I	3
WR-101 Communication Skills: Occupational Writing or WR-121 English Composition	3

#### WINTER TERM

BI-204 Elementary Microbiology	4
MTH-082* Math for Water Technology	2
WQT-120 Wastewater Operations II	3
WQT-122 Water Distribution & Wastewater Collect. Systems	3
WQT-123 Environmental Chemistry I	3
WQT-125 Ultrapure Water Prod. I	3

#### SPRING TERM

CS-120 Survey of Computing [C]	4
WQT-131 Water Treatment	4
WQT-132 Collection & Distribution Lab	1
WQT-134 Environmental Chemistry II	2
WQT-135 Ultrapure Water Production II	4
WQT-180 Water & Environmental Projects I	5

**WATER & ENVIRONMENTAL TECHNOLOGY ASSOCIATE DEGREE:  
2ND YEAR - ULTRAPURE WATER OPTION**

FALL TERM		CREDITS
WQT-241	Aquatic Microbiology	4
WQT-242	Hydraulics of Water & Wastewater	3
WQT-245	Instrumentation & Control	4
WQT-280	Water & Environmental Projects II	5
WINTER TERM		
GEO-130	Introduction to Environmental Geography	3
MTH-095	Intermediate Algebra	
	or MTH-111 College Algebra	4
SP-100	Basic Speech Communication	3
— —	Recommended Elective	3-4
SPRING TERM		
CS-121	Computer Applications [C]	3
HE-252	First Aid/CPR	3
— —	Recommended Elective	3-4
<i>Minimum credits required for degree (requirements + electives)</i>		95-97

**RECOMMENDED ELECTIVES**

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

**PROFESSIONAL UPGRADE COURSES**

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

WQT-009	Cross Connect. Backflow Assembly Tester (4.0 CEU)
WQT-009	Cross Connection Inspectors Course (3.2 CEU)
WQT-009	Water & Wastewater Short Schools (2.0 & 2.3 CEU)
WQT-009	Equipment Maintenance & Repair (CEU)
WQT-009	Pretreatment (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-009	Certification Review/Wastewater Operators (CEU)
WQT-009	Certification Review/Waterworks Operators (CEU)

## Welding Technology

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

This program prepares students for entry into these industries: fabricated structural metal products, motor vehicles and equipment, construction and heavy construction, transportation equipment, ship and boat

- AWS Certified Faculty
- Student Certification
- New State-of-the-art facility
- SME

building and repair, aircraft and parts, self-employment, and miscellaneous fabricated metal products.

CCC's welding instructors are AWS Certified (American Welding Society) professionals and utilize AWS curriculum, the international standard.

Coursework focuses on the knowledge and skills to perform:

- Fillet welds and groove welds using:
  - Shielded metal arc welding (SMAW)
  - Gas metal arc (GMAW)
  - Flux cored arc welding (FCAW)
  - Gas tungsten arc (GTAW)
  - Steel, stainless steel and aluminum
  - A variety of different electrodes
- Plasma arc cutting (PAC), air carbon arc cutting (CAC-A) and gouging, manual and automatic oxy-fuel cutting (OFC and OFC-Track Burner) processes
- Knowledge of materials science and welding theory
- Print reading, inspection, quality, safety and shop practices
- Fabrication techniques, including job cost calculations, layout, sketching, bills of material, fitting and cutting welding applied to real projects designed by industry partners

**CAREERS**

Career opportunities may be found with large, medium and small employers in the industries listed above as trained welders, cutters, welder/fabricators, welder/fitters, and welding machine operators. Welders can advance to more skilled jobs with additional training and experience, such as technicians, supervisors, inspectors or instructors.

For information contact Jeff Molatore, ext. 2796 or jeffm@clackamas.edu; Sue Caldera, ext. 2013 or suec@clackamas.edu; or the Manufacturing Department, ext. 2062.

*Continued*

**WELDING TECHNOLOGY CERTIFICATE: 1ST YEAR**

<b>FIRST TERM</b>		<b>CREDITS</b>
MFG-107	Industrial Safety and OSHA	3
MTH-050*	Technical Mathematics I	3
WLD-111	Shielded Metal Arc Welding (SMAW)	8
WLD-261	Welding Special Projects	2

**SECOND TERM**

MFG-109	Computer Literacy for Technicians [C]	3
WLD-100	Welder's Print Reading I	3
WLD-113	Gas Metal Arc Welding & Flux Core Arc Welding (GMAW/FCAW)	8
WLD-261	Welding Special Projects	2
WR-101*	Communication Skills: Occupational Writing	3

**THIRD TERM**

MFG-221	Materials Science	3
WLD-115	Gas Tungsten Arc Welding (GTAW)	8
WLD-261	Welding Special Projects	2
WLD-280	Welding Technology/CWE	2
— —*	Human Relations Elective	3

*Minimum credits required for certificate* 53

**WELDING TECHNOLOGY ASSOCIATE DEGREE: 1ST YEAR**

Complete certificate program.

**WELDING TECHNOLOGY ASSOCIATE DEGREE: 2ND YEAR**

<b>FOURTH TERM</b>		<b>CREDITS</b>
MFG-111	Machine Tool Fundamentals I	3
WLD-211	Advanced SMAW Welding	4
WLD-250	Welding Fabrication I Beginning Project	4
— —*	General Education Elective	3

**FIFTH TERM**

WLD-213	Advanced GMAW/FCAW Welding	4
WLD-251	Welding Fabrication II Intermediate Project	4
— —*	General Education Elective	3
— —	PE/Health Elective	3

**SIXTH TERM**

WLD-200	Welder's Print Reading II	3
WLD-215	Advanced GTAW Welding	4
WLD-252	Welding Fabrication III Advanced Project	4
WLD-280	Welding Technology/CWE	2

*Minimum credits required for degree (requirements & electives)* 94

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

**WELDING 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 Manufacturing Engineering Technology degree program. Contact Mike Mattson at 503-657-6958 ext. 2483 or mattsonm@clackamas.edu, for a current listing of transferable classes.

## *Transfer Information*

## Transferring? Take Your First Two Years at Clackamas

Planning a bachelor's degree? Clackamas Community College is a great place to start. Our Associate of Arts Oregon Transfer (AAOT) Degree allows you to complete the first two years and all the general education requirements of most bachelor's degrees offered at state universities in Oregon. Many private colleges also honor the AAOT as the best plan for transfer to their institutions.

Students are encouraged to work out an Educational Plan with an Academic Advisor here at CCC. They may be seen on a drop in basis in the Advising & Counseling Center located in the Community Center. An Advisor will help create an individualized transfer curriculum plan that may be used to:

- meet the Clackamas Community College requirements for the Associate of Arts degree
- meet specific lower division credit requirements for the four-year college major of your choice

### Undecided about Your Educational Goals?

Follow these guidelines for a good start in any program of study. Determine how many credits you want to take during each term, then choose specific courses that fulfill the categories listed below. This plan allows you to sample areas of study while you are deciding on your goal, taking classes that will apply to many possible educational plans.

<i>Course</i>	<i>Credits</i>
Writing .....	3
(base your choice on your placement scores from the Testing Center)	
Math .....	4
(base your choice on your placement scores from the Testing Center)	
Humanities or Arts course .....	3-4
HPE-295 or HE-250 or 3 terms of PE-185 (different activities) .....	3
Social Science course .....	3
Lab Science course .....	4
Elective in area of interest .....	3
Computer Literacy course .....	2-4
Career Exploration course .....	1-3
College Success course (HD-120) .....	1

### Sample Transfer Curricula

The following pages contain examples of lower division curricula that support various bachelor's degree majors. Not all courses listed may be required at all colleges and some colleges may have additional lower division requirements. Work with an Academic Advisor in the Advising & Counseling Center or with a faculty advisor in a specific department to create an Educational Plan that fits your program of study and the transfer requirements for the college where you plan to complete your bachelor's degree.

## *Sample Transfer Curricula*

The sample transfer curricula on the following pages show examples of coursework that can be taken to complete your AAOT and prepare you for bachelor's degree programs in specific fields. See your faculty advisor or an Academic Advisor in the Advising & Counseling Center to personalize your AAOT and create an educational plan to fit your goals.

Accounting . . . . .	60	Health Care Administration . . . . .	69
Advertising . . . . .	60	Health Education . . . . .	69
Agriculture . . . . .	60	History . . . . .	69
Animal Sciences . . . . .	60	Horticulture . . . . .	70
Anthropology . . . . .	60	Hospitality, Tourism & Recreation . . . . .	70
Apparel Design/Merchandising Management . . . . .	61	Housing Design/Interior Merchandising . . . . .	70
Architecture . . . . .	61	Human Development/Family Services . . . . .	70
Art . . . . .	61	Interior Design . . . . .	71
Art History . . . . .	61	International Studies . . . . .	71
Arts & Letters . . . . .	62	Journalism . . . . .	71
Biochemistry/Biophysics . . . . .	62	Landscape Architecture . . . . .	71
Biology . . . . .	62	Mathematics . . . . .	72
Business Administration . . . . .	62	Medicine . . . . .	72
Chemistry . . . . .	63	Microbiology . . . . .	72
Child & Family Studies . . . . .	63	Music . . . . .	72
Chiropractic . . . . .	63	Nursing . . . . .	73
Communication/Speech . . . . .	63	Nutrition & Food Management . . . . .	73
Computer Science . . . . .	64	Occupational Therapy . . . . .	73
Corrections . . . . .	64	Optometry . . . . .	73
Criminal Justice . . . . .	64	Pharmacy . . . . .	74
Dance . . . . .	64	Philosophy . . . . .	74
Dental Hygiene . . . . .	65	Physical Education/Exercise Science . . . . .	74
Dentistry . . . . .	65	Physical Therapy . . . . .	74
Early Childhood Education . . . . .	65	Physics . . . . .	75
Economics . . . . .	65	Political Science . . . . .	75
Education, Elementary . . . . .	66	Psychology . . . . .	75
Education, Secondary . . . . .	66	Public Relations . . . . .	75
Education, Technology Education . . . . .	66	Religious Studies . . . . .	76
Engineering . . . . .	66	Science . . . . .	76
English . . . . .	67	Social Science . . . . .	76
Entomology . . . . .	67	Sociology . . . . .	76
Environmental Health & Safety . . . . .	67	Speech/Communication . . . . .	76
Environmental Science . . . . .	68	Speech Therapy . . . . .	77
Fisheries/Forestry/Wildlife Management . . . . .	68	Theatre Arts . . . . .	77
Foreign Language . . . . .	68	Urban Studies & Planning . . . . .	77
Geography . . . . .	68	Veterinary Medicine . . . . .	77
Geology . . . . .	69	Transfer & Articulation Agreements . . . . .	78

### *Please note:*

90 credits are required for an associate's degree; some transfer programs suggest more credits. For more information about transfer course sequences, see pages 16 & 17. Transfer requirements may vary at private or out-of-state institutions. For course descriptions, see pages 79-168.

## Accounting

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A program of study in accounting prepares a student for a position in public, private or government accounting, and it provides preparation for the CPA (Certified Public Accountant) or the CMA (Certified Management Accountant) exams.

Contact John Olds, ext. 2408 or johno@clackamas.edu;  
Joan Ryan, ext. 2363 or joanr@clackamas.edu;  
or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT Degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence . . . . .	9
PHL-102 Ethics . . . . .	3
EC-201/202 Principles of Economics . . . . .	8
PS-201/202 U.S. Government . . . . .	6
ANT, PSY or SOC Course . . . . .	3-4
Lab Science Sequence . . . . .	12
MTH-243/244 Probability & Statistics . . . . .	8
BA-101 Introduction to Business . . . . .	4
BA-131 Introduction to Business Computing [C] . . . . .	4
BA-211 Financial Accounting I . . . . .	4
BA-212 Financial Accounting II . . . . .	4
BA-213 Decision Making with Accounting Information . . . . .	4
BA-205 Solving Communication Problems with Technology [C] . . . . .	4
BA-226 Business Law I . . . . .	4
<i>Total:</i>	96-97

Note: A minimum of 90 credits is required for an AAOT degree.

## Advertising

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Contact Dale Hatfield, ext. 2361 or daleh@clackamas.edu;  
or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence . . . . .	9
Arts & Letters course (prefix different from prefix) . . . . .	3
EC-201/202 Principles of Economics . . . . .	8
Social Science Courses (prefix different from sequence) . . . . .	9
Lab Science Sequence . . . . .	12
MTH-243/244 Probability & Statistics . . . . .	8
BA-101 Introduction to Business . . . . .	4
BA-131 Introduction to Business Computing [C] . . . . .	4
BA-211/212/213 Accounting Sequence . . . . .	12
BA-205 Solving Communication Problems w/Technology [C] . . . . .	4
BA-226 Introduction to Business Law I . . . . .	4
<i>Total:</i>	96

Note: A minimum of 90 credits is required for an AAOT degree.

## Agriculture

### ONE-YEAR TRANSFER CURRICULUM

Students in this program of study should complete only their freshman year at Clackamas Community College because specialized lower division courses are not available. However, see course descriptions for horticulture courses which transfer to Oregon State University.

Contact Elizabeth Howley, ext. 2389 or ehowley@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Suggested courses</i>	<i>credits</i>
WR-121/122 English Composition . . . . .	6
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4
Arts & Letters Sequence . . . . .	9
EC-201/202 Principles of Economics . . . . .	8
CH-104/105/106 Introductory Chemistry . . . . .	15
<i>Total:</i>	45

## Animal Sciences

### ONE-YEAR TRANSFER CURRICULUM

Students in this program of study should complete only their freshman year at Clackamas Community College because specialized lower division courses are not available.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu;  
or the Advising & Counseling Center, ext. 2213.

<i>Suggested courses</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4
Arts & Letters Sequence . . . . .	9
CH-121/122/123 Introductory College Chemistry or CH-221/222/223 General Chemistry . . . . .	15
EC-201/202 Principles of Economics . . . . .	8
<i>Total:</i>	51

## Anthropology

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A program of study in anthropology prepares a student to work for public social agencies and for other careers open to liberal arts graduates, as well as teach high school social studies. Jobs in museums, college teaching and field work require graduate degrees.

Contact Eric Lewis, ext. 2251 or ericl@clackamas.edu;  
or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra or MTH-105 Introduction to Contemporary Mathematics . . . . .	4

*Suggested courses to meet additional AAOT requirements*

ENG-104/105/106 Introduction to Literature	9
ART-204/205/206 History of Western Art	9
ANT-101/102/103 Anthropology	12
PSY-200/205/219 Psychology	9
BI-101/102/103 General Biology	12
CS-120 Survey of Computing [C]	4
CS-121 Computer Applications [C]	3
G-201/202/203 General Geology	12
GEO-100/110/130 Geography	9
<i>Total:</i>	98

Note: A minimum of 90 credits is required for an AAOT degree.

## *Apparel Design/ Merchandising Management*

**ASSOCIATE OF ARTS OREGON TRANSFER DEGREE**

Contact ext. 2527, or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 or 227 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra	4

*Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
Social Science Sequence	8-9
Social Science Courses (prefixes different from sequence)	6
Lab Science Sequence	12-15
Additional Science or Math Courses	3
CS-120 Survey of Computing [C]	4
Electives	29-31
<i>Total:</i>	93-99

Note: A minimum of 90 credits is required for an AAOT degree.

## *Architecture*

**PRE-PROFESSIONAL PROGRAM  
SUGGESTED TRANSFER CURRICULUM**

Since architecture has specific requirements, the Oregon Transfer Degree is not recommended for this major. However, ask about the Architectural Option in the Drafting Technology degree.

Contact Michael Jones, ext. 2443 or mikej@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Suggested courses</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-112 Trigonometry/Pre-calculus	4
ART-204/205/206 History of Western Art	9
ART-115/116/117 Basic Design	9
Social Science Sequence	8-9
Social Science Courses (prefix different from sequence)	9
PH-201/202/203 General Physics	15
CDT-104 Professional Computing Basics [C] or CAD-151 AutoCAD Level I	2-4
Electives	22
<i>Total:</i>	93-96

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

## *Art*

**ASSOCIATE OF ARTS OREGON TRANSFER DEGREE**

A program of study in art prepares a student to work in museums, galleries, and related business, and pursue research and creative projects, as well as teach in school and community programs.

Contact David Andersen, ext. 2743 or davida@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra or MTH-105 Introduction to Contemporary Mathematics	4

*Suggested courses to meet additional AAOT requirements*

ART-204/205/206 History of Western Art	9
Arts & Letters Course (prefix different from sequence)	6
Social Science Sequence	8-12
Social Science Courses (prefix different from sequence)	9
Lab Science Sequence	12
CS-120 Survey of Computing [C]	4
ART-115/116/117 Basic Design	9
ART-131/132/133 Drawing	9
Electives (studio art courses recommended)	8
<i>Total:</i>	93-97

Note: A minimum of 90 credits is required for an AAOT degree.

## *Art History*

**ASSOCIATE OF ARTS OREGON TRANSFER DEGREE**

Contact David Andersen, ext. 2743 or davida@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra or MTH-105 Introduction to Contemporary Mathematics	4

*Suggested courses to meet additional AAOT requirements*

ART-204/205/206 History of Western Art	9
ENG-107/108/109 World Literature	6
HST-101/102/103 History of Western Civilization	12
Social Science Courses (prefix different from sequence)	9
Lab Science Sequence	12
CS-120 Survey of Computing [C]	4
ART-115/116/117 Basic Design	9
ART-131/132/133 Drawing	9
Electives (studio art courses recommended)	7
<i>Total:</i>	96

Note: A minimum of 90 credits is required for an AAOT degree.

## Arts & Letters

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A program of study in arts & letters is an excellent foundation for graduate work in specialized areas or employment which demands interpretive reading, writing and research skills.

Contact Emily Orlando, ext. 2372 or emilyo@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

#### *Required courses for AAOT degree* *credits*

WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra or MTH-105 Introduction to Contemporary Mathematics . . . . .	4

#### *Suggested courses to meet additional AAOT requirements*

ENG-104/105/106 Introduction to Literature . . . . . or ENG-107/108/109 Introduction to World Literature	9
Arts & Letters Courses . . . . .	9
HST-101/102/103 History of Western Civilization . . . . .	12
Social Science Courses (prefix different from sequence) . . . . .	9
Lab Science Sequence . . . . .	12
CS-120 Survey of Computing [C] . . . . .	4
Foreign Language Sequence (second year) . . . . .	12
Electives (200 level literature courses recommended) . . . . .	12
<i>Total:</i>	98

Note: A minimum of 90 credits is required for an AAOT degree.

## Biochemistry/Biophysics

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A program of study in biochemistry/biophysics prepares a student for inspection, testing, technical sales and lab work, careers with government regulatory agencies, and graduate work in medicine, dentistry and veterinary medicine.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

#### *Required courses for AAOT degree* *credits*

WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-251 Calculus I . . . . .	5

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
Social Science Sequence . . . . .	8-9
Social Science Courses (prefix different from sequence) . . . . .	8-12
MTH-252/253 Calculus II & III . . . . .	10
CH-221/222/223 General Chemistry . . . . .	15
CH-241/242/243 Organic Chemistry . . . . .	12
BI-211/212/213 Biology . . . . .	15
PH-211/212/213 Physics with Calculus . . . . .	15
<i>Total:</i>	115-120

Note: A minimum of 90 credits is required for an AAOT degree.

## Biology

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A program of study in biology prepares a student for teaching, testing, technical sales, lab work and careers with government regulatory agencies.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

#### *Required courses for AAOT degree* *credits*

WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-251 Calculus I . . . . .	5

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	6
Social Science Sequence . . . . .	8-12
Social Science Courses (prefix different from sequence) . . . . .	6
MTH-252 Calculus II . . . . .	5
CH-221/222/223 General Chemistry . . . . .	15
BI-211/212/213 Biology . . . . .	15
PH-201/202/203 General Physics . . . . .	15
<i>Total:</i>	99-103

Note: A minimum of 90 credits is required for an AAOT degree.

## Business Administration

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A program of study in business administration prepares a student for office and personnel administration, banking, insurance and retailing, selling, merchandising and teaching.

Contact John Olds, ext. 2408 or johno@clackamas.edu; Joan Ryan, ext. 2363 or joanr@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

#### *Required courses for AAOT degree* *credits*

WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
EC-201/202 Principles of Economics . . . . .	8
Social Science Courses (prefix different from sequence) . . . . .	9
Lab Science Sequence . . . . .	12
MTH-243/244 Probability & Statistics . . . . .	8
BA-101 Introduction to Business . . . . .	4
BA-131 Introduction to Business Computing [C] . . . . .	4
BA-211 Financial Accounting I . . . . .	4
BA-212 Financial Accounting II . . . . .	4
BA-213 Decision Making with Accounting Information . . . . .	4
BA-205 Solving Communication Problems with Technology [C] . . . . .	4
BA-226 Introduction to Business Law I . . . . .	4
<i>Total:</i>	96

Note: A minimum of 90 credits is required for an AAOT degree.

Alternate schedules are available. For more information call the Business department at ext. 2419.

## Chemistry

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in chemistry prepares a student for teaching, government and industry laboratory jobs in a wide variety of fields as well as graduate work in pharmacy, medicine, oceanography and environmental science.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

Required courses for AAOT degree	credits
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-251 Calculus I	5

#### Suggested courses to meet additional AAOT requirements

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
Social Science Sequence	8-9
Social Science Courses (prefix different from sequence)	9
CH-221/222/223 General Chemistry	15
MTH-252/253 Calculus II & III	10
PH-211/212/213 General Physics with Calculus	15
MTH-256 Differential Equations	4
CS-120 Survey of Computing [C]	4
<b>Total:</b>	<b>97-98</b>

Note: A minimum of 90 credits is required for an AAOT degree.

## Child & Family Studies

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Contact Patricia McIlveen, ext. 2240 or patriciam@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

Required courses for AAOT degree	credits
WR-121/122/123 or 227 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra	4

#### Suggested courses to meet additional AAOT requirements

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
Social Science Sequence	8-9
Social Science Courses (prefixes different from sequence)	6
Lab Science Sequence	12-15
Additional Science or Math Courses	3
CS-120 Survey of Computing [C]	4
Electives	29-31
<b>Total:</b>	<b>93-99</b>

Note: A minimum of 90 credits is required for an AAOT degree.

## Chiropractic

### PRE-PROFESSIONAL PROGRAM ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Students who complete the program of study outlined here may apply for admission to a chiropractic school.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

Required courses for AAOT degree	credits
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-112 Trigonometry/Pre-calculus	4

#### Suggested courses to meet additional AAOT requirements

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
PSY-200/205/219 Psychology	9
Social Science Courses (prefix different from sequence)	9
CH-221/222/223 General Chemistry	15
CH-241/242/243 Organic Chemistry	12
PH-201/202/203 General Physics	15
Select one of the following sequences:	12-15
BI-231/232/233 Human Anatomy & Physiology	12
BI-211/212/213 Biology	15

Total: 103-106

Note: A minimum of 90 credits is required for an AAOT degree.

## Communication/Speech

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in communication/speech prepares a student to work in sales, broadcasting, business communications, advertising, public relations and teaching.

Contact Kelly Brennan, ext. 2726 or kellyb@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

Required courses for AAOT degree	credits
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
SP-112 Persuasive Speaking	3
SP-126 Communications Between the Sexes	3
MTH-111 College Algebra or MTH-105 Introduction to Contemporary Mathematics	4

#### Suggested courses to meet additional AAOT requirements

Arts & Letters Course (prefix different from sequence)	6
HST-101/102/103 History of Western Civilization	12
Social Science Course	3
BI-101/102/103 General Biology	12
CS-120 Survey of Computing [C]	4
CS-121 Computer Applications [C]	3
SP-221/222/223 Forensics	3
Select 26 credits from the following:	26
SP-129 Oral Interpretation	1-3
SP-167 Parliamentary Procedure	1-3
SP-150 Competitive Platform Speaking	1-3
SP-211 Communication Theory	3
SP-218 Interpersonal Communications	3
SP-219 Small Group Discussion	3
SP-229 Oral Interpretation	1-3
SP-267 Parliamentary Procedure	1-3
SP-250 Competitive Platform Speaking	1-3
TA-101/102/103 Appreciation of Theatre	9
TA-141/142/143 Acting	9
TA-153/253 Rehearsal & Performance	9

Total: 94

Note: A minimum of 90 credits is required for an AAOT degree.

## Computer Science

### ONE-YEAR TRANSFER CURRICULUM

Students in this program of study should complete only their freshman year at Clackamas Community College.

Contact Linda Anderson, ext. 2539 or [lindaa@clackamas.edu](mailto:lindaa@clackamas.edu); or the Advising & Counseling Center, ext. 2213.

<i>Suggested courses</i>	<i>credits</i>
WR-121/122 English Composition	6
WR-227 Technical Report Writing [C]	3
SP-111 Public Speaking	3
Social Science Sequence	8-12
MTH-251/252/253 Calculus I, II & III	15
CS-161 Computer Science I [C]	4
CS-162 Computer Science II	4
CS-260 Data Structures	4
MTH-231 Elements of Discrete Mathematics	4
<i>Total:</i>	<i>51-55</i>

## Corrections

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in social science with a major in corrections prepares students for employment with federal, state and local law enforcement agencies through practice in the study of crime, delinquency and corrections.

Contact Dick Ashbaugh, ext. 2237 or [dicka@clackamas.edu](mailto:dicka@clackamas.edu); or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-105 Introduction to Contemporary Mathematics	4

#### *Suggested courses to meet additional AAOT requirements*

PHL-101 Philosophical Problems	3
PHL-102 Ethics	3
PHL-103 Critical Thinking	3
Arts & Letters Course (prefix different from sequence)	6
SOC-204 Introduction to Sociology	3
SOC-205 Social Stratification & Social Systems	3
SOC-206 Institutions & Social Change	3
PSY-200/205/219 Psychology	9
BI-101/102/103 General Biology	12
CS-120 Survey of Computing [C]	4
CJA-101 Criminology	3
CJA-110 Introduction to Law Enforcement	3
CJA-120 Judicial Process	3
CJA-130 Introduction to Corrections	3
CJA-201 Juvenile Delinquency	3
CJA-213 Interview & Interrogation	3
CJA-230 Juvenile Corrections	3
CJA-232 Corrections Casework	3
CJA-280 Criminal Justice/Corrections/CWE	6
<i>Total:</i>	<i>98</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Criminal Justice

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in social science with a major in criminal justice prepares a student for employment with federal, state and local law enforcement agencies.

Contact Dick Ashbaugh, ext. 2237 or [dicka@clackamas.edu](mailto:dicka@clackamas.edu); or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-105 Introduction to Contemporary Mathematics	4

#### *Suggested courses to meet additional AAOT requirements*

PHL-101 Philosophical Problems	3
PHL-102 Ethics	3
PHL-103 Critical Reasoning	3
Arts & Letters Course (prefix different from sequence)	6
SOC-204 Introduction to Sociology	3
SOC-205 Social Stratification & Social Systems	3
SOC-206 Institutions & Social Change	3
PSY-200/205/219 Psychology	9
BI-101/102/103 General Biology	12
CS-120 Survey of Computing [C]	4
CJA-101 Criminology	3
CJA-110 Introduction to Law Enforcement	3
CJA-120 Judicial Process	3
CJA-122 Criminal Law	3
CJA-130 Introduction to Corrections	3
CJA-200 Community Relations/Policing	3
CJA-213 Interview & Interrogation	3
CJA-220 Substantive Law	3
CJA-230 Juvenile Corrections	3
CJA-280 Criminal Justice/Corrections/CWE	3
<i>Total:</i>	<i>98</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Dance

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Contact Jim Jackson, ext. 2295 or [jimj@clackamas.edu](mailto:jimj@clackamas.edu); or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 or 227 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
Social Science Sequence	8-9
Social Science Courses (prefixes different from sequence)	6
Lab Science Sequence	12-15
Additional Science or Math Courses	3
CS-120 Survey of Computing [C]	4
Electives	29-31
<i>Total:</i>	<i>93-99</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Dental Hygiene

**PRE-PROFESSIONAL PROGRAM  
ASSOCIATE OF ARTS OREGON TRANSFER DEGREE**

Students completing the two-year program outlined below may apply for admission to a bachelor's degree program in dental hygiene. See an advisor for specific transfer information.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-112 Trigonometry/Pre-calculus . . . . .	4

<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
PSY-200/205/219 Psychology . . . . .	9
Social Science Courses (prefix different from sequence) . . . . .	7-9
CH-104/105/106 Introductory Chemistry . . . . .	15
PH-201/202/203 General Physics . . . . .	15
FN-225 Nutrition . . . . .	4
Select one of the following sequences: . . . . .	12
BI-101/102/103 General Biology	
BI-231/232/233 Human Anatomy & Physiology	
<i>Total: 93-95</i>	

Note: A minimum of 90 credits is required for an AAOT degree.

## Dentistry

**PRE-PROFESSIONAL PROGRAM  
ASSOCIATE OF ARTS OREGON TRANSFER DEGREE**

A bachelor's degree with a science emphasis prepares a student to apply to dental school.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4

<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
PSY-200/205/219 Psychology . . . . .	9
Social Science Courses (prefix different from sequence) . . . . .	6
CH-221/222/223 General Chemistry . . . . .	15
MTH-112 Trigonometry/Pre-calculus . . . . .	4
MTH-251 Calculus I . . . . .	5
CH-241/242/243 Organic Chemistry . . . . .	12
PH-201/202/203 General Physics . . . . .	15
BI-211/212/213 Biology . . . . .	15
<i>Total: 112</i>	

Note: A minimum of 90 credits is required for an AAOT degree.

## Early Childhood Education

**ASSOCIATE OF ARTS OREGON TRANSFER DEGREE**

Contact Patricia McIlveen, ext. 2240 or patriciam@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 or 227 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4

<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
Social Science Sequence . . . . .	8-9
Social Science Courses (prefixes different from sequence) . . . . .	6
Lab Science Sequence . . . . .	12-15
Additional Science or Math Courses . . . . .	3
CS-120 Survey of Computing [C] . . . . .	4
Electives . . . . .	29-31
<i>Total: 93-99</i>	

Note: A minimum of 90 credits is required for an AAOT degree.

## Economics

**ASSOCIATE OF ARTS OREGON TRANSFER DEGREE**

A bachelor's degree in economics prepares a student for jobs with government agencies and businesses, or for admission to graduate school in law and business.

Contact Eric Lewis, ext. 2551 or ericl@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-251 Calculus I . . . . .	5

<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
EC-201/202 Principles of Economics . . . . .	8
Social Science Courses (prefix different from sequence) . . . . .	9
Lab Science Sequence . . . . .	12
MTH-243/244 Probability & Statistics . . . . .	8
BA-212 Financial Accounting II . . . . .	4
BA-213 Decision Making with Accounting Information . . . . .	4
Electives (CS-120/121 recommended) . . . . .	17
<i>Total: 94</i>	

Note: A minimum of 90 credits is required for an AAOT degree.

## Education, Elementary

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

This curriculum is designed to fulfill lower division transfer requirements for a bachelor's degree and subsequent certification as an elementary teacher. See an advisor for the requirements of specific institutions.

Contact Mindy Brown, ext. 2261 or mindyb@clackamas.edu; Paula Hamm, ext. 2804 or paulah@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

#### Required courses for AAOT degree credits

WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-211/212/213 Fundamentals of Elementary Math . . . . .	12

#### Suggested courses to meet additional AAOT requirements

Arts & Letters Sequence (must be literature) . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
HST-201/202/203 History of the United States . . . . .	12
PSY-200/205/219 Psychology . . . . .	9
BI-101/102/103 General Biology . . . . .	12
GEO-110 Introduction to Cultural & Human Geography . . . . .	3
CS-120 Survey of Computing [C] . . . . .	4
GS-104/105/106 Physical Science Sequence . . . . .	12
ED-280 Education/CWE . . . . .	2-6
Electives (ENG-253/254/255, ART, MUS recommended) . . . . .	5

Total: 98-102

Note: A minimum of 90 credits is required for an AAOT degree.

## Education, Secondary

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Students interested in becoming secondary teachers must see an advisor. In most cases certification may require a fifth year of study; see an advisor for the requirements of specific institutions.

Contact Mindy Brown, ext. 2261 or mindyb@clackamas.edu; Paula Hamm, ext. 2804 or paulah@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

#### Required courses for AAOT degree credits

WR-121/122/123 or 227 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4

#### Suggested courses to meet additional AAOT requirements

Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
Social Science Sequence . . . . .	8-9
Social Science Courses (prefixes different from sequence) . . . . .	6
Lab Science Sequence . . . . .	12-15
Additional Science or Math Courses . . . . .	3
CS-120 Survey of Computing [C] . . . . .	4
Electives . . . . .	29-31

Total: 93-99

Note: A minimum of 90 credits is required for an AAOT degree.

## Education, Technology Education

### OSU TRANSFER AGREEMENT

This curriculum is designed for transfer to the Oregon State University Technology Education program where the second two years of the bachelor of science degree can be completed. The professional/technical courses in this program may be taken in a variety of fields that include automotive, building construction, computer science, drafting and manufacturing technology for the person who wants to teach in a high school. Concentration in a specific discipline may be considered for people who are interested in teaching at a community college. Community college teaching usually requires several years of industry-related experience in addition to education. Requirements vary between schools. Students entering the Technology Education program at OSU must be computer literate to a high degree which includes Web access and maintenance.

Contact Michael Jones, ext. 2443 or mikej@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

#### Suggested courses

WR-121/122 English Composition . . . . .	6
WR-227 Technical Report Writing [C] . . . . .	3
HPE-295 Health & Fitness for Life . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4
Arts & Letters Course (prefix different from sequence) . . . . .	3
BI-101/102/103 General Biology . . . . .	12
G-201/202 General Geology . . . . .	8
MTH-112 Trigonometry/Pre-calculus . . . . .	4
PH-201/202/203 General Physics . . . . .	15
EC-201/202 Principles of Economics . . . . .	8
PSY-200/205 Psychology . . . . .	6
PHL-102 Ethics . . . . .	3
ED-280 Technology Education/CWE . . . . .	6
CDT-104 Professional Computing Basics [C] . . . . .	2
Professional/Technical Electives . . . . .	22

Total: 108

Note: A minimum of 90 credits is required for an AAOT degree.

## Engineering

### PRE-PROFESSIONAL PROGRAM SUGGESTED TRANSFER CURRICULUM

This general engineering program of study will meet most course requirements for transfer to professional engineering schools. A bachelor's degree in engineering prepares a student to plan, design and build projects in both private industry and the public sector. The Associate of Arts Oregon Transfer degree is not recommended for this major; additional courses are required for an associate degree. See an advisor to plan a program that meets specific goals.

Contact Dan Lundy, ext. 2478 or danl@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Suggested courses</i>	<i>credits</i>
WR-121 English Composition . . . . .	3
Health/Physical Education Requirement . . . . .	3
Arts & Letters Sequence . . . . .	9
MTH-251/252/253 Calculus I, II & III . . . . .	15
Social Science Sequence . . . . .	8-9
CH-221/222/223 General Chemistry . . . . .	15
PH-211/212/213 General Physics with Calculus . . . . .	15
GE-101A Engineering Problem Solving** . . . . .	2
GE-101B Engineering Programming** . . . . .	2
GE-102 Engineering Computation* . . . . .	4
GE-115 Engineering Graphics . . . . .	4
GE-211/212/213 Engineering Mechanics . . . . .	12
EE-221 Electrical Circuit Analysis . . . . .	5
MTH-254 Vector Calculus . . . . .	5
MTH-256 Differential Equations . . . . .	4
MTH-261 Linear Algebra . . . . .	4
<i>Total: 110-111</i>	

\*Only for electrical & computer engineering majors.  
 \*\*Both GE-101A & GE-101B must be taken by all engineering majors.

## English

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in English prepares a student for careers in education, journalism, or communications. It is also desirable as undergraduate training for law, government, social work, public service, business and advertising.

Contact Emily Orlando, ext. 2372 or emilyo@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4
or MTH-105 Introduction to Contemporary Mathematics . . . . .	4

<i>Suggested courses to meet additional AAOT requirements</i>	
ENG-104/105/106 Introduction to Literature . . . . .	9
or ENG-107/108/109 Introduction to World Literature . . . . .	9
Foreign Language Sequence (second year) . . . . .	12
Social Science Sequences . . . . .	8-9
Social Science Courses (prefix different from sequence) . . . . .	9
Lab Science Sequence . . . . .	12
CS-120 Survey of Computing [C] . . . . .	4
ENG-201/202/203 Shakespeare . . . . .	9
ENG-253/254/255 Survey of American Literature . . . . .	9
or ENG-204/205/206 Survey of English Literature . . . . .	9
Elective . . . . .	3
<i>Total: 94-95</i>	

Note: A minimum of 90 credits is required for an AAOT degree.

## Entomology

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in entomology prepares a student for graduate work or employment in private industry or with state or federal government.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-251 Calculus I . . . . .	5

<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	6
Social Science Sequence . . . . .	8-9
Social Science Courses (prefix different from sequence) . . . . .	6
MTH-252 Calculus II . . . . .	5
CH-221/222/223 General Chemistry . . . . .	15
BI-211/212/213 Biology . . . . .	15
PH-201/202/203 General Physics . . . . .	12
<i>Total: 96-97</i>	

Note: A minimum of 90 credits is required for an AAOT degree.

## Environmental Health & Safety

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Contact Dave Arter, ext. 2210 or davea@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 or 227 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4

<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
Social Science Sequence . . . . .	8-9
Social Science Courses (prefixes different from sequence) . . . . .	6
Lab Science Sequence . . . . .	12-15
Additional Science or Math Courses . . . . .	3
CS-120 Survey of Computing [C] . . . . .	4
Electives . . . . .	29-31
<i>Total: 93-99</i>	

Note: A minimum of 90 credits is required for an AAOT degree.

## Environmental Science

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in environmental science prepares a student for graduate work or employment in private industry or with state or federal government.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122 English Composition	6
WR-227 Technical Report Writing [C]	3
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-243 Probability & Statistics	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
PHL-102 Ethics	3
EC-201/202 Principles of Economics	8
Social Science Courses (prefix different from sequence)	9
MTH-244 Statistics	4
CH-221/222/223 General Chemistry	15
BI-211/212/213 Biology	15
PH-201/202/203 Physics	15
CS-120 Survey of Computing [C]	4
<i>Total:</i>	<i>101</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Fisheries/Forestry/ Wildlife Management

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in fisheries, forestry or wildlife management provides a student with training for resource management, teaching and extension work. Forestry students taking the two-year program at Clackamas will probably need three additional years at a college or university because some required courses are not available.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122 English Composition	6
WR-227 Technical Report Writing [C]	3
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-251 Calculus I	5

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
EC-201/202 Principles of Economics	8
Social Science Courses (prefix different from sequence)	9
CH-221/222/223 General Chemistry	15
BA-131 Introduction to Business Computing [C]	4
BI-211/212/213 Biology	15
PH-201 General Physics	5
Electives	6
<i>Total:</i>	<i>94</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Foreign Language

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in foreign language, together with the relevant teacher certification requirements, prepares a student to teach at levels K-12, work in international business, the foreign services, or for a government agency. Translation is also an option (usually at entry levels).

Contact David Miller, millerd@clackamas.edu, or ext. 2257; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra or MTH-105 Introduction to Contemporary Mathematics	4

#### *Suggested courses to meet additional AAOT requirements*

Foreign Language Sequence (second year)	12
Arts & Letters Course (prefix different from sequence) (select two from the list below)	6
HST-101/102/103 History of Western Civilization	12
Social Science Courses (select two from the list below)	6-7
Lab Science Sequence	12
CS-120 Survey of Computing [C]	4
Select 26 elective credits from the following:	14
ANT-103 Cultural Anthropology	4
ART-204 Art History	3
EC-115 Introduction to Basic Economics	3
ENG-107/108/109 World Literature	9
ENG-250/251/252 Mythology	9
GEO-100/110/130 Geography	9
MUS-202 Introduction to Music Literature	3
R-102/103 Comparative Religions (Western/Eastern)	6
<i>Total:</i>	<i>97-98</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Geography

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in geography prepares a student for job opportunities in planning, environmental research, cartography, teaching and other areas which traditionally employ liberal arts graduates.

Contact Eric Lewis, ext. 2251 or ericl@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	6
GEO-100/110/130 Geography	9
Social Science Courses (prefix different from sequence)	15
GEO-230 World Regions & Landscapes	4
Lab Science Sequence	12
CS-120 Survey of Computing [C]	4
MTH-243/244 Probability & Statistics	8
Electives (CS-121 Computer Applications [C] recommended)	9
<i>Total:</i>	<i>95</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Geology

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in geology prepares a student for professions in teaching, oceanography, petroleum and mineral mining, land use planning and construction engineering. Employment opportunities range from county, state and federal agencies to private business and corporations. Some careers require graduate work.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-251 Calculus I	5

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
Social Science Sequence	8-9
Social Science Courses (prefix different from sequence)	9
MTH-252/253 Calculus II & III	10
G-201/202/203 General Geology	12
CH-221/222/223 General Chemistry	15
CS-120 Survey of Computing [C]	4
PH-201/202/203 or PH-211/212/213	15

Total: 105-106

Note: A minimum of 90 credits is required for an AAOT degree.

## Health Care Administration

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in health care administration prepares a student for health care management positions in acute, community and long term care systems. Additionally, employment opportunities exist in federal and state government, as well as in the insurance field. Students are advised to work with an advisor for information about specific institutions.

Contact ext. 2527, or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122 English Composition	6
WR-227 Technical Report Writing [C]	3
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
EC-201/202 Principles of Economics	8
Social Science Courses (prefix different from sequence)	9
CH-104/105/106 Introductory Chemistry	15
BI-101 General Biology	4
BI-234 Introductory Microbiology	4
CS-120 Survey of Computing [C]	4
BA-131 Introduction to Business Computing [C]	4
BA-211 Financial Accounting I	4
Electives (contact advisor at four-year institution)	10

Total: 93

Note: A minimum of 90 credits is required for an AAOT degree.

## Health Education

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Contact Jim Jackson, ext. 2295 or jimj@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 or 227 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
Social Science Sequence	8-9
Social Science Courses (prefixes different from sequence)	6
Lab Science Sequence	12-15
Additional Science or Math Courses	3
CS-120 Survey of Computing [C]	4
Electives	29-31

Total: 93-99

Note: A minimum of 90 credits is required for an AAOT degree.

## History

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in history prepares a student to be a teacher, journalist, researcher or work in a museum. Many specialized careers require graduate work.

Contact Eric Lewis, ext. 2551 or ericl@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-243 Probability & Statistics	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9-12
Arts & Letters Course (prefix different from sequence)	3
HST-101/102/103 History of Western Civilization	12
EC-201/202 Principles of Economics	8
Lab Science Sequence	12
MTH-244 Statistics	4
HST-201/202/203 History of the United States	12
CS-120 Survey of Computing [C]	4
Electives (social science courses recommended)	13

Total: 96-99

Note: A minimum of 90 credits is required for an AAOT degree.

## Horticulture

### OSU TRANSFER AGREEMENT ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in Horticulture prepares students for employment in the industries of Greenhouse, Nursery, and Landscape utilizing fundamental life and physical sciences, technologies, and management systems.

The following courses transfer to the Oregon State University Department of Horticulture program in addition to the "Approved Baccalaureate Core Courses" required by OSU.

For current transfer information contact Elizabeth Howley, Horticulture Advisor, ext. 2389 or ehowley@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 or 227 English Composition	9
HPE-295 Health & Fitness for Life	3
SP-111 Public Speaking	3
MTH-243 Probability and Statistics	4

#### *Suggested courses to meet additional AAOT requirements*

BA-211 Financial Accounting I or BA-226 Intro to Business Law I	4
BI-211/212/213 Biology	15
CH-121/122/123 General Chemistry	15
Arts & Letters Sequence	9
Arts & Letters Course (prefixes different from sequence)	3-6
Social Science Sequence	8-9
Social Science Requirements (prefixes different from sequence)	6-9
HOR-111 Horticulture Practicum/Fall	6
HOR-215 Herbaceous Perennial	3
HOR-222 Horticultural Computer Applications [C]	2
HOR-226 Plant Identification/Fall	3
HOR-227 Plant Identification/Winter	3
HOR-228 Plant Identification/Spring	3
HOR-234 Intermediate Landscape Design	3
HOR-245 Advanced Landscape Design	3
<i>Total:</i>	<i>105-112</i>

Up to 45 additional non-equivalent HOR credits will be counted toward the 180 hours required by OSU.

Note: A minimum of 90 credits is required for an AAOT degree.

## Hospitality, Tourism & Recreation

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Contact Jim Jackson, ext. 2295 or jimj@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 or 227 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
Social Science Sequence	8-9
Social Science Courses (prefixes different from sequence)	6
Lab Science Sequence	12-15
Additional Science or Math Courses	3
CS-120 Survey of Computing [C]	4
Electives	29-31
<i>Total:</i>	<i>93-99</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Housing Design/ Interior Merchandising

### OSU TRANSFER AGREEMENT

The following courses transfer to the OSU Department of Apparel, Interiors, Housing & Merchandising program in addition to the "Approved Baccalaureate Core Courses" required by Oregon State University.

Contact Michael Jones, ext. 2443 or mikej@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Courses</i>	<i>credits</i>
CDT-103 Computer-Aided Drafting I	4
CDT-105 Computer-Aided Drafting II	4
CDT-107 Computer-Aided Drafting III	4
CDT-202 Architectural Drafting I	4
CDT-212 Architectural Drafting II	4
CDT-213 Architectural Drafting III	4
<i>Total:</i>	<i>24</i>

## Human Development/ Family Services

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Contact ext. 2527, or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 or 227 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
Social Science Sequence	8-9
Social Science Courses (prefixes different from sequence)	6
Lab Science Sequence	12-15
Additional Science or Math Courses	3
CS-120 Survey of Computing [C]	4
Electives	29-31
<i>Total:</i>	<i>93-99</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Interior Design

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Contact the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 or 227 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra	4

<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
Social Science Sequence	8-9
Social Science Courses (prefixes different from sequence)	6
Lab Science Sequence	12-15
Additional Science or Math Courses	3
CS-120 Survey of Computing [C]	4
Electives	29-31
<i>Total:</i>	<i>93-99</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## International Studies

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in international education prepares a student for employment in international business or trade, or work for government agencies which deal with other countries.

Contact Eric Lewis, ext. 2251 or ericl@clackamas.edu; or David Miller, ext. 2257 or millerd@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra or MTH-105 Introduction to Contemporary Mathematics	4

<i>Suggested courses to meet additional AAOT requirements</i>	
Foreign Language Sequence (second year)	12
GEO-100/110/130 Geography	9
PS-205 International Relations	3
Social Science Courses (select two* from the list below)	6-8
Lab Science Sequence	12
CS-120 Survey of Computing [C]	4
Additional Foreign Language Sequence	12
Select 18 elective credits from the following:	18
ANT-101/102/103 Anthropology*	12
ART-204/205/206 Art History	9
BA-234 Introduction to International Marketing	4
EC-201/202 Principles of Economics*	8
ENG-107/108/109 World Literature	9
ENG-250/251/252 Mythology	9
HST-101/102/103 History of Western Civilization*	12
PSY-205 Psychology as a Social Science*	3
SOC-204/205/206 Sociology*	9
R-101/103 Comparative Religions (Western/Eastern)	6
<i>Total:</i>	<i>95-97</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Journalism

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in journalism prepares a student to write, photograph, and edit for newspapers, magazines, and web-based publications; to work in advertising, publishing, radio and television news; or to teach.

Contact Linda Vogt, ext. 2310 or lindav@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra or MTH-105 Introduction to Contemporary Mathematics	4

<i>Suggested courses to meet additional AAOT requirements</i>	
ENG-104/105/106 Introduction to Literature	9
J-211 Mass Media & Society	3
J-216 Reporting [C] (may also be offered online)	3
HST-101/102/103 History of Western Civilization	12
EC-201/202 Principles of Economics	8
Lab Science Sequence	12
CS-120 Survey of Computing [C]	4
J-134 Photojournalism	3
J-215 Publications Lab	1
J-218 Editing & Design [C]	3
J-226 Electronic Newspaper Production [C]	9
BT-220P Desktop Publishing I: PageMaker	3
Electives	6
<i>Total:</i>	<i>95</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Landscape Architecture

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in landscape architecture may prepare a student for a career in landscape planning.

Contact Elizabeth Howley, ext. 2389 or ehowley@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-112 Trigonometry/Pre-calculus	4

<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	6
Social Science Sequence	8-9
Social Science Courses (prefix different from sequence)	6
ESR-171/172/173 Environmental Science	12
CS-120 Survey of Computing [C] or CAD-151 AutoCAD Level I	2-4
Electives	33
<i>Total:</i>	<i>95-98</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Mathematics

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in mathematics prepares a student for a career in teaching, in applied mathematics for industry or government agencies, or as an actuary or statistician.

Contact Kurt Lewandowski, ext. 2431 or kurtl@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-251 Calculus I . . . . .	5

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	6
Social Science Sequence . . . . .	8-9
Social Science Courses (prefix different from sequence) . . . . .	6
Lab Science Sequence . . . . .	12
MTH-252/253 Calculus II & III . . . . .	10
CS-161 Computer Science I [C] . . . . .	4
CS-162 Computer Science II . . . . .	4
MTH-231 Discrete Mathematics . . . . .	4
MTH-254 Vector Calculus . . . . .	5
MTH-256 Differential Equations . . . . .	4
MTH-261 Linear Algebra . . . . .	4
Elective . . . . .	1

Total: 97-98

Note: A minimum of 90 credits is required for an AAOT degree.

## Medicine

### PRE-PROFESSIONAL PROGRAM

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree with a science emphasis prepares a student to apply to medical school.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-251 Calculus I . . . . .	5

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
PSY-200/205/219 Psychology . . . . .	9
Social Science Courses (prefix different from sequence) . . . . .	9
MTH-252 Calculus II . . . . .	5
CH-221/222/223 General Chemistry . . . . .	15
BI-211/212/213 Biology . . . . .	15
Select one of the following: . . . . .	12-15
PH-201/202/203 General Physics . . . . .	15
CH-241/242/243 Organic Chemistry . . . . .	12

Total: 97-100

Note: A minimum of 90 credits is required for an AAOT degree.

## Microbiology

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in microbiology prepares a student for graduate work or employment as health officers, sanitarians and biotechnicians.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-251 Calculus I . . . . .	5

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	6
Social Science Sequence . . . . .	8-9
Social Science Courses (prefix different from sequence) . . . . .	6
MTH-252 Calculus II . . . . .	5
CH-221/222/223 General Chemistry . . . . .	15
BI-211/212/213 Biology . . . . .	15
CS-120 Survey of Computing [C] . . . . .	4
PH-201/202/203 General Physics . . . . .	15

Total: 103-104

Note: A minimum of 90 credits is required for an AAOT degree.

## Music

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in music prepares a student to teach, play professionally, compose or work in music-related businesses.

Contact Tom Wakeling, ext. 2434 or wakelingt@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4
or MTH-105 Introduction to Contemporary Mathematics . . . . .	4

#### *Suggested courses to meet additional AAOT requirements*

MUS-111/112/113 Music Theory I . . . . .	9
concurrent with MUS-111L/112L/113L MIDI Lab [C] . . . . .	9
Arts & Letters Course (MUP classes recommended) . . . . .	6
MUP-102/105/121/122/125/142/158 Ensemble* . . . . .	3-6
MUP-202/205/221/222/225/242/258 Ensemble* . . . . .	3-6
Social Science Sequence . . . . .	8-9
Social Science Courses (prefix different from sequence) . . . . .	6
Lab Science Sequence . . . . .	12
Science/Math/Computer Science Course . . . . .	3-4
MUS-114/115/116 and MUS-224/225/226 Aural Skills I, II . . . . .	12
MUS-127/128/129 and MUS-214/215/216 Keyboard Skills I, II . . . . .	12
MUP-171-MUP-191 and MUP-271-MUP-291 Individual Lessons* . . . . .	6
MUS-211/212/213 Music Theory II . . . . .	9
concurrent with MUS-211L/212L/213L MIDI Lab [C] . . . . .	9
MUS-189 Performance & Repertoire . . . . .	1

Total: 109-117

Note: A minimum of 90 credits is required for an AAOT degree.

\*Six quarters of appropriate ensemble participation (MUP-102/105/121/122/125/142/158) and six quarters of private study (MUP-171-01 through MUP-191-01 and MUP-271-01 through MUP-291-01) are required, with three quarters at the 200 level.

## Nursing

### PRE-PROFESSIONAL PROGRAM

This is an example of a transfer program for students who wish to apply for a bachelor of science in nursing program. Additional courses may be required by individual four-year schools. See an advisor for specifics. Note: Foreign language is recommended.

Contact Judy Andersen, ext. 2429 or judya@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Suggested courses</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
MTH-111 College Algebra . . . . .	4
Arts & Letters Course (prefix different from sequence) . . . . .	12
Literature Course . . . . .	3
SOC-204/205 or-206 . . . . .	3
ANT-103 General Anthropology . . . . .	4
BI-231/232/233 Human Anatomy & Physiology . . . . .	12
CH-104/105/106 Introductory Chemistry . . . . .	15
BI-234 Introductory Microbiology . . . . .	4
FN-225 Nutrition . . . . .	4
MTH-243 Probability & Statistics . . . . .	4
PSY-200/205 or-219 . . . . .	3
PSY-215 Introduction to Developmental Psychology . . . . .	3
SP-218 Interpersonal Communication . . . . .	3
SP-219 Small Group Communication . . . . .	3
Electives . . . . .	7
<i>Total:</i>	93

## Nutrition & Food Management

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Students who complete the two-year program outlined here may apply for admission into a bachelor's degree program in nutrition and food management.

Contact ext. 2527, or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4
<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
PSY-200/205/219 Psychology . . . . .	9
EC-201/202 Principles of Economics . . . . .	8
CH-221/222/223 General Chemistry . . . . .	15
CH-241/242/243 Organic Chemistry . . . . .	12
CS-120 Survey of Computing [C] . . . . .	4
FN-225 Nutrition . . . . .	4
Electives (contact advisor at four-year institution) . . . . .	10
<i>Total:</i>	93

Note: A minimum of 90 credits is required for an AAOT degree.

## Occupational Therapy

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Students who complete the two-year program of study outlined here may apply for admission into a bachelor's degree program in occupational therapy. See an advisor for requirements of specific four-year institution.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-112 Trigonometry/Pre-calculus . . . . .	4
<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
PSY-200/205/219 Psychology . . . . .	9
SOC-204 Introduction to Sociology . . . . .	3
SOC-205 Social Stratification & Social Systems . . . . .	3
Social Science Course (prefix different from sequence) . . . . .	3
BI-231/232/233 Human Anatomy & Physiology . . . . .	12
BI-211 Biology . . . . .	5
CS-120 Survey of Computing [C] . . . . .	4
MTH-243 Probability & Statistics . . . . .	4
PH-201 General Physics . . . . .	5
PSY-215 Introduction to Developmental Psychology . . . . .	3
Electives . . . . .	12
<i>Total:</i>	94

Note: A minimum of 90 credits is required for an AAOT degree.

## Optometry

### PRE-PROFESSIONAL PROGRAM ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Students who complete the two-year program of study outlined here may apply for admission to a school of optometry.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122 English Composition . . . . .	6
WR-227 Technical Report Writing [C] . . . . .	3
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-112 Trigonometry/Pre-calculus . . . . .	4
<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
PSY-200/205/219 Psychology . . . . .	9
Social Science Courses (prefix different from sequence) . . . . .	6
BI-231/232/233 Human Anatomy & Physiology . . . . .	12
BI-234 Introductory Microbiology . . . . .	4
BI-211 Biology . . . . .	5
CH-221/222/223 General Chemistry . . . . .	15
CH-241/242 Organic Chemistry . . . . .	8
MTH-243/244 Probability & Statistics . . . . .	8
MTH-251 Calculus I . . . . .	5
PH-201/202/203 General Physics . . . . .	15
<i>Total:</i>	118

Note: A minimum of 90 credits is required for an AAOT degree.

## Pharmacy

### PRE-PROFESSIONAL PROGRAM ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

This two-year, pre-pharmacy curriculum prepares a student to apply for admission to a three-year professional program at a university with a pharmacy school.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122 English Composition	6
WR-227 Technical Report Writing [C]	3
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-251 Calculus I	5

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	6
PSY-200/205/219 Psychology	9
EC-201/202 Principles of Economics	8
BI-211/212/213 Biology	15
BI-234 Introductory Microbiology	4
CH-221/222/223 General Chemistry	15
CH-241/242/243 Organic Chemistry	12
PH-201/202/203 General Physics	15
<i>Total:</i>	<i>113</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Philosophy

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Students who complete a bachelor's degree may apply for admission to a program in philosophy. A graduate degree is required for teaching.

Contact Eric Lewis, ext. 2251 or ericl@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra or MTH-105 Introduction to Contemporary Mathematics	4

#### *Suggested courses to meet additional AAOT requirements*

PHL-101/102/103 /205/210/213/215 (any three)	9
Foreign Language Sequence (second year)	12
Social Science Sequence	9
Social Science Courses (prefix different from sequence)	9
Lab Science Sequence	12
CS-120 Survey of Computing [C]	4
Electives	20
<i>Total:</i>	<i>94</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Physical Education/Exercise Science

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in physical education/exercise science prepares a student to teach, coach, and manage recreational and fitness programs for industry, sports and health clubs, local governments, recreation districts and public schools.

Contact Jim Jackson, ext. 2295 or jimj@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
HE-295 Health & Fitness for Life	3
SP-111 Public Speaking	3
MTH-111 College Algebra or MTH-105 Introduction to Contemporary Mathematics	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	6
Social Science Sequence	8-9
Social Science Courses (prefix different from sequence)	9
BI-101/102/103 General Biology	12
CS-120 Survey of Computing [C]	4
HE-252 First Aid/CPR	3
HE-250 Personal Health	3
PE-131 Introduction to Physical Education	3
PE-185 Physical Education	6
PE-194/294 Professional Activities	6
PE-280 Physical Education/CWE	6
<i>Total:</i>	<i>94-95</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Physical Therapy

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Students who complete a bachelor's degree may apply for admission to a school of physical therapy. A master's degree is required to practice in the field.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122 English Composition	6
WR-227 Technical Report Writing [C]	3
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-243 Probability & Statistics	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
PSY-200/205/219 Psychology	9
Social Science Courses (prefix different from sequence)	6
CH-221/222/223 General Chemistry	15
CH-241/242/243 Organic Chemistry	12
BI-211/212/213 Biology	15
BI-231/232/233 Human Anatomy & Physiology	12
PH-201/202/203 General Physics	18
<i>Total:</i>	<i>118</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Physics

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in physics prepares a student for a variety of technical jobs and high school teaching. University teaching and most research jobs require a graduate degree.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-251 Calculus I	5

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (prefix different from sequence)	3
Social Science Sequence	8-9
Social Science Courses (prefix different from sequence)	9
MTH-252/253 Calculus II & III	10
CH-221/222/223 General Chemistry	15
MTH-254 Vector Calculus	5
MTH-255 Linear Algebra	4
MTH-256 Differential Equations	4
PH-211/212/213 General Physics with Calculus	15

Total: 102-103

Note: A minimum of 90 credits is required for an AAOT degree.

## Political Science

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in political science prepares a student for jobs with federal, state and local governments or high school teaching. Political science majors frequently go on to graduate work in public administration and law.

Contact Eric Lewis, ext. 2251 or ericl@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra or MTH-105 Introduction to Contemporary Mathematics	4

#### *Suggested courses to meet additional AAOT requirements*

Philosophy Sequence	9
Arts & Letters Course (prefix different from sequence)	6
PS-201/202	6
PS-203 or PS-205	3
Social Science Courses (prefix different from sequence)	9
Lab Science Sequence	12
CS-120 Survey of Computing [C]	4
Electives (Social Science Courses recommended)	25

Total: 93

Note: A minimum of 90 credits is required for an AAOT degree.

## Psychology

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in psychology prepares a student for a variety of jobs in public administration, management and personnel, and social services. Graduate work is required for a career in counseling, college teaching, or research. If graduate study is planned, a foreign language should be considered.

Contact Eric Lewis, ext. 2251 or ericl@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
Arts & Letters Course (PHL-102 Ethics recommended)	6
Psychology 200/205/218	9
Social Science Courses (prefix different from sequence)	9
Lab Science Sequence (chemistry or biology recommended)	12
MTH-243/244 Probability & Statistics	8
CS-120 Survey of Computing [C]	4
PSY-214 Introduction to Personality	3
PSY-215 Introduction to Developmental Psychology	3
PSY-216 Introduction to Social Psychology	3
PSY-219 Introduction to Abnormal Psychology	3
Electives (science, math, additional psychology recommended)	5

Total: 93

Note: A minimum of 90 credits is required for an AAOT degree.

## Public Relations

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in public relations prepares a student for employment in public relations, marketing, advertising and special event promotion.

Contact Linda Vogt, ext. 2310 or lindav@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition	9
Health/Physical Education Requirement	3
SP-111 Public Speaking	3
MTH-111 College Algebra or MTH-105 Introduction to Contemporary Mathematics	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence	9
J-211 Mass Media & Society or SP-212 Mass Media & Society	3
J-215 Publications Lab	1
J-216 Reporting [C] (may also be offered online)	3
J-218 Editing & Design [C]	3
J-280 Journalism/Public Relations/CWE	3
Social Science Sequence	8-9
Social Science Courses (prefix different from sequence)	6
Lab Science Sequence	12
CS-120[C]/121[C] Computer Science Courses	7
BA-101 Introduction to Business	4
BA-205 Solving Communication Problems with Technology [C]	4
BA-211 Financial Accounting I	4
BA-239 Advertising	4
BA-228 Business Presentations	3
BT-220P Desktop Publishing I: PageMaker	3

Total: 96-97

Note: A minimum of 90 credits is required for an AAOT degree.

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

## Religious Studies

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in religious studies gives a student a general liberal arts education with specific studies of religion and its cultural influences. A graduate degree is required to teach at the university level and study at a seminary is required for most ministerial and religion-related jobs.

Contact Eric Lewis, ext. 2251 or ericl@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	3
or MTH-105 Introduction to Contemporary Mathematics . . . . .	4

#### *Suggested courses to meet additional AAOT requirements*

R-101/102/103 Comparative Religions . . . . .	9
PHL-102 Ethics . . . . .	3
PHL-103 Critical Reasoning . . . . .	3
PHL-210 Philosophy of Religion . . . . .	3
HST-101/102/103 History of Western Civilization . . . . .	12
PSY-200/205/219 Psychology . . . . .	9
GEO-110 Introduction to Cultural & Human Geography . . . . .	3
Lab Science Sequence . . . . .	12
CS-120 Survey of Computing [C] . . . . .	4
R-204/205/206 History of Christianity . . . . .	9
Electives . . . . .	10
<i>Total:</i>	<i>96</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Science

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in general science prepares a student for graduate work in specialized areas, to teach on the elementary or secondary level (with teacher certification), or for work in a variety of fields including environmental science.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
PSY-200/205/219 Psychology . . . . .	9
Social Science Courses (prefix different from sequence) . . . . .	9
CH-221/222/223 General Chemistry . . . . .	15
MTH-112 Trigonometry/Pre-calculus . . . . .	4
CS-120 Survey of Computing [C] . . . . .	4
Select one of the following options: . . . . .	27-30
<b>Physical Science Option</b>	
PH-201/202/203 General Physics & BI-211/212/213 Biology . . . . .	30
<b>Biological Science Option</b>	
BI-211/212/213 Biology & CH-241/242/243 Organic Chemistry . . . . .	30
<b>Earth Science Option</b>	
PH-201/202/203 Gen. Physics & G-201/202/203 Gen. Geology . . . . .	27
<i>Total:</i>	<i>99-102</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Social Science

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in general social science prepares a student for teaching, work in a variety of fields including environmental sciences, and graduate school in specialized areas.

Contact Eric Lewis, ext. 2251 or ericl@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4

#### *Suggested courses to meet additional AAOT requirements*

Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	6
Social Science Sequence . . . . .	8-9
Social Science Courses (prefix different from sequence) . . . . .	9
Lab Science Sequence . . . . .	12
MTH-243/244 Probability & Statistics . . . . .	8
CS-120 Survey of Computing [C] . . . . .	4
Electives . . . . .	18
<i>Total:</i>	<i>93-94</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Sociology

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in sociology prepares a student for entry positions in social work, personnel work, recreation, social studies teaching and business.

Contact Eric Lewis, ext. 2251 or ericl@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-243 Probability & Statistics . . . . .	4

#### *Suggested courses to meet additional AAOT requirements*

ENG-107/108/109 Introduction to World Literature . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	6
SOC-204/205/206 Sociology . . . . .	9
HST-101/102/103 History of Western Civilization . . . . .	12
GEO-110 Introduction to Cultural & Human Geography . . . . .	3
MTH-244 Statistics . . . . .	4
Lab Science Sequence . . . . .	12
HST-201/202/203 History of the United States . . . . .	12
Electives . . . . .	10
<i>Total:</i>	<i>96</i>

Note: A minimum of 90 credits is required for an AAOT degree.

## Speech/Communication

See Communication/Speech.

Contact Kelly Brennan, ext. 2726 or kellyb@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

## Speech Therapy

### ONE-YEAR TRANSFER CURRICULUM

Students in this program of study should complete only their freshman year at Clackamas Community College because specialized lower division courses are not offered. Contact advisor at four-year institution.

Contact Kelly Brennan, ext. 2726 or kellyb@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Suggested courses</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
SP-115 Introduction to Intercultural Communications . . . . .	3
MTH-111 College Algebra . . . . .	
or MTH-105 Introduction to Contemporary Mathematics . . . . .	4
Arts & Letters Sequence . . . . .	9
Social Science Sequence . . . . .	8-9
Lab Science Sequence . . . . .	15
<i>Total:</i>	54-55

## Theatre Arts

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree in theatre arts prepares a student for work in professional, educational, or community theatre as designers, actors, technicians, directors or theatre managers.

Contact David Smith-English, ext. 2725 or davidse@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	
or MTH-105 Introduction to Contemporary Mathematics . . . . .	4
<i>Suggested courses to meet additional AAOT requirements</i>	
TA-141/142/143 Acting . . . . .	9
ENG-105 Introduction to Literature: Drama . . . . .	3
ART (any course with ART prefix) . . . . .	3
HST-101/102/103 History of Western Civilization . . . . .	12
Social Science Courses (prefix different from sequence) . . . . .	6
BI-101/102/103 General Biology . . . . .	12
CS-120 Survey of Computing [C] . . . . .	4
CS-121 Computer Applications [C] . . . . .	3
TA-241 Shakespeare for Actors . . . . .	3
TA-242 Scene Study & Theatre History . . . . .	3
TA-243 Play Direction . . . . .	3
TA-111/112/113 Fundamentals of Technical Theatre . . . . .	12
Select at least five credits from the following: . . . . .	5
TA-101/102/103 Appreciation of Theatre . . . . .	9
TA-195 One-Act Plays . . . . .	1-3
TA-153 Rehearsal & Performance . . . . .	1-3
TA-211/212/213 Advanced Technical Theatre . . . . .	4-12
<i>Total:</i>	97

Note: A minimum of 90 credits is required for an AAOT degree.

## Urban Studies & Planning

### ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

Contact Eric Lewis, ext. 2251 or ericl@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 or 227 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-111 College Algebra . . . . .	4
<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	3
Social Science Sequence . . . . .	8-9
Social Science Courses (prefixes different from sequence) . . . . .	6
Lab Science Sequence . . . . .	12-15
Additional Science or Math Courses . . . . .	3
CS-120 Survey of Computing [C] . . . . .	4
Electives . . . . .	29-31
<i>Total:</i>	93-99

Note: A minimum of 90 credits is required for an AAOT degree.

## Veterinary Medicine

### PRE-PROFESSIONAL PROGRAM ASSOCIATE OF ARTS OREGON TRANSFER DEGREE

A bachelor's degree, when completed with a science emphasis, prepares a student to apply to veterinary school.

Contact Bob Misely, ext. 2376 or bobm@clackamas.edu; or the Advising & Counseling Center, ext. 2213.

<i>Required courses for AAOT degree</i>	<i>credits</i>
WR-121/122/123 English Composition . . . . .	9
Health/Physical Education Requirement . . . . .	3
SP-111 Public Speaking . . . . .	3
MTH-112 Trigonometry/Pre-calculus . . . . .	4
<i>Suggested courses to meet additional AAOT requirements</i>	
Arts & Letters Sequence . . . . .	9
Arts & Letters Course (prefix different from sequence) . . . . .	6
Social Science Sequence . . . . .	8-9
Social Science Courses (prefix different from sequence) . . . . .	6
CH-221/222/223 General Chemistry . . . . .	15
PH-201/202/203 General Physics . . . . .	15
BI-211/212/213 Biology . . . . .	15
CH-241/242/243 Organic Chemistry . . . . .	12
CS-120 Survey of Computing [C] . . . . .	4
<i>Total:</i>	109-110

Note: A minimum of 90 credits is required for an AAOT degree.

## *Transfer & Articulation Agreements*

### **PORTLAND STATE UNIVERSITY**

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#### **CCC/PSU Co-Admission**

Clackamas Community College has a co-admission program with Portland State University which provides a dual admission to both institutions. PSU advisors work with Clackamas faculty, advisors and students to provide educational planning in support of a four-year degree at PSU. CCC students have the opportunity to take the PSU Inquiry classes at CCC. Scholarships and financial aid are also available. For more information contact Don Hartsock, ext. 2542 or ext. 2599.

#### **CCC Building Construction Technology**

Articulation agreement with PSU Department of Architecture. For more information contact Bob Topping, ext. 2667.

#### **CCC Instructional Assistant**

Articulation agreement with the PSU Bilingual Pathway's program. For more information contact Paula Hamm, ext. 2804.

### **OREGON STATE UNIVERSITY**

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#### **CCC Technology Education**

Articulation agreement with OSU Professional Technical Teacher Preparation program. For more information contact the Industrial Division Associate Dean, ext. 2583.

#### **CCC Horticulture**

Up to 45 horticulture credits may be accepted at OSU for a general agriculture bachelor's degree program. For more information contact Elizabeth Howley, ext. 2389.

### **OREGON HEALTH SCIENCES UNIVERSITY**

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#### **CCC/OHSU Provisional Admission**

Students admitted to the Nursing Program may also be provisionally admitted into OHSU's RN/BS program. For more information contact Lisa Fithian, ext. 2272.

### **OREGON INSTITUTE OF TECHNOLOGY**

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#### **CCC Drafting, Electronics Systems Technology, Manufacturing, Microelectronics Systems Technology, and Welding Technology**

Course by course approval agreement is established with OIT in support of educational planning and transfer into a four year program. For more information contact Michael Jones, ext. 2443 or Mike Mattson, ext. 2483.

#### **Energy & Resource Management**

This agreement will enable students who attend CCC to meet the requirements to transfer to OIT for a degree that emphasizes energy and resource management. For more information contact Bob Topping, ext. 2667.

### **MARYLHURST UNIVERSITY**

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#### **CCC Building Construction Technology/Construction Project Management Concentration**

For more information contact Bob Topping, ext. 2667.

## *Course Descriptions*

## Course Descriptions

Glossary of terms .....	81	GS	General Science .....	124
AB* Collision Repair .....	82	HD	Human Development & Career Planning .....	125
ABR* Collision Repair/Refinishing .....	82	HDF	Family Studies .....	126
AM* Automotive Service Technology .....	83	HE/HPE	Health .....	126
ANT Anthropology .....	84	HOR**	Horticulture .....	127
ART Art .....	85	HS	Human Services/ Gerontology .....	130
ASC Arts and Sciences .....	88	HST	History .....	131
ASE+ Adult High School Diploma .....	88	HTM*	Hospitality & Tourism Management .....	131
ASL* American Sign Language .....	91	HUM	Humanities .....	132
BA Business Administration .....	91	J	Journalism .....	134
BC* Building Construction Technology .....	94	JPN	Japanese .....	134
BI Biology .....	95	MA*	Medical Assistant .....	135
BOT Botany .....	97	MFG**	Manufacturing Technology .....	135
BT* Business Technology .....	97	MIT	Medical Imaging Technology .....	138
CAD** Computer-Aided Drafting .....	99	MTH	Mathematics .....	138
CDT** Drafting .....	100	MUP	Music Performance .....	139
CH Chemistry .....	103	MUS	Music .....	143
CIV Citizenship .....	104	NUR	Nursing .....	147
CJA Criminal Justice .....	104	OS*	Study Skills .....	149
CLA* Clinical Laboratory Assistant .....	105	OST*	Occupational Skills Training .....	149
CPL Credit for Prior Learning .....	106	PE	Physical Education .....	149
CS Computer Science .....	106	PH	Physics .....	150
CW+ Computer Science Workshops & Short Courses	109	PHC	Pharmacology .....	150
CWE Cooperative Work Experience .....	110	PHL	Philosophy .....	151
EC Economics .....	110	PIE	Program for Intensive English .....	151
ECE* Early Childhood Education .....	111	PS	Political Science .....	153
ED Education .....	111	PSY	Psychology .....	153
EE Electrical Engineering .....	113	R	Religious Studies .....	154
EET** Electronics Systems Technology .....	113	RD*	Reading .....	155
EL* Reading/Study Skills .....	114	RE*	Real Estate .....	155
EMT* Emergency Medical Technician .....	114	RUS	Russian .....	156
ENG English .....	115	SBM+	Small Business Management .....	156
ENL English Non-Native Language .....	116	SKH+	TACT (Training in Adaptive Computer Tech.) ...	156
ERM* Energy & Resource Technology .....	117	SKO+	Reading .....	157
ESH Environmental Safety & Health .....	118	SM**	Microelectronics Systems Technology .....	157
ESL* English as a Second Language .....	118	SOC	Sociology .....	157
ESR Environmental Science .....	121	SP	Speech .....	158
EST Employment Skills Training .....	121	SPN	Spanish .....	159
FN Food & Nutrition .....	121	SSC	Social Science Inquiry .....	160
FR French .....	121	TA	Theatre Arts .....	162
FRP Fire Science (Wildland) .....	122	TPH*	Technical Physics .....	164
G Geology .....	122	WLD**	Welding Technology .....	164
GE General Engineering .....	123	WQT*	Water & Environmental Technology .....	165
GED+ General Ed. Development/Adult Basic Ed. ....	123	WR	Writing .....	166
GEO Geography .....	124	WS	Women's Studies .....	168
GER German .....	124	Z	Zoology .....	168

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

\*\* Courses with this prefix may not transfer with credit to a four-year institution unless otherwise specified.

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

## Glossary of terms

**Computer Literacy**

A course marked with “[C]” meets the CCC computer literacy requirement.

**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.

**Credit**

A unit of measure granted by the State for instructional hours taken.

**Elective**

A course which may be selected from a list of alternatives in order to fulfill requirements.

**Instructor consent**

Written permission from the course instructor, granted prior to enrollment.

**Open entry/open exit**

Some courses may be entered at any time before the last day of the eighth week of a term, and exited any time after completing course requirements.

**Placement test**

A CCC-administered test that assesses current skills to determine appropriate class placement.

**Prerequisite**

A skill-building course or activity that must be successfully completed prior to enrolling in advanced courses.

**Recommended**

A suggested competence that will enhance a student’s classroom success.

**Sequence**

A related series of classes covering a specific subject, usually in a predetermined order.

**Term**

Approximately one quarter of the academic year. Fall, winter, and spring terms range in length from 11 to 12 weeks. Summer term runs for either eight or eleven weeks (depending on the course).

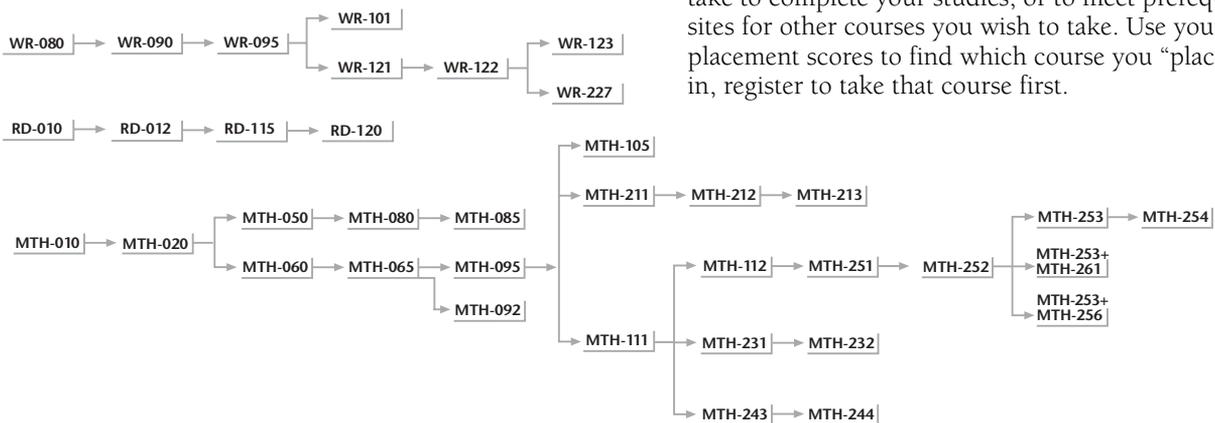
**Transfer sequence**

A standardized sequence of lower division college courses designed to facilitate transfer from Clackamas to a state college or university.

**Variable credit**

Some courses are offered as individualized learning for which a range of credits may be earned.

### 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.

**AB**

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

## *Collision Repair*

**AB-101 Auto Restoration**

3 credits

Fall/Winter/Spring/Summer

1 class, 11 lab hours/week

This course is designed for students who are interested in doing auto body repair and paint on their own vehicles. All phases of repair including dent removal, panel replacement, welding and painting are covered in the classroom or by individual instruction in the shop.

**AB-111 Collision Repair/Chassis & Brakes**

5 credits, Winter

2 class, 6 lab hours/week

Collision damage repair. Covers diagnosis, repair and replacement of brake, suspension and steering components.

**AB-112 Collision Repair Welding I**

2 credits, Fall/Winter/Spring

1 class, 4 lab hours/week

Focuses on auto collision damage repair. Emphasis is on MIG, GMAW (Gas Metal Arc Welding) welding on light gauge metals, oxygen-acetylene welding cutting and forming.

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

1-12 credits, Winter

5 class, 17 lab hours/week

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. Contains an introduction to fiberglass repair.

**AB-123 Collision Repair Welding II**

2 credits, Fall/Winter/Spring

1 class, 4 lab hours/week

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

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

1-12 credits, Spring

5 class, 17 hours/week

Major body damage repairs using modern and conventional frame repair equipment. Replacement of fixed glass, welded body panels and parts. Includes introduction to uni-body repair and estimating. Prerequisite: AB-123.

**AB-149 Collision Repair Estimating I**

2 credits, Winter

3 class hours/week

This course provides instruction in procedure and terminology used in the collision repair estimating field. Body part component identification and the effects of a collision on a vehicle will be studied.

**AB-150 Collision Repair Estimating II**

2 credits, Spring

1 class, 3 lab hours/week

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

**AB-180 Collision Repair/Refinishing/CWE**

2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. On-the-job experience in an auto body repair shop. Required: Instructor consent.

**AB-211 Collision Repair/Electrical I**

4 credits, Spring

2 class, 6 lab hours/week

Develops entry level skills in testing, diagnosing and repairing chassis-wiring systems relating to automotive collision damage.

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

1-12 credits, Fall

5 class, 17 lab hours/week

Major auto body repair: Dents, bolt-on parts replacement, computerized estimating, replacement of welded body panels & parts, unibody and conventional frame repair, and flexible bumper repair. Prerequisites: AB-133 & AB-211

**AB-224 Advanced Collision Repair IV**

1-12 credits, Spring

5 class, 17 lab hours/week

Advanced frame repair and advanced unibody repair. Advanced electronic frame measuring and aluminum welding. Includes introduction to refinishing. Required: Instructor consent. Prerequisite: AB-222.

**AB-231 Collision Repair/Electrical II**

3 credits, Spring

1 class, 5 lab hours/week

Advanced electrical diagnosis and repair, including passive and non-passive restraint systems, i.e., seat belt restraints, air bags and impact sensor units. Prerequisite: AB-211.

**AB-235 Collision Repair Welding III**

2 credits, Fall/Winter/Spring

1 class, 4 lab hours/week

Course focuses on aluminum welding for collision damage repair. The 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

1.5 class, 6-18 job site hours/week

Cooperative work experience. On-the-job experience in an auto body repair shop. Required: Instructor consent & a CWE seminar.

**ABR**

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

## *Collision Repair/Refinishing*

**ABR-125 Collision Repair Refinishing I**

1-12 credits, Fall/Winter/Spring

5 class, 17 lab hours/week

Includes shop safety, fire prevention, selection and use of paint products, abrasives, fillers, basic application of top coats, primers and sealers.

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

1-12 credits, Fall/Winter/Spring

5 class, 17 lab hours/week

Application of urethane top coats includes complete refinishing, spot painting, color matching, and problem solving. Introduction to computer color information retrieval and mixing. Prerequisite: ABR-125.

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

1-12 credits, Fall/Winter/Spring

5 class, 17 lab hours/week

Application of urethane enamel, urethane base coat/clear coat, and tri-coat/pearl finishes. Includes complete refinishing, spot and panel painting, color matching and problem solving. Prerequisite: ABR-127.

**ABR-142 Airbrush Art**

2 credits, Winter  
2 class, 2 lab hours/week

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

**ABR-152 Custom Painting Fundamentals**

2 credits, Spring  
2 class, 2 lab hours/week

Instruction in custom color application and special effects. Theory and practical application of personal protection, shop safety and fire prevention, environmental concerns and hazardous waste disposal methods, product choice and compatibility, selection and use of masking materials, and color harmony.

**ABR-180 Auto Body Refinishing/CWE**

2-6 credits, Fall/Winter/Spring  
1.5 class, 6-18 job site hours/week

Cooperative work experience. On-the-job experience in an auto refinishing shop. Required: Instructor consent & a CWE seminar.

**ABR-225 Production Shop Techniques**

1-10 credits, Fall/Winter/Spring  
5 class, 15 lab hours/week

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

**ABR-227 Restoration Practices**

1-10 credits, Fall/Winter/Spring  
5 class, 15 lab hours/week

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.

**AM**

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

**Automotive Service Technology****AM-106 Fix Your Own Car**

2 credits, not offered every term  
1 class, 3 lab hours/week

A do-it-yourself course for non-automotive majors who want to work on their own cars. Includes minor services such as: oil change, lubrication, fluid checks, brakes, cooling system, electrical system, safety, and other quick service.

**AM-108 Electrical Systems I**

3 credits, not offered every term  
2 class, 4 lab hours/week

Evening course in automotive electrical systems. Covers basic electricity, electrical repair procedures, battery, cranking system, and charging system servicing.

**AM-109 Electrical Systems II**

3 credits, not offered every term  
2 class, 4 lab hours/week

Continuation of AM-108, Auto Electrical Systems I. Covers ignition system service and an introduction to electronic controls.

**AM-120 New Student College Success**

1 credit, not offered every term  
1 class hour/week for 10 weeks

Workshop style course designed to introduce students to each other and the skills they will need to achieve college success. Recommended for all new students in the automotive field. No tuition charge for class.

**AM-121 General Auto Repair I**

3 credits, Fall/Winter/Spring  
1 class, 6 lab hours/week

For current or previously enrolled auto students. 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.

**AM-122 General Auto Repair II**

3 credits, Fall/Winter/Spring  
1 class, 6 lab hours/week

For current or previously enrolled auto students. 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.

**AM-123 General Auto Repair III**

3 credits, Fall/Winter/Spring  
1 class, 6 lab hours/week

For current or previously enrolled auto students. 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.

**AM-129 Electrical Systems**

7 credits, Winter  
3 class, 11 lab hours/week

Includes basic electricity, introduction to semiconductors, electrical measurement, schematics, wiring repair, service of batteries, cranking, charging, and ignition systems.

**AM-130 Brake Systems**

4 credits, Spring  
2 class, 6 lab hours/week

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. Corequisite: AM-131.

**AM-131 Chassis Systems**

4 credits, Spring  
2 class, 6 lab hours/week

Includes design, construction, and service of front and rear suspension systems. Also covers wheels and tires, steering, and wheel alignment. Corequisite: AM-130.

**AM-133 Engine Systems**

7 credits, Fall  
3 class, 11 lab hours/week

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

**AM-141 ASE Test Preparation**

3 credits, not offered every term  
3 class hours/week

Prepares automotive technicians for the National Institute for Automotive Service Excellence tests as a Certified Master Automotive Technician.

**AM-175 Advanced Mechanic Studies**

3 credits, Fall/Winter/Spring  
1 class, 6 lab hours/week

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

1 class, 6 lab hours/week

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

1 class, 6 lab hours/week

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, Winter

2 class, 6 lab hours/week

Covers design, construction, testing, maintenance, and repair of automotive heating and air conditioning systems.

**AM-228 Service Shop Management**

4 credits, Winter

4 class hours/week

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

3 class, 11 lab hours/week

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

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

7 credits, Winter

3 class, 11 lab hours/week

Covers service of fuel storage and delivery systems: fuel injection, emission controls, and other electronic engine controls. Includes DSO use and exhaust gas analysis. Prerequisite or Corequisite: AM-129.

**AM-244 Advanced Electrical & Fuel Systems**

7 credits, not offered every term

3 class, 11 lab hours/week

A continuation of AM-129 & AM-243. Includes diesel systems, electrical diagnosis, engine analysis equipment, electronic engine controls, air bags, and electrical accessories. Prerequisites: AM-129 & AM-243, or instructor consent.

**AM-245 Automatic Transmission Systems**

7 credits, Fall

3 class, 11 lab hours/week

A course in automatic transmission repair. Includes design, construction, testing, service and rebuilding of automatic transmissions and transaxles.

**AM-258 Advanced Brake & Chassis Systems**

4 credits, Winter

2 class, 6 lab hours/week

A continuation of AM-130 & AM-131. Includes in-depth study of alignment, ABS, suspension problems, and special tools and equipment used in brake and suspension service. Prerequisites: AM-130 & AM-131.

**AM-280 Auto Mechanics/CWE**

2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. On-the-job experience in an auto repair shop or auto dealership. Required: Instructor consent & a CWE seminar.

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

4 credits, Fall

4 class hours/week

Introduces the study of humans as biological beings in the context of modern genetics, evolutionary theory, primate behavior, and the role of the physical anthropologist in forensic science. Any three anthropology classes meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**ANT-102 Archaeology & Prehistory**

4 credits, Winter/Spring

4 class hours/week

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. Any three anthropology classes meet the Social Science Sequence requirement for the AAOT degree. Also offered as a three credit telecourse: Out of the Past. Recommended: Placement in RD-115.

**ANT-103 Cultural Anthropology**

4 credits, Fall/Winter/Spring

4 class hours/week

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. Any three anthropology classes meet the Social Science Sequence requirement for the AAOT degree. Also offered as a three credit telecourse: Faces of Culture. Recommended: Placement in RD-115.

**ANT-230 Indians of Oregon**

3 credits, not offered every year

3 class hours/week

Survey of Native American cultures of Oregon based on archaeological, ethnohistorical, and ethnographic evidence. Begins with arrival of humans in this region more than 12,000 years ago and concludes with contemporary Native American issues. Any three anthropology classes meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**ANT-231 Indians of the Pacific N.W.**

3 credits, not offered every year

3 class hours/week

Survey of Native American cultures in the Pacific Northwest region from prehistoric times to the present. Course is based on archaeological, ethnohistorical, and ethnographic evidence. Includes contemporary issues in Northwest Native American life. Any three anthropology classes meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**ANT-232 Indians of North America**

3 credits, not offered every year

3 class hours/week

A broad survey of the cultures, arts, and history of Native Americans north of Mexico. Uses archaeological, ethnohistorical, and ethnographic evidence to explore the diversity of Native American cultures from prehistoric times to the present. Includes contemporary issues in Native American life. Any three anthropology classes meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**ANT-242 Introduction to Field Archaeology**  
3-9 credits, not offered every year  
5 class, 8 lab hours/week, 4 week class

An introduction to the goals and methods of archaeology. Students participate in ongoing research involving archaeological site survey, excavation and analysis. Lectures, field work, library and laboratory research teach the techniques of modern archaeology field research. Recommended: Placement in RD-115.

**ANT-280 Anthropology/CWE**  
2-6 credits, Fall/Winter/Spring  
1.5 class, 6-18 job site hours/week

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.

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## ART

### *Art*

**ART-101 Art Appreciation**  
3 credits, Fall  
4 class hours/week

Introduces students to the world of visual arts through readings, lectures, field trips, demonstrations and hands-on studio experience. The course will consider historical connections, basic design concepts and prevalent issues in the world of art. The student will become involved with the arts through viewing, understanding, creation, and discussion.

**ART-102 Art Appreciation**  
3 credits, Winter  
4 class hours/week

Introduces students to the world of visual arts through readings, lectures, field trips, demonstrations and hands-on studio experience. The course will consider historical connections, basic design concepts and prevalent issues in the world of art. The student will become involved with the arts through viewing, understanding, creation, and discussion.

**ART-103 Art Appreciation**  
3 credits, Spring  
4 class hours/week

Introduces students to the world of visual arts through readings, lectures, field trips, demonstrations and hands-on studio experience. The course will consider historical connections, basic design concepts and prevalent issues in the world of art. The student will become involved with the arts through viewing, understanding, creation, and discussion.

**ART-115 Basic Design: Two Dimensional Design**  
3 credits, Fall/Spring  
6 class hours/week

Acquaints students with the vocabulary of composition, builds creative and analytical skills, and examines historical and contemporary issues related to visual composition. ART-115/116/117 meets the Arts & Letters Sequence requirement for the AAOT degree.

**ART-116 Basic Design: Color Theory & Composition**  
3 credits, Fall/Winter  
6 class hours/week

Explores the physiology and the psychology of color relating to visual composition, and examines historical and contemporary issues of color and composition in the arts. ART-115/116/117 meets the Arts & Letters Sequence requirement for the AAOT degree.

**ART-117 Basic Design: Three Dimensional Composition**  
3 credits, Winter/Spring  
6 class hours/week

Examines the elements of form and space, the principles of structure, and the processes and psychology involving form. Historical and contemporary issues relating to sculpture, architecture and design are considered. ART-115/116/117 meets the Arts & Letters Sequence requirement for the AAOT degree.

**ART-131 Drawing**  
3 credits, Fall  
6 class hours/week

Introduces students to basic drawing tools, materials and composition elements of line, gesture and value. Assigned problems deal with the direct observation of physical reality as it relates to the creation of volume and form on a two-dimensional plane. Additional assignments include readings from the required text and critical analysis of completed projects. ART-131/132/133 meets the Arts & Letters Sequence requirement for the AAOT degree.

**ART-132 Drawing**  
3 credits, Winter  
6 class hours/week

Introduces students to additional materials and advanced elements of composition, form and movement. Assigned problems deal with the geometric division of space, manipulation of the visual surface, positive/negative space interaction, atmospheric perspective and linear perspective. Additional assignments include readings from the required text and critical analysis of completed projects and assigned exhibitions. ART-131/132/133 meets the Arts & Letters Sequence requirement for the AAOT degree.

**ART-133 Drawing**  
3 credits, Spring  
6 class hours/week

Introduces students to additional materials and the psychology and method of personal expression as it relates to the visual language of art. Assigned problems deal with the integration and manipulation of composition, form, symbolism, value, color and personal conceptual nature. Additional assignments include readings from the required text and critical analysis of completed projects and assigned exhibitions. ART-131/132/133 meets the Arts & Letters Sequence requirement for the AAOT degree.

**ART-161 Photography/Beginning**  
3 credits, Fall  
6 class hours/week

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/Beginning**  
3 credits, Winter  
6 class hours/week

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/Beginning**

3 credits, Spring  
6 class hours/week

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 & ART-163 or instructor consent.

**ART-204 History of Western Art**

3 credits, Fall  
3 class hours/week

The prehistory of art, the Ancient World, and early Christianity. Survey of visual art styles, comprehensive evaluation of art forms, and development of practical art language. Students must be able to write brief research papers. ART-204/205/206 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ART-205 History of Western Art**

3 credits, Winter  
3 class hours/week

The Middle Ages and the early Renaissance. Survey of visual art styles, comprehensive evaluation of art forms, and development of practical art language. Students must be able to write brief research papers. ART-204/205/206 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ART-206 History of Western Art**

3 credits, Spring  
3 class hours/week

The Baroque and the Modern World through the early 20th century. Survey of visual art styles, comprehensive evaluation of art forms, and development of practical art language. Students must be able to write brief research papers. ART-204/205/206 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ART-211 Survey of Modern Art**

3 credits, Fall  
3 class hours/week

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-211/212/213 meets the Arts & Letters Sequence requirement for the AAOT degree.

**ART-212 Survey of Modern Art**

3 credits, Winter  
3 class hours/week

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-211/212/213 meets the Arts & Letters Sequence requirement for the AAOT degree.

**ART-213 Survey of Modern Art**

3 credits, Spring  
3 class hours/week

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-211/212/213 meets the Arts & Letters Sequence requirement for the AAOT degree.

**ART-218 Calligraphy**

2 credits, Fall/Winter/Spring/Summer  
4 class hours/week

An introduction to the use of calligraphic tools, techniques and materials and the historical aspects of calligraphy.

**ART-225 Computer Graphics I [C]**

1-3 credits, Fall/Winter/Spring  
4-6 class hours/week

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. Meets computer literacy requirement. Recommended: Pass ART-115.

**ART-226 Computer Graphics II [C]**

1-3 credits, Winter  
4-6 class hours/week

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. Meets computer literacy requirement. Recommended: Pass ART-225.

**ART-227 Computer Graphics III [C]**

1-3 credits, Spring  
4-6 class hours/week

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. Meets computer literacy requirement. Recommended: Pass ART-225 & pass ART-226.

**ART-250 Ceramics/Beginning**

1-3 credits, Fall  
4-6 class hours/week

Demonstrates construction techniques and methods used to design, shape, and form clay. Includes hand building, wheel throwing, decoration, glazing, and firing.

**ART-251 Ceramics/Beginning**

1-3 credits, Winter  
4-6 class hours/week

Demonstrates construction techniques and methods used to design, shape, and form clay. Includes hand building, wheel throwing, decoration, glazing, and firing.

**ART-252 Ceramics/Beginning**

1-3 credits, Spring  
4-6 class hours/week

Demonstrates construction techniques and methods used to design, shape, and form clay. Includes hand building, wheel throwing, decoration, glazing, and firing.

**ART-253 Ceramics/Intermediate**

1-3 credits, Fall  
4-6 class hours/week

Demonstrated construction techniques and methods used to design, shape, and form clay. Includes hand building, wheel throwing, decoration, glazing, and firing. Prerequisites: Pass ART-250, pass ART-251 & pass ART-252 or instructor consent.

**ART-254 Ceramics/Intermediate**

1-3 credits, Winter  
4-6 class hours/week

Demonstrates construction techniques and methods used to design, shape, and form clay. Includes hand building, wheel throwing, decoration, glazing, and firing. Prerequisites: Pass ART-250, pass ART-251 & pass ART-252 or instructor consent.

**ART-255 Ceramics/Intermediate**

1-3 credits, Spring  
4-6 class hours/week

Demonstrates construction techniques and methods used to design, shape, and form clay. Includes hand building, wheel throwing, decoration, glazing, and firing. Prerequisites: Pass ART-250, pass ART-251 & pass ART-252 or instructor consent.

**ART-257 Metalsmithing**

1-3 credits, Fall  
4-6 class hours/week

Basic techniques of silver and non-precious metals, fabrication, forming and surface treatments. Includes sawing, filing, etching, roller printing and chain-making. Students design and execute finished pieces of jewelry and small sculpture. No experience necessary.

**ART-258 Metalsmithing**

1-3 credits, Winter  
4-6 class hours/week

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

**ART-259 Metalsmithing**

1-3 credits, Spring  
4-6 class hours/week

Basic techniques of stone setting. Includes round, triangular and square bezels for cabochons, tube setting and commercial and irregular prong setting for faceted stones. Students design and execute finished pieces of jewelry that include different types of stone setting. No experience necessary.

**ART-280 Art/CWE**

2-6 credits, Fall/Winter/Spring  
1.5 class, 6-18 job site hours/week

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**

1-3 credits, Fall  
6 class hours/week

Exploration of various painting techniques using still life, life models, landscapes, abstraction, and mixed media. Offers visual observation and composition of selected subjects using oil or acrylic media.

**ART-282 Painting/Beginning**

1-3 credits, Winter  
6 class hours/week

Exploration of various painting techniques using still life, life models, landscapes, abstraction, and mixed media. Offers visual observation and composition of selected subjects using oil or acrylic media.

**ART-283 Painting/Beginning**

1-3 credits, Spring  
6 class hours/week

Exploration of various painting techniques using still life, life models, landscapes, abstraction, and mixed media. Offers visual observation and composition of selected subjects using oil or acrylic media.

**ART-284 Painting/Intermediate**

1-3 credits, Winter  
6 class hours/week

Exploration of various painting techniques using still life, life models, landscapes, abstraction, and mixed media. Offers visual observation and composition of selected subjects using oil or acrylic media. Prerequisites: Pass ART-281, pass ART-282 & pass ART-283 or instructor consent.

**ART-285 Painting/Intermediate**

1-3 credits, Winter  
6 class hours/week

Exploration of various painting techniques using still life, life models, landscapes, abstractions, and mixed media. Offers visual observation and composition of selected subjects using oil or acrylic media. Prerequisites: Pass ART-281, pass ART-282 & pass ART-283 or instructor consent.

**ART-286 Painting/Intermediate**

1-3 credits, Spring  
6 class hours/week

Exploration of various painting techniques using still life, life models, landscapes, abstraction, and mixed media. Offers visual observation and composition of selected subjects using oil or acrylic media. Prerequisites: Pass ART-281, pass ART-282 & pass ART-283 or instructor consent.

**ART 289 Bronze Casting**

3 credits, Fall/Winter/Spring  
6 class hours/week

An advanced level sculpture course for students with some sculpture background. The course will 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. Required: Instructor consent.

**ART-290 Advanced Painting**

3 credits, Fall/Winter/Spring  
6 class hours/week

Advanced painting students concentrate on personal projects and options. Course will build on traditional techniques and skills while emphasizing experimental modes of expression. Assigned readings, critiques, and written projects will be utilized. Prerequisites: Pass ART-281, pass ART-282 & pass ART-283 or instructor consent.

**ART-291 Sculpture**

3 credits, Fall  
6 class hours/week

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**

3 credits, Winter  
6 class hours/week

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**

3 credits, Spring  
6 class hours/week

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.

**ART-294 Watercolor**

3 credits, Fall  
6 class hours/week

A beginning level course in the technique and use of watercolor painting. Development of technical skills and expressive development in the medium of transparent watercolor.

**ART-295 Watercolor**

3 credits, Winter  
6 class hours/week

A beginning level course in the technique and use of watercolor painting. Development of technical skills and expressive development in the medium of transparent watercolor.

**ART-296 Watercolor**

3 credits, Spring  
6 class hours/week

A beginning level course in the technique and use of watercolor painting. Development of technical skills and expressive development in the medium of transparent watercolor.

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

See also General Science (GS).

**ASC-200 Natural Science Inquiry**

4 credits, Fall  
3 class, 3 lab hours/week

Introductory course for liberal arts students. Focuses on the 200th anniversary of the Lewis and Clark expedition. Provides interdisciplinary perspective on science and engages students in the collaborative scientific investigation of problems. Methods of scientific investigation, analysis and graphical presentation of data, and scientific writing. ASC-200/201/202 meets the science sequence requirement for the AAOT degree. Prerequisite: Placement in WR-121.

**ASC-201 Integrated Science Concepts**

4 credits, Winter  
3 class, 3 lab hours/week

Focuses on the 200th anniversary of the Lewis and Clark expedition. Topics will vary but process will include open-ended research projects focusing on problem posing and problem solving. ASC-200/201/202 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass ASC-200 or instructor consent.

**ASC-202 Integrated Science Concepts**

4 credits, Spring  
3 class, 3 lab hours/week

Focuses on the 200th anniversary of the Lewis and Clark expedition. Topics will vary but process will include writing to learn strategies, individual and collaborative research work, use of computers for data analysis, modeling, writing, and resource access. ASC-200/201/202 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass ASC-200 or instructor consent.

**ASE**

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

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

.5-1.5 high school credits  
Fall/Winter/Spring/Summer  
60-90 hours/term

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

**ASE-011 Applied Math I**

.5 high school credits  
Fall/Winter/Spring/Summer  
60 hours/term

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 credits  
Fall/Winter/Spring/Summer  
60 hours/term

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**

.5-1.5 high school credits  
Fall/Winter/Spring/Summer  
60 hours/term

Review of English fundamentals of grammar, spelling, capitalization, and punctuation. Elective credit only. Required: Instructor consent.

**ASE-016 Intermediate English**

.5 high school credit  
Fall/Winter/Spring/Summer  
60 hours/term

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  
60 hours/term

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  
60 hours/term

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-21 Effective Study Skills**

.5 high school credit  
Fall/Winter/Spring/Summer  
60 hours/term

Online course emphasizes learning skills for college success and targets students with pre-college level skills. Includes time management, listening/ notetaking, study/reading textbooks, concentration, test preparation/anxiety, effective use of college library resources. Required: Instructor consent.

**ASE-22 Developmental English**

.5-1.5 high school credits  
Fall/Winter/Spring/Summer  
60 hours/term

Remedial review of grammar, spelling, capitalization, and punctuation. Elective credit only. Required: Instructor consent.

**ASE-024 General Science**

.5 high school credit  
Fall/Winter/Spring/Summer  
60 hours/term

Includes the major scientific concepts, principles, theories, laws and processes of general science; interrelationships between science, technology, society, and careers. Required: Instructor consent.

**ASE-026 Health I**

.5 high school credit  
Fall/Winter/Spring/Summer  
60 hours/term

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-027 Personal Development**

.5 high school credit  
Fall/Winter/Spring/Summer  
60 hours/term

Identification of personal development problem areas, assess needs, research possibilities, and develop plans of action. Required: Instructor consent.

**ASE-028 Global Studies I**

.5 high school credit  
Fall/Winter/Spring/Summer  
60 hours/term

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  
60 hours/term

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-030 Economics**

.5 high school credits  
Fall/Winter/Spring/Summer  
60 hours/term

A consumer's introduction to economic, legal and business theory. Required: Instructor consent.

**ASE-032 US History I**

.5 high school credit  
Fall/Winter/Spring/Summer  
60 hours/term

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  
60 hours/term

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  
60 hours/term

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  
60 hours/term

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  
60 hours/term

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. Learners acquire basic technology skills. Required: Instructor consent.

**ASE-037 Basic Developmental Reading**

.5-1.5 high school credits  
Fall/Winter/Spring/Summer  
60 hours/term

Develops basic reading skills, including phonics, pronunciation, spelling, word attack skills, basic vocabulary, and comprehension skills. Elective credit only. Required: Instructor consent.

**ASE-038 Intermediate Reading**

.5 high school credit  
Fall/Winter/Spring/Summer  
60 hours/term

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  
60 hours/term

Develops advanced vocabulary, reading comprehension skills, critical reading, and study skills. Required: Instructor consent.

**ASE-040 AHSD Competency Center**

.5 high school credits  
Fall/Winter/Spring/Summer  
60 hours/term

Utilizes individualized lab setting for students satisfying diploma competency requirements. Required: Instructor consent.

**ASE-041 AHSD Life Experience Assessment**

.5-7 high school credits  
Fall/Winter/Spring/Summer  
6-60 hours/term

Assists student in documenting actual life experiences, which are then assessed toward meeting credit requirements for an Adult High School Diploma. Required: Instructor consent.

**ASE-043 Cooperative Work Experience**

.5-1.5 high school credits  
Fall/Winter/Spring/Summer  
60-90 hours/term

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  
20-240 hours/term

Individualized basic skills education for adults prepares students for upgrading basic skills and General Educational Development (GED). Required: Instructor consent.

**ASE-047 Physical Education I**

.5 high school credit  
Fall/Winter/Spring/Summer  
60 hours/term

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**

.5-1 credit high school credits  
Fall/Winter/Spring  
60-90 hours per term

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. Required: Instructor consent.

**ASE-054 American Civics II**

.5 high school credit  
Fall/Winter/Spring/Summer  
60 hours/term

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  
20-240 hours/term

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  
60 hours/term

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  
60 hours/term

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  
60 hours/term

Presents a broad perspective of physical fitness, encouraging learners 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  
60 hours/term

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/Life Science**

.5 high school credit, Fall  
60 hours/term

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  
60 hours/term

Presents principles of winter ecology. Students explore animal, insect, human, and plant adaptations to life in cold wintry environments. A field trip involves snowshoeing on Mt. Hood where students hike, observe animal tracks, dig and analyze snow pits, and construct a quinzhee snow hut. Required: Instructor consent.

**ASE-063 General Science/Wildlife**

.5 high school credit, Spring  
60 hours/term

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  
1 week

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  
60 hours/term

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  
60 hours/term

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  
60 hours/term

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.

**ASL****American Sign Language**

**ASL-101 American Sign Language**  
4 credits, Fall  
4 class hours/week

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.

**ASL-102 American Sign Language**  
4 credits, Winter  
4 class hours/week

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  
4 class hours/week

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**  
4 credits, not offered every year  
4 class hours/week

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. ASL-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: ASL-103 or instructor consent.

**ASL-202 American Sign Language**  
4 credits, not offered every year  
4 class hours/week

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. ASL-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: ASL-201 or instructor consent.

**ASL-203 American Sign Language**  
4 credits, not offered every year  
4 class hours/week

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. ASL-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: ASL-202 or instructor consent.

**BA****Business Administration**

**BA-101 Introduction to Business**  
4 credits, Fall/Winter/Spring  
4 class hours/week

Introduction to the American business system including business organization, accounting, finance, marketing, and management. Also offered as an online course. Recommended: Placement in RD-115.

**BA-131 Introduction to Business Computing [C]**  
4 credits, Fall/Winter/Spring  
4 class hours/week

Use and application of Microsoft Office. Use Word, Excel, Access, and Powerpoint to create business documents. Internet features, multitasking, and File management. Designed for business majors. Also offered as an online course. Meets computer literacy requirement. Recommended: Placement in RD-115. Prerequisite: Pass BT-120 or instructor consent.

**BA-156 Applied Economics**  
3 credits, Winter  
3 credit hours/week

Basic economic principles applied to business decision-making, forecasting, and critical thinking skills related to budgeting, planning, financial analysis, and application of business policy, and practice. Designed for business majors. Also offered as an online course. Recommended: Placement in RD-115.

**BA-160 Purchasing I**  
3 credits, not offered every term  
33 online hours/term

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 term  
33 online hours/term

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  
3 class hours/week

Basic personnel payroll records necessary in business firms, laws affecting payroll systems, procedures used in computing wages, salaries and deductions, and manual preparation of payroll records and reports. Prerequisite: Pass BA-211 or pass BT-115.

**BA-205 Solving Communication Problems with Technology [C]**

4 credits, Winter/Spring  
4 class hours/week

Skills and technology needed to communicate effectively. Organize and present business information electronically, including data collection, correspondence, business reporting, business presentations, and corporate communications. Meets computer literacy requirement. Recommended: Placement in RD-115. Prerequisite: Pass WR-121, pass BA-131.

**BA-206 Management Fundamentals**

4 credits, Fall/Winter/Spring  
4 class hours/week

Concepts and theories of management with focus on planning, organizing, staffing, directing, and controlling. Organizational structures, planning principles, and international management techniques. Also offered as an online course. Recommended: Placement in RD-115.

**BA-211 Financial Accounting I**

4 credits, Fall/Winter/Spring  
4 class hours/week

Basic principles of accounting cycle for service and merchandising companies, journals, ledgers, accounting for cash, end-of-period operations, worksheets, entries, and financial statements. Emphasis on procedure and theory. Also offered as an online course. Recommended: Placement in RD-115.

**BA-212 Financial Accounting II**

4 credits, Fall/Winter/Spring  
4 class hours/week

Principles and practices in service and merchandising corporations, cash controls, receivables, assets, short-term and long-term liabilities and debt, and financial statements. Corporate analysis of financial position including the cash flow statement. Also offered as an online course. Recommended: Placement in RD-115. Prerequisite: Pass BA-211.

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

4 credits, Fall/Winter/Spring  
4 class hours/week

Accounting for manufacturing operations, cost systems, capital budgeting, variances and budget performance reports, job order, and process, flow, and standard costing. Presentation and interpretation of accounting data to aid decisions. Also offered as an online course. Recommended: Placement in RD-115. Prerequisite: Pass BA-212.

**BA-216 Cost Accounting**

3 credits, Winter  
3 class hours/week

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: Placement in RD-115. Prerequisite: Pass BA-213.

**BA-217 Budgeting for Managers**

3 credits, Spring  
3 class hours/week

Budgeting vocabulary, finance, record keeping, cash management, cash budgeting, and capital budgeting. Recommended that students have prior course work and/or experience in accounting or work-related budgeting. Recommended: Placement in RD-115.

**BA-218 Personal Finance**

3 credits, Spring  
33 online hours/term

Goal setting, budgeting, use of credit, personal financial statements, consumer spending and saving, investment options, risk management, and estate and tax planning. Financial planning tools and practical self-assessment. Recommended: Placement in RD-115.

**BA-222 Financial Management**

3 credits, Winter  
3 class hours/week

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/Spring  
4 class hours/week

Survey and application of marketing principles and vocabulary in profit and non-profit organizations. Product planning, distribution, promotion, price, and customer service are analyzed and applied. Also offered as an online course. Not offered as a lecture course every term. Recommended: Placement in RD-115.

**BA-224 Human Resource Management**

3 credits, Fall/Spring  
3 class hours/week

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: Placement in RD-115.

**BA-225 Business Report Writing**

3 credits, Spring  
3 credit hours/week

Focuses on the skills and techniques required to write and produce professional business reports, including research, writing, formatting, and presentation. Also offered as an online course. Recommended: Placement in RD-115. Prerequisites: Pass WR-121 & pass BA-205 or instructor consent.

**BA-226 Introduction to Business Law I**

4 credits, Fall/Winter/Spring  
4 class hours/week

Concepts, principles, and rules of law applicable to business transactions. Emphasis on constitution, courts, business crimes, torts, and consumer contract law. Also offered as an online course. Recommended: Placement in RD-115.

**BA-227 Business Law II**

4 credits, Winter  
4 class hours/week

Emphasis on real and personal property, negotiable instruments, insurance, documents of title, secured transaction, bailments, commercial paper, agency, bankruptcy, suretyship, bulk sales, and estate planning. Also offered as an online course. Recommended: Placement in RD-115. Prerequisite: Pass BA-226.

**BA-228 Business Presentations**

3 credits, Spring  
3 class hours/week

Skills and techniques to design and produce persuasive business presentations, including audience analysis, organization, scripting, graphics, and appropriate presentation technology. Group projects using Microsoft Powerpoint. Recommended: Placement in RD-115. Prerequisite: Pass BA-205 or instructor consent.

**BA-238 Sales**

3 credits, Spring  
3 class hours/week

Focus on professional selling principles and techniques as applied both in business and interpersonal settings. Recommended: Placement in RD-115. Prerequisite: Pass BA-101.

**BA-239 Advertising**

4 credits, Fall  
4 class hours/week

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: Placement in RD-115. Prerequisite: Pass BA-101.

**BA-240 Governmental Accounting**

4 credits, Fall  
4 class hours/week

Accounting procedures, records, and statements to summarize and disclose the results of non-profit and governmental activities. Budgetary accounting, general, special revenue, capital projects, debt service, enterprise, and proprietary funds, general fixed asset accounts, etc. Recommended: Placement in RD-115. Prerequisite: Pass BA-212.

**BA-242 Introduction to Investments**

3 credits, not offered every term  
3 class hours/week

Studies securities, investment concepts, and economic trends for the private investor. Discusses investment objectives, portfolios, corporate securities, and securities market. Also offered as an online course. Recommended: Placement in RD-115.

**BA-248 Auditing**

3 credits, Spring  
3 class hours/week

Auditing standards and procedures by the CPAs in the examination and issuance of audit reports. Generally accepted auditing standards and conceptual framework necessary for collection of evidence and assessment of risk. Recommended: Placement in RD-115. Prerequisite: Pass BA-213.

**BA-249 Retailing**

3 credits, not offered every term  
33 online hours/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: Placement in RD-115.

**BA-250 Introduction to Small Business**

3 credits, Spring  
3 class hours/week

Managing a small business, identifying a market opportunity, developing a business plan, and meeting the competition. Also financial accounting and cash-flow projections. Recommended: Placement in RD-115. Prerequisite: Pass BA-101.

**BA-251 Office Management**

3 credits, Winter  
3 class hours/week

Role and responsibilities of the office manager. Analyzing business, restructuring office systems and training needs, dealing with change, staffing practices affecting human resources, managing human resources, leadership, decision-making and motivational skills, and managing teams. Also offered as an online course. Recommended: Placement in RD-115. Prerequisite: Pass BT-120 or instructor consent.

**BA-256 Income Tax Accounting**

3 credits, Fall  
3 class hours/week

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: Placement in RD-115.

**BA-261 Consumer Behavior**

4 credits, Spring  
4 class hours/week

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. Recommended: Placement in RD-115. Prerequisite: Pass BA-101.

**BA-265 eManagement**

3 credits, Winter  
3 class hours/term

Advanced examination of the Internet as a tool; economic realities of electronic commerce, infrastructure and technologies for specific business activities, business strategies for application of electronic commerce. Prerequisites: Pass BA-101, pass BT-184, and pass WR-121.

**BA-266 Advanced eMarketing**

3 credits, Spring  
3 class hours/term

Use of the Internet for global marketing efforts. Development of marketing strategy using the Internet for competitive advantage by reaching specific target markets, and for obtaining primary and secondary market research information. Also offered as an online course. Prerequisites: Pass BA-223, pass BT-184, and pass WR-121.

**BA-267 Project Team Tools**

3 credits, Fall  
3 class hours/term

Individuals and work teams perform needs-analysis, negotiating/contracting for goals and resources, work/task breakdown, project flowchart and schedule, resource allocation, time estimates, critical path, budgeting, contingency planning, project monitoring and reporting. Project documentation software. Prerequisites: Pass BA-285 and pass BT-184.

**BA-280 Business/CWE**

3-6 credits  
Fall/Winter/Spring  
1.5 class, 9-18 job site hours/week

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

4 class hours/week

Basic psychology and human relations techniques in building better employer/employee relationships. Interpersonal relations both on the job and in everyday life. Recommended: Placement in RD-115.

**BC**

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

## ***Building Construction Technology***

**BC-100 Construction Orientation: Overview of Construction Industry [C]**

1-6 credits

Fall/Winter/Spring/Summer

4 class, 7 lab hours/week

Research the materials, methods terminology, safety requirements, practices and standards of construction. Lab projects include Internet research, displays, and a journal. Meets the computer literacy requirement.

**BC-101 Building Trades Print Reading: Blueprint Reading**

2-4 credits

Fall/Winter/Spring/Summer

4 class, 4 lab hours/week

Read and interpret building construction drawings; identify construction terms, and information useful for estimating and scheduling. Includes reading the major components of a typical set of construction drawings, including symbols, schedules, sections and detail interpretation.

**BC-102 Introduction to Applied Building Construction**

1-6 credits, not offered every term

4 class, 7 lab hours/week

Utilize tools and equipment to accomplish projects emphasizing basic safety and industry applications. Lab projects could include carpentry, electrical, plumbing and site preparation.

**BC-103 Construction Site Preparation**

1-6 credits, Summer

4 class, 7 lab hours/week

Develop knowledge of construction layout and material storage for basic building sites. Projects include general survey, underground line locates, erosion control, benchmarks and hubs, contouring.

**BC-104 Basic Carpentry**

1-6 credits, not offered every term

4 class, 7 lab hours/week

Research the materials, techniques and safety requirements for basic carpentry and framing applications. Hand and power tools used to complete lab projects, e.g., scale building assemblies.

**BC-105 Basic Electrical**

1-6 credits, not offered every term

4 class, 7 lab hours/week

Research materials, methods, techniques, related code work and safety requirements for basic electrical systems, utilizing metering devices and ohm calculations. Lab projects include applications of residential wiring systems.

**BC-106 Basic Plumbing**

1-6 credits, not offered every term

4 class, 7 lab hours/week

Research the materials, methods, techniques, related code work and safety requirements for the basic operations of a typical plumbing system. Lab projects include piping, drainage, and venting methods. Students complete projects and develop skills independently.

**BC-107 Construction Career Portfolio [C]**

1-6 credits

Fall/Winter/Spring/Summer

4 class, 7 lab hours/week

Create a job-marketing tool that integrates knowledge and skills related to building construction industry. Portfolio consists of resumé, reference letters, work samples and other content that can be updated according to need or opportunity. Meets computer literacy requirement.

**BC-112 Construction Specification Fundamental Practices [C]**

1-12 credits, not offered every term

8 class, 14 lab hours/week

Introduction to methods and techniques related to the manufacture, distribution and delivery of building construction materials. Research, develop and write specifications related to the 16 CSI Divisions. Meets computer literacy requirement.

**BC-113 Construction Specifications Administration**

1-12 credits, not offered every term

8 class, 14 lab hours/week

Application of pricing, estimating, scheduling and paying practices of the construction industry based on the CSI Divisions. Lab projects include organizing and implementing a submittal process, product verification and payment for contract specified materials.

**BC-114 Basic Estimating**

1-6 credits, not offered every term

4 class, 7 lab hours/week

Develop methods and techniques to analyze drawings, specifications and related information to complete estimates for a construction process. Students will use manual takeoff and computer-assisted applications to produce estimates that meet industry standards.

**BC-115 Basic Scheduling**

1-6 credits, not offered every term

4 class, 7 lab hours/week

Produce a construction schedule by developing the methods and techniques to analyze drawings, specifications and related information of a construction process. Students will use manual and computer-assisted applications to produce schedules that meet industry standards.

**BC-121 Professional Computing for Construction [C]**

1-4 credits

Fall/Winter/Spring/Summer

4 class, 4 lab hours/week

Fundamentals of professional computing equipment and software, including terminology, techniques and specifications. Includes Windows operating systems, basic computer procedures, file management and Internet. Research MSDSs, specifications and use of CAD for communicating design concepts. Meets computer literacy requirement.

**BC-180 Building Construction Technology/CWE**

2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job-site hours/week

Cooperative work experience. Practical experience in the construction trades with a contractor, supplier or construction trades service provider. Required: Instructor consent & a CWE seminar.

**BC-201 Project Management I: Developing Project Expectations [C]**

1-12 credits, Fall/Winter  
8 class, 14 lab hours/week

Develop and communicate the processes to design a plan to meet customers' expectations and predict planned outcomes. Projects include discovery, critical path scheduling, estimating, and organizing a construction project vision. Meets computer literacy requirement.

**BC-202 Project Management II: Managing Project Expectations [C]**

1-12 credits, Winter/Spring  
8 class, 14 lab hours/week

Develop techniques to secure customer outcomes that meet and exceed the standards required for construction project administration. Includes bidding procedures, contract risks and liabilities, reporting methods, standards of performance, purchasing and measuring contract delivery. Meets computer literacy requirement.

**BC-203 Project Management III: Evaluating Project Expectations [C]**

1-12 credits, Spring/Summer  
8 class, 14 lab hours/week

Develop management evaluation strategies to measure the performance of planned outcomes which exceed customer expectations. Includes quality management that impacts the products, processes, service, environment and equity necessary for successful project outcomes. Meets computer literacy requirement.

**BC-204 Residential Construction Codes: Self-Paced Tutorial**

1-12 credits  
Fall/Winter/Spring/Summer  
8 class, 14 lab hours/week

Examine and interpret codes and regulations that govern residential one- and two-family dwellings. Includes researching structural, plumbing, electrical and mechanical codes of the Council of Authorized Building Officials (CABO). Complete and submit tutorial study guides and tests.

**BC-205 Commercial & Industrial Codes: Self-Paced Tutorial**

1-12 credits  
Fall/Winter/Spring/Summer  
8 class, 14 lab hours/week

Examine and interpret codes and regulations that govern the commercial and industrial construction industry. Includes researching the Uniform Building Code (UBC), Uniform Mechanical Code (UMC), Uniform Plumbing Code (UPC), the National Electrical Code (NEC). Complete and submit tutorial study guides and tests.

**BC-210 Construction Project Scheduling: Advanced [C]**

4-12 credits, not offered every term  
8 class, 14 lab hours/week

Introduces critical path project scheduling through integrated computer software applications. Students will develop typical models by researching and analyzing project components. Meets computer literacy requirement. (Available in 4-credit modules)

**BC-211 Organizational Leadership**

1-12 credits, not offered every term  
8 class, 14 lab hours/week

Learn principles and concepts that govern a leader. Develop systems for specific management operations. Focus is on strategic, professional, and interpersonal learning as well as developing self and others.

**BC-230 Home Inspection I: Residential Real Estate Property Orientation**

1-4 credits  
Fall/Winter/Spring/Summer  
4 class, 4 lab hours/week

Research applications of home inspection industry. Explore materials, methods and techniques that govern residential property system performance. Develop administrative protocols needed for home inspection business. Self-paced, tutorial learning oriented.

**BC-231 Home Inspection II: Interior Systems Evaluation**

1-4 credits  
Fall/Winter/Spring/Summer  
4 class, 4 lab hours/week

Explore guidelines and applications to evaluate the interior components of existing residential real estate. Survey and evaluate the status of interior components. Develop reporting systems to communicate performance outcomes. Self-paced, tutorial learning oriented.

**BC-232 Home Inspection III: Exterior Systems Evaluation**

1-4 credits  
Fall/Winter/Spring/Summer  
4 class, 4 lab hours/week

Explore guidelines and applications to evaluate the exterior components of existing residential real estate. Survey and evaluate the status of exterior components. Develop reporting systems to communicate performance outcomes. Self-paced, tutorial learning oriented.

**BC-280 Construction Projects/CWE**

2-6 credits  
Fall/Winter/Spring/Summer  
1.5 class, 6-18 job-site hours/week

Cooperative work experience. Practical experience in construction project management, estimating, scheduling, site inspection or other construction professional field applications. Required: Instructor consent & a CWE seminar.

**BC-286 Advanced Construction Applications**

1-12 credits  
Fall/Winter/Spring/Summer  
8 class, 14 job-site hours/week

Practical application of construction project management in a field experience. Students utilize estimating, scheduling, site inspection and other construction professional field applications. Required: Instructor consent.

**BI****Biology****BI-055 Introduction to Human Biology**

3 credits, Fall  
2 class, 3 lab hours/week

Designed for medical assistants and secretaries. Studies the structure and function of the human body, beginning with the cell. Includes organization of tissues, organs, systems, and structure and functions of body systems.

**BI-101 General Biology**

4 credits, Fall/Winter/Summer  
3 class, 3 lab hours/week

A laboratory course for non-science majors. Studies the cellular aspects of biology including genetics. BI-101/102/103 meets the science sequence requirements for the AAOT degree. Also offered as an online course. Recommended: Pass MTH-060; placement in RD-115 & placement in WR-121.

**BI-102 General Biology**  
4 credits, Winter/Spring/Summer  
3 class, 3 lab hours/week

A laboratory course for non-science majors emphasizing an evolutionary approach to animal systems. BI-101/102/103 meets the science sequence requirement for the AAOT degree. Also offered as an online course. Prerequisite: Pass BI-101.

**BI-103 General Biology**  
4 credits, Spring/Summer  
3 class, 3 lab hours/week

A laboratory course for non-science majors emphasizing an evolutionary approach to plants and ecosystems. BI-101/102/103 meets the science sequence requirement for the AAOT degree. Also offered as an online course. Prerequisite: Pass BI-101.

**BI-130 Mushroom ID & Taxonomy**  
3 credits, Fall, alternate years  
3 class hours/week + 3 day field trip

An introductory study. Includes taxonomy, ecology, life history, use of keys, toxicology, cultivation, and collection.

**BI-160 Bird ID & Taxonomy**  
3 credits, Spring  
3 class hours/week

Bird identification, classification, behavior. Identification techniques applied to birds through lectures, slide presentations, and field trips to Malheur, Klamath Marsh, Oregon Cascades, Sauvie Island, and Oregon Coast wildlife refuges.

**BI-163 Malheur Field Trip**  
1 credit, Spring  
4 day field trip

Study of plants, animals, geology, and history of High Desert Country at Malheur Environmental Field Station in southeast Oregon. Required: Instructor consent.

**BI-165 Natural History of SW Deserts**  
3 credits, Spring  
9 day field trip

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-165 Natural History/Oregon Coast**  
3 credits, not offered every term  
3 class hours/week

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-204 Elementary Microbiology**  
4 credits, Winter  
3 class, 3 lab hours/week

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  
4 class, 3 lab hours/week

A lab course for biology majors and preprofessional students. Includes cell structure, organization and metabolism, genetics, and evolution. BI-211/212/213 meets the science sequence requirement for the AAOT degree. Recommended: Pass MTH-105 or pass MTH-111; placement in RD-115 & placement in WR-121. Corequisite: CH-121 or CH-221.

**BI-212 Biology (Science Majors)**  
5 credits, Winter  
4 class, 3 lab hours/week

A lab course with an evolutionary approach to animal structure and function. BI-211/212/213 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass BI-211. Corequisite: CH-122 or CH-222.

**BI-213 Biology (Science Majors)**  
5 credits, Spring  
4 class, 3 lab hours/week

A lab course with an ecological approach to plants and ecosystems. BI-211/212/213 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass BI-212. Corequisite: CH-123 or CH-223.

**BI-231 Human Anatomy/Physiology I**  
4 credits, Fall/Summer  
3 class, 3 lab hours/week

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. BI-231/232/233 meets the science sequence requirement for the AAOT degree. Recommended: Placement in MTH-105 or MTH-111; placement in RD-115 & placement in WR-121. Prerequisites: Pass BI-101 & pass BI-102. Corequisite: CH-104.

**BI-232 Human Anatomy/Physiology II**  
4 credits, Winter/Summer  
3 class, 3 lab hours/week

A lab course covering structure and function of the muscular, cardiovascular, lymphatic, and respiratory systems. BI-231/232/233 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass BI-231 & pass CH-104. Corequisite: CH-105.

**BI-233 Human Anatomy/Physiology III**  
4 credits, Spring/Summer  
3 class, 3 lab hours/week

A lab course covering neuroendocrine control, digestive, excretory, and reproductive systems. Study of fluid, electrolyte, and acid base balance. BI-231/232/233 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass BI-232 & pass CH-105.

**BI-234 Introductory Microbiology**  
4 credits, Winter/Spring  
3 class, 3 lab hours/week

A lab course required for nursing and dental hygiene majors (medical emphasis). Includes characteristics, physiology and growth requirements of microorganisms, interactions between humans and microorganisms, immunology, infection, and principles of microbial control. Prerequisites: Pass BI-101 & pass CH-104.

**BI-280 Biology/CWE**  
2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

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**

3 credits, Spring  
3 class hours/week

A course covering botanical identification emphasizing Native American use of various plants commonly found in the Pacific Northwest and current botanical issues emphasizing Pacific Northwest species and ecology. Some field trips. Recommended: Placement in RD-115 & placement in WR-121.

**BOT-201 Botany**

4 credits, not offered every year  
3 class, 3 lab hours/week

A lab course covering biochemistry, plant cell structure and function of system of classification, fungi, and gymnosperms. BOT-201/202/203 meets the science sequence requirement for the AAOT degree. Recommended: Placement in MTH-105 or MTH-111; placement in RD-115 & placement in WR-121.

**BOT-202 Botany**

4 credits, not offered every year  
3 class, 3 lab hours/week

A lab course covering evolution, speciation, genetics, mitosis, meiosis, growth and development, plant hormones, response to stimuli, and photosynthesis. BOT-201/202/203 meets the science sequence requirement for the AAOT degree. Recommended: Placement in MTH-105 or MTH-111; placement in RD-115 & placement in WR-121.

**BOT-203 Botany**

4 credits, not offered every year  
3 class, 3 lab hours/week

A lab course covering flowering plants, their nutrition, transport reproduction, taxonomy, genetic technology, ecology, and distribution. BOT-201/202/203 meets the science sequence requirement for the AAOT degree. Recommended: Placement in MTH-105 or MTH-111; placement in RD-115 & placement in WR-121.

**BT**

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

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

1 credit, Fall/Winter/Spring  
11 online hours/term

This is an introductory course for students who are new to web-based courses. The course will include online course fundamentals, internet fundamentals, technique requirements, e-mail techniques, and tips for success in online courses.

**BT-104 Business Math**

3 credits, Fall/Winter  
3 class hours/week

Math skills applicable to the business environment. Mark-up, mark-down, simple interest, present value, stocks, bonds, mutuals, and credit cards. Introduces accounting topics such as depreciation, financial statements, and ratios. Also offered as an online course. Prerequisite: Pass MTH-050.

**BT-105 Computerized Accounting**

3 credits, Spring  
3 class hours/week

Hands-on experience using integrated accounting software. Currently using Quickbooks. Emphasis on performing general ledger, accounts receivable, and accounts payable functions. Also offered as an online course. Prerequisite: Pass BA-211 or pass BT-115.

**BT-115 Introduction to General Accounting/Bookkeeping**

3 credits, Fall/Winter/Spring  
3 class hours/week

Bookkeeping and accounting systems with procedures emphasized. Accounting cycle, general and special journals, subsidiary ledgers, accounting for cash, and end-of-period operations. Also offered as an online course.

**BT-120 Personal Keyboarding [C]**

2 credits, Fall/Winter/Spring  
2 class, 1 lab hour/week

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

**BT-122 Keyboarding Skillbuilding**

2 credits, Fall  
2 class, 1 lab hour/week

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 English I**

3 credits, Fall/Winter  
3 class hours/week

Course builds communication skills through the study of correct usage of grammar, spelling, effective writing and editing principles. Also offered as an online course.

**BT-125 Business English II**

3 credits, Winter  
3 class hours/week

Course follows BT-124 and will continue to build communication skills by studying correct grammar, spelling, punctuation, vocabulary usage, and writing principals. Also offered as an online course. Prerequisite: Pass BT-124, "C" or better.

**BT-129 Medical Transcription I**

3 credits, Spring  
3 class, 2 lab hours/week

Basic foundation in medical transcribing through the use of letters, memos, and reports that are typically encountered in the medical field. Medical terminology, reinforces anatomical knowledge, and challenges the student in the use of English language skills. Prerequisites: Pass MA-110, pass BT-124 & pass BT-160.

**BT-145 Medical Insurance & Billing**

3 credits, Fall  
3 class hours/week

Computer-based record keeping activities in a medical office including scheduling patients and preparing the daily patient list, making entries for patient accounts (receipts and statements), processing accounts payable (check writing, preparing bank deposits, and accounting for daily cash balances), and handling health insurance forms.

**BT-150 Wordperfect for Windows [C]**

3 credits, not offered every year  
3 class, 2 lab hours/week

Use of basic word processing concepts. Internet includes downloading and copying graphics onto documents and email. Meets computer literacy requirement. Prerequisite: Pass BT-120 or instructor consent

**BT-160 MS Word for Windows [C]****3 credits, Fall/Winter/Spring****3 class, 2 lab hours/week**

Create and print a variety of business documents. Formatting skills include changing margins, indenting text, manipulating tabs, super/subscript text, and creating section/page breaks. Enhance documents using special features. Introduction to Internet. Recommended: 35 words per minute typing skill. Meets computer literacy requirement. Also offered as an online course. Prerequisite: Pass BT-120 or instructor consent.

**BT-161 Intermediate Microsoft Word [C]****3 credits, Fall/Winter/Spring****3 class, 2 lab hours/week**

Create, customize, and print a variety of business documents, such as newspaper columns, merging letters and mailing labels, and tables. Formatting and special features. Internet usage includes creating a web page. Recommended: 40 words per minute typing skill. Meets computer literacy requirement. Also offered as an online course. Prerequisite: Pass BT-160.

**BT-170 Access [C]****3 credits, Spring****3 class, 2 lab hours/week**

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. Meets computer literacy requirement. Prerequisite: Pass BT-120 or instructor consent.

**BT-176 Excel for Windows [C]****3 credits, Fall/Winter****3 class, 2 lab hours/week**

Study and application of Microsoft Excel involving spreadsheets, graphics, and database. Business applications include utilizing web queries, adding hyperlink to a worksheet, saving worksheets as HTML files, and object linking and embedding with other applications. Meets computer literacy requirement. Also offered as an online course. Prerequisite: Pass BT-120.

**BT-181 FrontPage****3 credits, not offered every term****33 online hours/term**

Introduction to Microsoft FrontPage. Covers web page development and web site management using FrontPage's comprehensive set of editing and administrative tools. Web page design and editing, web site organization and management and fundamental concepts of the WWW. Prerequisite: Pass BA-131 or pass CS-121.

**BT-183 Introduction to eCommerce****3 credits, Fall/Winter/Spring****3 class hours/week**

Overview of eCommerce including fundamental models for business to business and business to consumer. Topics include defining eCommerce, development of the World Wide Web, eCommerce processes, online retailing, and online customer relations. Also offered as an online course. Recommended: Placement in RD-115.

**BT-184 eBusiness Applications****3 credits, Winter/Spring****3 class hours/week**

This course explores using Internet-based applications for business management, work flow, business rules, customer service, data warehousing, security issues, supply chain management, and collaborative communication. Also offered as an online course. Recommended: Pass BT-183 and placement in RD-115.

**BT-190 Introduction to Business Graphics****3 credits, Spring****3 class hours/week**

Focuses on the effective use of computer-generated graphics to enhance business documents and presentations. Explore appropriate methods for the display of quantitative data and practice basic techniques for creating, importing and exploring computer graphics. Prerequisite: Pass BA-205 or instructor consent.

**BT-191 Document Design & Publishing****3 credits, Spring****3 class hours/week**

Principles of document design and production for effective communication. Appropriate use of type, page layout techniques, integration of text and graphics, style guides and templates, effective use of color, printing options, and production management. Prerequisite: Pass BA-205 or instructor consent.

**BT-220P Desktop Publishing I:****PageMaker****3 credits, Winter****3 class, 1 lab hour/week**

Introduction to electronic page layout and production using Adobe PageMaker. Covers fundamental program functions and techniques for working with text and graphics to create professional-looking business publications. Also offered as an online course. Prerequisite: Pass BA-131, CS-121, or instructor consent.

**BT 220Q Desktop Publishing I: Quark XPress****3 credits, not offered every term****3 class, 1 lab hour/week**

Introduction to electronic page layout and producing using Quark XPress. Covers fundamental program functions and techniques for working with text and graphics to create professional-looking business publications. Prerequisites: Pass BA-131 or pass CS-121 or instructor consent.

**BT-221P Desktop Publishing II:****PageMaker****3 credits, not offered every year****3 class, 1 lab hour/week**

Intermediate electronic page layout and production using Adobe PageMaker. Emphasis on practical applications using advanced program functions and techniques to create more complex business publications. Prerequisite: Pass BT-220P.

**BT-240 Filing & Records Management****3 credits, Spring****3 class hours/week**

Principles and procedures for classifying, storing, retrieving, retaining, and disposing of business records. Includes filing rules, types of filing systems, equipment, supplies, and personnel qualifications. Prerequisite: Pass BT-120 or instructor consent.

**BT-262 Advanced Microsoft Word [C]****3 credits, Spring****3 class, 2 lab hours/week**

Advanced level Microsoft Word uses desktop publishing attributes in creating business forms, outlines, master documents, templates, and specialized tables and indexes. Advanced formatting features and functions. File management. Introduction to machine transcription. Recommended: 45 words per minute typing skill. Meets computer literacy requirement. Prerequisite: Pass BT-161.

**CAD**

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

## Computer-Aided Drafting

See also Drafting (CDT).

### **CAD-141 AutoCAD LT Level I**

2 credits, Fall/Winter/Spring/Summer  
12 week class, self-paced

Distance Learning course. AutoCAD LT user interface, drawing setup parameters, coordinate entry, 2D geometric entities, line types, object snaps, selection sets, display control functions, text creation, 2D editing commands, inquiry commands, layers and basic dimensioning.

### **CAD-142 AutoCAD LT Level II**

2 credits  
Fall/Winter/Spring/Summer  
12 week class, self-paced.

Distance Learning course. Advanced features of AutoCAD LT. Dimensioning techniques/styles. Creating/managing symbols, externally referenced files and block attributes. Multi-view paper space layout, 3D drafting options, customized menus, and Internet utilities. Recommended: CAD-141.

### **CAD-149 Special Projects/CAD**

1-6 credits, not offered every term  
6 class hours/week

Content varies based on student objectives.

### **CAD-151 AutoCAD Level I**

2 credits, Fall/Winter/Spring/Summer  
32 class hours/2 weeks

AutoCAD basics including 2D drawing, editing, drawing setup, creating and saving drawing templates, display commands and functions, layering techniques, arrays, graphical coordinate input for precision drawing, basic file maintenance, and Windows basics. Recommended: Working knowledge of Windows.

### **CAD-152 AutoCAD Level II**

2 credits  
Fall/Winter/Spring/Summer  
32 class hours/2 weeks

Drawing and editing polylines, linetype and layer controls. Basic dimensioning and tolerancing and use of dimension variables, hatching and patterns, and advanced editing functions. Recommended: CAD-151.

### **CAD-153 AutoCAD Level III**

2 credits, Fall/Winter/Spring/Summer  
32 class hours/2 weeks

Advanced AutoCAD features utilizing blocks and attributes; externally referenced data, model space and paper space layouts, viewport layer control, extracting attribute data, inserting Excel worksheets, and isometric drafting techniques. Recommended: CAD-152.

### **CAD-154 AutoCAD 3D**

2 credits, not offered every term  
32 class hours/2 weeks

3D capabilities of AutoCAD including 3D polylines, 3D surface modeling techniques, solid modeling, multiple viewports, and dynamic display of 3D models in perspective. Basic shading and rendering. Recommended: CAD-153

### **CAD-155 AutoCAD Menu Design**

2 credits, not offered every term  
32 class hours/2 weeks

Creation and customization of AutoCAD menus including design and use of button menus, screen menus, pull-down and toolbar menus, and creation of macros. Recommended: CAD-153.

### **CAD-156 AutoLISP I**

2 credits, not offered every term  
32 class hours/2 weeks

Introduction to AutoLISP to create custom command functions. Recommended: CAD-155.

### **CAD-157 AutoLISP II**

2 credits, not offered every term  
32 class hours/2 weeks

Advanced AutoLISP functions to create custom commands. Recommended: CAD-156 or equivalent competency.

### **CAD-170 VBA Programming**

2 credits, not offered every term  
24 class hours/term

Create Object Oriented Programs (OOPs) for AutoCAD using the built in Visual Basic for Applications (VBA) programming language. Create programs that can share information with other Windows programs such as Excel using Active X (COM).

### **CAD-210 Autodesk Architectural Desktop**

2 credits, not offered every term  
24 class hours/term

Explore uses of Architectural Desktop to create a virtual building model. Covers walls, windows, doors, roofs, & stairs according to real world properties. Create model which generates floor plans, elevations, and sections.

### **CAD-251 Autodesk Land Desktop (LDT)**

2 credits, not offered every term  
24 class hours/term

Use LDT to plan and edit sites, as well as create and label survey points, create and edit surfaces and contours, define and label roadway alignments, size and label parcels. Recommended: CAD-153 or AutoCAD experience.

### **CAD-252 Autodesk Land Desktop - Civil Design**

2 credits, not offered every term  
24 class hours/term

Analyze project data, create existing and finished ground profiles, use roadway templates for transportation engineering, site development and grading, perform volumetric calculations, define pipe runs, hydrological site analysis, automate sheet creation. Recommended: CAD-251.

### **CAD-253 Autodesk Land Desktop - Earthworks**

2 credits, not offered every term  
24 class hours/term

Use LDT's extensive grading features to design finished ground surfaces. Review surface editing techniques. Analyze slope and elevation information and calculate volumes. Recommended: CAD-251.

### **CAD-254 ArcView GIS**

1 credit, not offered every term  
16 class hours/term

GIS and CAD as extensions of the data model, incorporating GIS functionality. Models are used for creating topological and spatial database relationships. The models can also be used to exchange information with entities of an AutoCAD drawing database. Course uses the ESRI ArcVIEW software. (Clackamas Community College is an authorized ESRI ArcVIEW Learning Center).

### **CAD-255 Autodesk Map**

1 credit, not offered every term  
16 class hours/term

Digitize maps; import ESRI® and Microstation® files; clean-up maps; share maps across network; manage attribute data; attach databases to maps; build and query topologies; create thematic maps and legends; integrate georeferenced images; and plot map sets. Recommended: CAD-251.

**CAD-261 Autodesk VIZ**

1 credit, not offered every term

16 class hours/term

Fundamentals of Autodesk software are used to create three dimensional worlds. Environmental texture maps, lighting, camera paths, and modifiers on objects. Build and animate simple hierarchies and produce key frame animations. Recommended: CAD-154.

**CAD-270 Introduction to Virtual Reality**

1 credit, not offered every term

16 class hours/term

Information and insight into Virtual Reality, how VR may be used in business or school, and creation of a VR world. Hardware and software needs for VR are discussed along with cost options for both.

**CAD-271 CAD Virtual Reality**

2 credits, not offered every term

32 class hours/term

Use of VR in business or school, creation of a VR world, computer hardware requirements, VR software for your applications, cost, opportunities available in VR today, and the future of VR.

**CAD-293 Solid Works**

2 credits, not offered every term

48 class hours/term

Introduction to parametric solid modeling. Create sketches and build solid models. Create fillets, cuts, chamfers, holes, shells, lofts, and sweeps. Extract 2D documentation from 3D models, and detail the drawings. Build a mechanical assembly.

**CAD-295 Autodesk Inventor**

2 credits, not offered every term

32 class hours/term

Fundamentals of Autodesk Inventor. Covers features necessary to create and edit parts, assemblies, and drawings in 3D solid modeling design format. Covers basic modeling techniques and introduces Inventor's Design Support System. Recommended: Windows 2000 and Excel knowledge.

**CDT**

Courses with this prefix may not transfer with credit to a four-year institution unless otherwise specified.

**Drafting**

See also Computer-Aided Drafting (CAD).

**CDT-101 Drafting Technology Survey**

1-2 credits

Fall/Winter/Spring/Summer

4 class hours/week

Exploration of drafting technology and the companies that hire the drafter. Includes field trips, presentations by employers and former students, and hands-on CAD projects in a variety of drafting disciplines.

**CDT-102 Sketching & Problem Solving**

1-3 credits

Fall/Winter/Spring/Summer

6 class hours/week

Problem solving, freehand sketching, lettering and drafting standards for basic engineering projects. View selection, dimensions, 3rd and 1st angle projection. Machine feature symbols, auxiliary views; basic sectioning. Problem solving in individual and group settings.

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

1-4 credits

Fall/Winter/Spring/Summer

8 class hours/week

Introduction to drafting applications using AutoCAD. Problem solving, teamwork, and project planning. Drawing layout, orthographic multi-view projection, line types, geometric construction, current drafting techniques. Use industry standards for CAD drawing, editing, file management, dimensions and notes.

**CDT-104 Professional Computing Basics [C]**

1-2 credits

Fall/Winter/Spring/Summer

2 class, 2 lab hours/week

Professional computing techniques, knowledge, skills, fundamentals of computing equipment, specifications, terminology, and CAD software, Windows functions and environment. Create and manage network file systems. Internet, E-mail, Web Browsers. Create professional technical documents. Meets computer literacy requirement.

**CDT-105 Computer-Aided Drafting II**

1-4 credits

Fall/Winter/Spring/Summer

8 class hours/week

Create, modify, and manage dimension styles for multiple industry disciplines. Dimensioning with tolerances. Scaled drawing output to plotting device using paper space layouts and viewports. Mechanical drawings, multi-view projection, auxiliary views. Recommended: CDT-103.

**CDT-106 Applied Descriptive Geometry**

1-3 credits, Fall/Winter/Spring

6 class hours/week

Graphical solutions to imaginary and visualization problems. Applies concepts of true length, true shape, and point location, to simplify complex design problems. Recommended: CDT-103 & MTH-050.

**CDT-107 Computer-Aided Drafting III**

1-4 credits

Fall/Winter/Spring/Summer

8 class hours/week

Create and manage symbols, and utilize externally referenced drawings. Attribute definition, editing, and management. Drawing thread representations, fasteners, springs, surface finishes, section views, and welding symbols. Total drawing environment management and editing. Recommended: CDT-105.

**CDT-108 CAD 3D**

1-3 credits

Fall/Winter/Spring/Summer

6 class hours/week

Construct 3D surface and solid models using 3D coordinates, user coordinate systems, and standard editing commands. Create a rendered scene of the 3D model with lighting and shading. Recommended: CDT-103, CDT-104 & CDT-105.

**CDT-108A Introduction to Solid Modeling**

1-3 credits, Fall/Spring

2 class, 4 lab hours/week

Parametric solid modeling. Design 3D parts and assemblies. Implement 2D documentation of 3D parts to industry standards. Build a mechanical assembly. Develop sheet metal flat patterns. Create working kinematical sketches. Recommended: CDT 105 and MTH 80.

**CDT-109 Project Drafting I**

1-5 credits

Fall/Winter/Spring/Summer

10 class hours/week

Create detail and assembly drawings required to describe a mechanical product. Revise drawings and document revisions based on engineering change requests. Emphasizes use of *Machinery's Handbook*, ASME standards, military standards, and vendor information. Recommended: CDT-105 & MTH-080.

**CDT-109A Project Drafting I - CAD/CAM**

1-2 credits

Fall/Winter/Spring/Summer

2 class, 2 lab hours/week

Draw a set of working drawings for a simple product. Use the drawing to manufacture parts of the project in MFG-210. Recommended: CDT-105.

**CDT-110 Kinematics Drafting**

1-3 credits, Fall/Spring

6 class hours/week

Machines and mechanisms. Includes symbols and techniques necessary to graphically solve linkage, cam, belt drive, chain drive, and gearing problems. Recommended: CDT-105, CDT-106, MTH-080.

**CDT-111 Geometric Dimensioning & Tolerancing**

1-3 credits

Fall/Winter/Spring/Summer

6 class hours/week

ASME Y14.5M application. Three-plane theory, interpret terms and symbols of geometric tolerancing: apply form, profile and location tolerances on drawings. Includes print reading. Also offered as Distance Learning course. Recommended: CDT-101, CDT-105, MTH-050.

**CDT-111A Refresher Course/Geometric Dimensioning & Tolerancing Exam**

2 credits, not offered every term

4 class hours/week

Principles of Geometric Dimensioning and Tolerancing as interpreted in the ASME Y 14.5M-1994 standard. Reference to practices as well as modifications to the ANSI Y 14. 5-1982. For inspectors, machinists, drafters, and engineers preparing for the certification exam.

**CDT-120 Student Success**

2 credits, Fall/Winter/Spring

2 class hour/week

Includes methods for problem solving, note-taking, studying, using resources, asking good questions, brainstorming for solutions, and developing procedures for completing drawings and projects. Covers exploration of learning styles, teaching philosophies, and developing an educational plan.

**CDT-201 CAD Menu Design**

1-3 credits

Fall/Winter/Spring/Summer

6 class hours/week

Construction of commands for customized AutoCAD menus including the development of button, screen, toolbar, and digitizer menus. No computer programming. Recommended: CDT-105.

**CDT-202 Architectural Drafting I**

1-4 credits

Fall/Winter/Spring/Summer

8 class hours/week

Methods and drawings required to get a building permit. Creating drawing blocks typically used in compiling a set of plans as well as the drawings of a floor, roof, electrical and foundation plans, elevations, and wall sections. Recommended: CDT-105, MTH-050.

**CDT-203 Sheet Metal Drafting**

1-3 credits, Winter/Spring/Summer

6 class hours/week

Basics of HVAC pattern development, material bending, seams, and intersection of geometric shapes used in the sheet metal fabrication industry. Recommended: CDT-105, CDT-106, MTH-080.

**CDT-204 Civil Drafting**

1-3 credits, Fall/Winter/Spring

6 class hours/week

Location and direction, scales, map symbols, plot plans, legal descriptions, contours, profiles, and highway layouts. Use of surveying equipment to determine elevations. Recommended: CDT-105, MTH-080.

**CDT-206 CAD/CAM Integration**

1-2 credits, Fall/Spring

4 class hours/week

Convert CAD drawings to computer-numerical control (CNC) machine code. Create tool paths and write code for machining mechanical parts. Includes shop demonstrations of machining projects developed using a variety of industry-standard software. Recommended: CDT-105.

**CDT-207 Introduction to AutoLISP**

1-3 credits

Fall/Winter/Spring/Summer

6 class hours/week

Using AutoLISP to create custom command functions. Recommended: CDT-201.

**CDT-208 Schematic Drafting**

1-3 credits

Fall/Winter/Spring/Summer

2 class, 4 lab hours/week

Techniques encountered in industries dealing with electronic/schematic drafting. Assignments include basic block, schematic, logic, highway, point-to-point, Wireless and cable diagrams.

**CDT-209 Structural Drafting I**

1-3 credits

Fall/Winter/Spring/Summer

6 class hours/week

Methods and drawings of commercial drafting. Projects include creating drawing details typically associated with timber, steel, concrete block, and cast in place concrete construction. Using engineering sketches, making revisions and specifying materials using standard reference materials. Prerequisites: CDT-105, CDT-202.

**CDT-210 Industrial Pipe Drafting**

1-3 credits, Fall/Winter/Spring

6 class hours/week

Specialized symbols and techniques common to the process piping industry. Visualization through blueprint reading and drawings of piping plans, elevations and isometrics similar to those found in the pulp, chemical, petroleum, and food industries. Recommended: CDT-105, MTH-050.

**CDT-211 CAD Technical Communication**

1-3 credits, Fall/Spring

6 class hours/week

Explores isometric drawing in AutoCAD. Creation of reports with graphics utilizing a variety of software. Covers operation manuals, use of graphics, tables, and imported images in constructing a formal report. Construct a resume and portfolio. Prerequisites: CDT-107, CDT-108, WR-101.

**CDT-212A Architectural Drafting II**

1-3 credits

Fall/Winter/Spring/Summer

6 class hours/week

Create architectural drawings of single-level residence. Visit new homes, observe common design practices, and assemble photos. Create a floor plan, site plan, roof plan, front elevation, sections, cabinet drawings, and working drawings fully explaining design. Prerequisite- CDT-202, and CDT-108. Co-requisite: CDT-213.

**CDT-212B Architectural Materials**

1-2 credits

Fall/Winter/Spring/Summer

4 class hours/week

Create structural drawings for residence drawn in CDT-212 using western platform construction and engineered lumber. Explore methods of sizing required structural materials for plan using varied methods, complete roof framing, wall framing and foundation plan. Co-requisite: CDT-212A.

**CDT-213 Architectural Drafting III**

1-4 credits

Fall/Winter/Spring/Summer

8 class hours/week

Design and complete a set of plans for a one story structure with a daylight basement constructed using western platform construction methods. Students design all structural members and are introduced to methods used to resist lateral forces. Recommended: CDT-212A.

**CDT-214 Building Codes**

1-2 credits, Fall/Winter/Spring

4 class hours/week

Introduces building codes that govern residential and light commercial construction in the Portland Metropolitan tri-county area. Explore codes as they relate to access, egress, construction methods and ADA requirements.

**CDT-215 Structural Drafting II**

1-4 credits

Fall/Winter/Spring/Summer

8 class hours/week

Complete a partial set of architectural and structural drawings for a concrete block structure. Projects include some design as well as working from engineering sketches and calculations. Recommended: CDT-209.

**CDT-216 Structural Drafting III**

1-4 credits

Fall/Winter/Spring/Summer

8 class hours/week

Complete a partial set of architectural and structural drawings for a tilt-up concrete structure. Project includes some design as well as working from engineering sketches and calculations. Recommended: CDT-209.

**CDT 217 Introduction to Remodeling**

1-4 credits, Fall/Winter/Spring

8 class hours/week

Create residential project consisting of design and drafting of multi-level addition to an existing single-family residence. A commercial addition involves the design and drafting for tenant improvements for the warehouse to be completed in CDT-215. Prerequisite: CDT-212A.

**CDT-219 Architectural Detailing**

1-3 credits, Fall/Winter/Spring

6 class hours/week

Create common details associated with wood frame construction including common single and multi-level framing connections using lumber and engineered materials, lateral connections, and a fireplace section. Visit construction sites to view actual practice and document common terms and connection methods by assembling a display of photos. Prerequisite: CDT-202.

**CDT-220 Modeling & Animation I**

1-3 credits, not offered every term

6 class hours/week

Create objects using animation software. Apply modifiers to change object shape. Texture maps, lighting, and cameras. Storyboarding and complex interactions between elements of the scene. Rendering, animation and postproduction techniques. Recommended: CDT-108 or CAD-154.

**CDT-221 Digital Image Creation**

1-2 credits, not offered every term

4 class hours/week

Use paint programs to create texture maps and digital images. These images are used in a variety of ways to convey content and artistic ability. Scanning of existing images and digital photography is demonstrated. The use of digital paint tools are explored and implemented to create digital images and applied texture maps.

**CDT-222 Modeling & Animation II**

1-3 credits, not offered every term

6 class hours/week

Use animation software for the purpose of creating a short story animation. A complete storyboard is produced and used. Character software is used to make digital characters come to life. The animation is recorded to CD or videotape for use in a portfolio. Recommended: CDT-220.

**CDT-224 Professional Web Design**

1-3 credits, not offered every term

6 class hours/week

Introduction to the design, creation and management of professional web pages. Basic and intermediate HTML document creation, introduction to JAVASCRIPT, use and manipulation of graphic image files, animating web page graphics, HTML forms, image maps and other professional design concepts. Recommended: CDT-104.

**CDT-280 Drafting Technology/CWE**

2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Students keep a bi-weekly employment log and prepare a portfolio including a resume, sample drawings, and recommendations. Required: Instructor consent & a CWE seminar.

**CDT-281 Drafting Technology**

Accelerated Degree/CWE

2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Combines work experience in drafting and design with preparation of an updated resumé and an information interview. Corequisite: CWE-281 for Drafting Technology Accelerated Degree students. Required: Instructor consent.

**CDT-282 Drafting Technology**

Accelerated Degree/CWE

2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Combines work experience in drafting and design with company research and networking, and time management. Corequisite: CWE-282 for Drafting Technology Accelerated Degree students. Required: Instructor consent.

**CDT-283 Drafting Technology  
Accelerated Degree/CWE**  
2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Combines work experience in drafting and design with dealing with angry people, diversity in the work place, and sexual harassment. Corequisite: CWE-283 for Drafting Technology Accelerated Degree students. Required: Instructor consent.

**CDT-284 Drafting Technology  
Accelerated Degree/CWE**  
2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Combines work experience in drafting and design with vertical and horizontal working relationships, the mutual reward theory, ethics in the work environment, age difference, irritation threshold, and leadership goals. Corequisite: CWE-284 for Drafting Technology Accelerated Degree students. Required: Instructor consent.

**CDT-295 Tool Design**

1-3 credits, not offered every term

6 class hours/week

Introduces techniques and resources required to design industrial tools. Covers design of jigs and fixtures, and print reading for tool designers, CAD techniques, purchased components, and clamping work pieces. Term project involving fixture design using AutoCAD. Recommended: CDT-105 or equivalent experience.

**CDT-296 Tool Design II**

1-3 credits, not offered every term

6 class hours/week

Advanced tool design techniques emphasizing the design of tools and fixtures, complex fixturing problems and correct detailing techniques. Complete tool design projects using AutoCAD. Recommended: CDT-295.

**CH**

**Chemistry**

**CH-104 Introductory Chemistry**

5 credits, Fall/Winter/Spring/Summer

7 class-lab hours/week

Transfer sequence for students in nursing, allied health fields, and liberal arts. Similar to CH-121 but with emphasis on health related fields. Observation, measurement, composition, stoichiometry, atomic structure, periodic table, bonding, and nomenclature. CH-104/105/106 meets science sequence requirement for the AAOT degree. Also offered as an online + lab course. Prerequisite: Pass MTH-065.

**CH-105 Introductory Chemistry**

5 credits, Winter/Spring/Summer

7 class-lab hours/week

Heat; molecular and ionic interactions in solids, liquids, gases, and solutions (particularly in living systems); chemical reactions including acid-base, electron transfer, and equilibrium. CH-104/105/106 meets the science sequence requirement for the AAOT. Also offered as an online + lab course. Prerequisite: Pass CH-104.

**CH-106 Introductory Chemistry**

5 credits, Spring/Summer

7 class-lab hours/week

Organic and biochemistry. CH-104/105/106 meets the science sequence requirement for the AAOT degree. Also offered as an online + lab course. Prerequisite: Pass CH-105.

**CH-121 Introductory College Chemistry**

5 credits, Fall/Winter/Spring/Summer

7 class-lab hours/week

Observation, measurement, composition, stoichiometry, atomic structure, and periodic table. Transfer sequence designed for non-science majors. CH-121/122/123 meets science sequence requirement for the AAOT degree. Prerequisite: Pass MTH-065.

**CH-122 Introductory College Chemistry**

5 credits, Winter/Spring/Summer

7 class-lab hours/week

Heat; molecular interactions in solids, liquids, gases, and solutions; chemical reactions including acid-base oxidation-reduction and equilibrium. CH-121/122/123 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass CH-121.

**CH-123 Introductory College Chemistry**

5 credits, Spring/Summer

7 class-lab hours/week

Organic, biological, consumer, environmental, and nuclear chemistry. CH-121/122/123 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass CH-122.

**CH-150 Preparation for Chemistry**

4 credits, Fall

4 class hours/week

One term preparatory course for students who must take the general chemistry sequence (CH-221/222/223) but have no chemistry background. Corequisite: MTH-095.

**CH-221 General Chemistry**

5 credits, Fall/Winter

4 class, 3 lab hours/week

Transfer course in chemistry 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. CH-221/222/223 meets the science sequence requirement for the AAOT degree. Prerequisites: A year of high school chemistry or pass CH-150 or pass CH-104 & CH-105; & pass MTH-095.

**CH-222 General Chemistry**

5 credits, Winter/Spring

4 class, 3 lab hours/week

Reactions, stoichiometry, thermodynamics, organic compounds and polymers, kinetics, and equilibrium. Topics involving organic chemistry and biochemistry are introduced. CH-221/222/223 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass CH-221.

**CH-223 General Chemistry**

5 credits, Spring/Summer

4 class, 3 lab hours/week

States of matter, solutions, acids and bases, electrochemistry, nuclear chemistry, and spectroscopy. Topics involving organic chemistry and biochemistry are introduced. CH-221/222/223 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass CH-222.

**CH-241 Organic Chemistry**

4 credits, Fall

3 class, 3 lab hours/week

First term of a transfer sequence meeting the organic chemistry requirement for premedical, dental, veterinary, pharmacy, chiropractic medicine, chemical engineering, and biology majors. CH-241/242/243 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass CH-223.

**CH-242 Organic Chemistry**

4 credits, Winter

3 class, 3 lab hours/week

Second term of a transfer sequence meeting organic chemistry requirement for premedical, dental, veterinary, pharmacy, chiropractic medicine, chemical engineering, and biology majors. CH-241/242/243 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass CH-241.

**CH-243 Organic Chemistry**

4 credits, Spring

3 class, 3 lab hours/week

Third term of a transfer sequence meeting organic chemistry requirement for premedical, dental, veterinary, pharmacy, chiropractic medicine, chemical engineering, and biology majors. CH-241/242/243 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass CH-242.

**CIV**

Courses with this prefix may 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

1 class, 2 lab hours/week

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

3 class hours/week

Discusses the nature and control of crime and delinquency. Examines criminal behaviors, legal aspects of crime control and treatment processes. Socio-psychological study of crime from the criminal point of view. May be offered online.

**CJA-110 Introduction to Law Enforcement**

3 credits, Fall

3 class hours/week

Explores theories, philosophies, concepts of U.S. criminal justice administration. Examines past, present, future operations of criminal justice including unique vocabulary used within the system. Studies interrelated components of the U.S. criminal justice system. May be offered online.

**CJA-112 Patrol Procedures**

3 credits, Fall

3 class hours/week

Describes the nature and purpose of patrol activities for the law enforcement officer. Includes routine and emergency procedures and types of patrols.

**CJA-120 Judicial Process**

3 credits, Winter

3 class hours/week

Studies the judicial and social processes from arrest through appeal including jurisdiction of state and federal courts. May be offered online.

**CJA-122 Criminal Law**

3 credits, Fall

3 class hours/week

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

**CJA-130 Introduction to Corrections**

3 credits, Fall/Winter

3 class hours/week

Examines the history, organization, and development of correctional institutions. Includes detention facilities and treatment processes such as sentencing, incarceration, probation and parole. May be offered online.

**CJA-132 Parole & Probation**

3 credits, Fall

3 class hours/week

Examines principles and techniques used in parole and probation and presents a critical analysis of each in the administration of criminal justice. Discusses both the parole/probation system and a determinate system of sentencing. May be offered online.

**CJA-134 Correctional Institutions**

3 credits, Winter

3 class hours/week

Analyzes prisons, jail and other correctional institutions. Discusses punishment history/rationale. Identifies functions of custodial staff and describes institutional procedures: reception, classification, program assignment, release. Studies prisons management system and examines juvenile facilities. May be offered as an online course.

**CJA-135 Unarmed Private Security**

0 credit

Fall/winter/Spring/Summer

12 class hours/term

Provides the training required by Dept on Public Safety Standards & Training (DPSST) for certification as unarmed private security officer in Oregon. Includes department, ethics, legal powers and limitations; fire detection, reporting and safety procedures. May not be offered every term.

**CJA-136 Unarmed Private Security**

Refresher

0 credit, Fall/Winter/Spring/Summer

Provides training required by DPSST for recertification as unarmed private security officer in Oregon. Includes department, ethics, legal powers and limitations; fire detection, reporting and safety procedures. Recertification is required annually to meet DPSST standards. May not be offered every term.

**CJA-137 Mass Murders/Serial Killers**

3 credits, not offered every term

3 class hours/week

Exploration into mass murders and serial killings, and impact each has on society and individual victims. Examine issues of causation and social environmental linkage of recent and notorious cases and the mind set of the offenders.

**CJA-200 Community Relations & Policing**  
3 credits, Fall  
3 class hours/week

Examines the interrelationships and role expectations of agencies and public policy. Explores racial and community tension, minority group crime, social forces, community policing and police image. May be offered as an online course.

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

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

**CJA-203 Crisis Intervention**  
3 credits, Spring  
3 class hours/week

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  
3 class hours/week

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  
3 class hours/week

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  
3 class hours/week

As the third and final part of the Criminal Investigation series, this course allows for practical application of techniques described in CJA-210 & CJA-211 Criminal Investigation I & II. Course will include investigative techniques from a practical aspect, with some "hands-on" experimentation, including fingerprinting, photography, diagramming, and reconstruction. Prerequisite: CJA-211.

**CJA-213 Interview & Interrogation**  
3 credits, Winter  
3 class hours/week

Examines the dynamics of psychology in criminal interrogation and legal limitations. Includes observing and interpreting behavior, the use of structured questions to determine truthfulness.

**CJA-220 Substantive Law**  
3 credits, Winter  
3 class hours/week

Historical development, philosophy of law and constitutional provisions, defining and classification of crime, application to the system of 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  
3 class hours/week

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-230 Juvenile Corrections**  
3 credits, Spring  
3 class hours/week

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

**CJA-232 Corrections Casework**  
3 credits, Fall  
3 class hours/week

Describes interviewing and counseling techniques used by corrections officers in one-to-one contacts with clients. Stresses positive relationships and behavior modification related to the reintegration process.

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

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

**CJA-243 Narcotics & Dangerous Drugs**  
3 credits, Winter  
3 class hours/week

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/Summer

1.5 class hours, 6-18 lab hours/week  
Identifies employment opportunities in the criminal justice or corrections systems. Students must be enrolled full-time in the criminal justice or corrections program. Required: CWE online seminar. Required: Course-associated practicum.

**CJA-281 Criminal Justice/Corrections/CWE**  
2-6 credits

Fall/Winter/Spring/Summer

1.5 class hours, 6-18 lab hours/week  
Identifies employment opportunities in the criminal justice or corrections systems. Students must be enrolled full-time in the criminal justice or corrections program. Required: CWE online seminar. Required: Course-associated practicum.

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**CLA**

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

## ***Clinical Laboratory Assistant***

**CLA-100 Introduction to Health Care**  
2 credits, Fall  
2 class hours/week

Introduction for students entering into a variety of college-level healthcare programs. Healthcare systems and trends, ethical and legal responsibilities, personal and workplace safety, infection control, professionalism, life-long learning, and communication will be addressed.

**CLA-101 Clinical Laboratory Assistant Skills I**  
4 credits, Fall

3 class hours, 3 lab hours/week  
Presents the student with a general overview of a clinical laboratory, including state and federal regulations, quality assurance practices, laboratory terminology, staffing, and a basic understanding of quality laboratory testing. Restricted to Clinical Laboratory Assistant students. Corequisite: BI-055.

**CLA-102 Clinical Laboratory Assistant Skills II****4 credits, Winter****3 class hours, 3 lab hours/week**

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. Restricted to Clinical Laboratory Assistant students. Prerequisite: Pass CLA-101.

**CLA-103 Clinical Laboratory Assistant Skills III****4 credits, Spring****3 class hours, 3 lab hours/week**

Continuation of CLA-102. Focuses on clinical chemistry, immunology, and microbiology. Restricted to Clinical Laboratory Assistant students. Prerequisite: Pass CLA-102.

**CLA-115 Laboratory Administrative Skills 2 credits****2 class hours/week**

Designed for the Clinical Laboratory Assistant students employed in the ambulatory care setting. Laboratory billing issues, administrative duties, vital signs, and EKG techniques will be discussed.

**CLA-119 Phlebotomy/Laboratory Practicum I****2 credits, Winter****6 class, 66 clinical hours/term**

Supervised assignment to area medical center laboratories to gain practical experience. May not be challenged. Restricted to Clinical Laboratory Assistant students who have completed the first term requirements.

**CLA-120 Phlebotomy/Laboratory Practicum II****4 credits, Spring****2 class, 8 clinical hours/week**

Supervised assignment to the ambulatory care centers to gain practical experience. May not be challenged. Restricted to Clinical Laboratory Assistant students who have completed the first and second term requirements.

**CPL****Credit for Prior Learning****CPL-120 Credit for Prior Learning****3 credits, Fall/Winter/Spring/Summer****3 class hours/week**

Students are guided through the process of requesting college credit for learning acquired through work experience, volunteer work, industry training, etc. Develop a portfolio correlating non-traditional learning experiences with related courses at Clackamas Community College and also prepare a resumé for credit. Prerequisite: college placement tests. Required: Instructor consent.

**CS****Computer Science****CS-090 Computers for New Users****2 credits, Fall/Winter/Spring/Summer****20 class hours/5 weeks****or 20 class hours/10 weeks**

For those with no computer experience. Includes using a keyboard and mouse, making commands in Windows programs, using computer programs to accomplish a task, use of a word processor, e-mail and the Internet. Takes place in the computer lab, one student to a computer.

**CS-091 Computers for New Users II [C]****2 credits, Fall/Winter/Spring/Summer****20 class hours/5 weeks****or 20 class hours/10 weeks**

Follow-up of CS-090. More work with applications, including word processing, spreadsheet, and web searches. Windows file management. Takes place in the computer lab, one student to a computer. Meets computer literacy requirement. Prerequisite: Pass CS-090 or equivalent experience.

**CS-092S Computers for New Users, Spanish****3 credits, not offered every term****3 class hours/week**

Este es un curso en Español. Para aquellas personas sin experiencia alguna en computación. Incluye el uso del ratón, la administración de archivos en programas de Windows, la creación de una hoja de trabajo, cómo enviar y recibir e-mail, y cómo navegar en el Internet. Taught in Spanish. Requires no computer experience. Includes using a keyboard and mouse, introduction to Windows, managing files in Windows programs, using Office 2000 applications, e-mail and using 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****3 class hours/week**

Clase en español para aquellos que ya tomaron la clase CS 092S. Crear, modificar, dar formato e imprimir una hoja de cálculo sencilla, tablas, consultas, formularios e informes en Access y presentaciones en PowerPoint. Taught in Spanish. For those who have taken CS-092S. Create, modify, format and print simple worksheets in Excel, tables, queries and reports in Access and basic presentations in PowerPoint. Prerequisite: Pass CS-092S.

**CS-120 Survey of Computing [C]****4 credits, Fall/Winter/Spring/Summer****4 class hours/week**

Survey course to familiarize students with computers. Computer terminology, how a computer works, the computer's effect on society. Word processing, spreadsheet, database management, graphics, e-mail, Internet, Windows, presentation graphics, and file management. Meets computer literacy requirement. Also offered as an online course. Prerequisites: Pass CS-090 or equivalent experience & pass WR-095.

**CS-121 Computer Applications [C]****3 credits, Fall/Winter/Spring/Summer****3 class hours/week**

Continuation of CS-120. Hands-on approach to word processing, database management, electronic spreadsheets and graphics. Uses Word, Excel, and Access. Meets computer literacy requirement. Also offered as an online course. Prerequisites: Pass CS-120 & pass MTH-060.

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

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Hands-on approach to planning, design, development, and maintenance of Internet web sites and Web pages using HTML and/or automated tools. Also offered as an online course. Recommended: Pass CS-121.

**CS-133F FORTRAN**

2 credits, not offered every term  
2 class hours/week

Introduction to numerical problem solving using FORTRAN. Prerequisites: Pass CS-120; pass MTH-111 or 4 years high school math.

**CS-133S Web Application Development I**

3 credits, Fall  
3 class hours/week

Introduces the design, programming and testing of scripted web pages and server submittal. Fundamental concepts of smart interactive web pages, simple program control statements (sequence, conditional statements, repetition), variables, scope, arrays, sub procedures, functions, debugging. Also offered as an online course. Prerequisites: Pass CS-125H; pass MTH-065 or pass MTH-092.

**CS-133VB Visual Basic I**

3 credits, Fall/Winter/Spring  
3 class hours/week

Hands-on approach to software design and development using a structured, component-based programming language with an object-oriented, event driven approach. Planning an application, building user interfaces, using variables and constants, making decisions, functions, multiple forms. Prerequisites: Pass BA-131 or CS-121; pass MTH-065 or pass MTH-092.

**CS-135DB Advanced Database**

3 credits, Fall/Spring  
3 class hours/week

Design, construction, and documentation of database management systems using Access. Designing reports, customizing forms, advanced form techniques, OLE fields, changing and customizing tables, creating and using macros, creating and using an application system. Also offered as an online course. Recommended: Pass CS-121 & pass MTH-065.

**CS-135I Advanced Internet Applications**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Plan and publish professional web sites by exploring a variety of software tools. Utilize existing scripts, audio, video, graphics and other emerging technologies. Includes extensive use of the Internet. Also offered as an online course. Prerequisite: Pass CS-125H.

**CS-135S Advanced Spreadsheet**

3 credits, Fall/Spring  
3 class hours/week

Design, construction, and documentation of advanced spreadsheets using Excel. Templates, multiple worksheets, complex formulas, advanced chart features, Visual Basic macros, sorting, database capabilities. Also offered as an online course. Recommended: Pass CS-121 & pass MTH-065.

**CS-135W Advanced Word Processing**

3 credits, Winter/Summer  
3 class hours/week

Advanced word processing features using Word. Tables, merging form letters and data source files, desktop publishing, large document capabilities including master documents and indexes, and linking and embedding objects in a document. Also offered as an online course. Recommended: Pass CS-121.

**CS-140D Operating Systems I: DOS**

3 credits, Winter  
3 class hours/week

This class is an in-depth study of the Disk Operating System (DOS) commands and their syntax. Use a computer system to execute problem-solving exercises using DOS commands, strong emphasis on batch files. DOS networking is introduced. Also offered as an online course. Prerequisites: Pass CS-140W & pass MTH-065.

**CS-140U Operating Systems I: Linux/Unix**

3 credits, Fall  
3 class hours/week

Computer operating systems concepts using Linux/Unix. General operating system concepts, file management, process management, network utilities, text editing, shell environment configuration, shell script programming. Also offered as an online course. Prerequisite: Pass CS-140W.

**CS-140W Operating Systems I: Windows**

4 credits, Fall/Spring  
4 class hours/week

Introduction to the theory behind operating systems as well as basic functions of Windows, UNIX, and Macintosh operating systems. Discussion of operating system interface with input, output, and storage devices and basic network theory. Prerequisite: Pass CS-120, pass MTH-065 & pass WR-095.

**CS-160 Computer Technician Orientation**

2 credits, Fall/Spring  
2 class hours/week

Introduction to computing topics such as problem solving, algorithms, operating systems, programming, and computer architecture. Also covers careers in Information Technology, and techniques for securing employment. Prerequisites: Pass CS-120 & pass WR-095.

**CS-161 Computer Science I [C]**

4 credits, Fall  
4 class hours/week

Disciplined approach to algorithm development, problem-solving methods, program design, data types, control structures, subprograms. Uses C++. Meets computer literacy requirement. Prerequisites: Pass CS-120; pass MTH-111 or 4 years high school math.

**CS-162 Computer Science II**

4 credits, Winter  
4 class hours/week

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

**CS-178 Introduction to the Internet/World Wide Web**

3 credits, Winter  
33 online hours/term

Distance Learning: Online. Introductory course on the use and history of the Internet. Explore the philosophy of the Internet, use tools for research, communication, and entertainment. Develop and publish a simple web page. Recommended: Pass CS-091 or pass CS-120.

**CS-178E Internet Applications for Educators**

1 credit, not offered every term  
12 class hours/term

A look at the Internet and its implications for educators. Using the Internet in the classroom to find current information, online resources for lesson plans, web-based projects, and interactive content that engages all types of learners. Prerequisite: Computer experience.

**CS-179 Data Communications Concepts**

3 credits, Winter/Summer  
3 class hours/week

Overview of the basic concepts in computer telecommunications. Hardware, software, connectivity and protocols involved including local area networks, wide area networks, Internet and the convergence of computer, telephone, TV, and cable technologies. Also offered as an online course. Prerequisites: Pass CS-120, pass MTH-092 & pass WR-095.

**CS-195 Website Technologies I**

3 credits, not offered every term  
3 class hours/week

Working with and exploring emerging technologies on the web today. Includes web graphics, multimedia, streaming video, streaming audio, defining your web presence and web voice. Scanning techniques, digital imaging and manipulation. Also offered as an online course. Prerequisite: Pass CS-135I.

**CS-225 Computer End User Support**

3 credits, Fall  
3 class, 1 lab hour/week

Addresses professional and interpersonal skills needed by technicians who support and manage hardware and software information systems. Customer service, troubleshooting, help desk operation; product needs analysis, evaluation, purchases, and installation; technical documentation and training skills. Prerequisite Pass CS-120 & pass WR-095.

**CS-227 PC Hardware & Repair I**

4 credits, Summer/Winter  
6 class-lab hours/week

Basic operational concepts, identification, installation, and configuration of microprocessors, memory, mother-boards, power supplies, floppy and hard disks, video monitors, graphics cards, serial and parallel cards, modems, printers. System teardown and inspection, hardware and software service documentation. Prerequisites: Pass CS-140W & pass MTH-065.

**CS-228 PC Hardware & Repair II**

4 credits, Fall/Spring  
6 class-lab hours/week

Continuation of CS-227. Emphasizes the use of diagnostic software tools and troubleshooting advanced problems. Technical topics on sound cards, CD-ROM, hard drives, data recovery, SCSI, and other topics. Includes building, maintaining and upgrading a PC. Prerequisite: Pass CS-227.

**CS-229 Network System Repair & Troubleshooting**

4 credits, Fall/Winter  
6 class-lab hours/week

Continuation of CS-228. Hands-on training in building and servicing PC LANs and WANs. Includes network servers, hubs, routers, wiring closets, cabling, and other topics for peer-to-peer and client-server LANs, WANs, and the Internet. Prerequisite: Pass CS-228.

**CS-233S Web Application Development II**

3 credits, Winter  
3 class hours/week

Emphasis on understanding concepts and techniques, practicing with a variety of client and server scripting tools. Client JavaScript and server Active Server Pages with VBScript, Java Server Pages and Servlets, cgi with Perl, and XML. Also offered as an online course. Prerequisite: Pass CS-133S, or pass CS-125H & pass CS-133VB, or pass CS-125H & CS-161.

**CS-233VB Visual Basic II**

3 credits, Fall/Winter  
3 class hours/week

Continuation of CS-133VB. List boxes, combo boxes, printing, string manipulation, looping, arrays, object-oriented programming, file handling (sequential files, random access files, database files). Prerequisite: Pass CS-133VB.

**CS-234S Web Application Development III**

3 credits, Spring  
3 class hours/week

Continuation of CS-233S. Administering a web site from both the client side and server side. Designing, developing, and implementing a web site, providing database connection to a website, uploading to and maintaining a web server. Also offered as an online course. Prerequisite: Pass CS-233S.

**CS-234VB Visual Basic III**

3 credits, Spring  
3 class hours/week

Continuation of CS-233VB. Topics include basic SQL (Select, Insert, Update, Delete), ADO programmatic recordsets, ActiveX controls, OOP, and Component Object Model (COM) programming. Prerequisite: Pass CS-233VB.

**CS-235 Visual Basic for Applications**

3 credits, Spring  
3 class hours/week

Using Visual Basic for Applications to develop advanced application features for MS Word, Excel, Access and PowerPoint. Topics will cover VB editor, objects properties, variables, repeating statements, debugging codes and integrating applications with VBA. Prerequisite: Pass CS-121 or pass BA-131.

**CS-240U Operating Systems II: Linux/Unix**

3 credits, Winter  
3 class, 1 lab hour/week

Hands-on system administration of Linux/Unix. Installation, system configuration, X Windows system configuration, user and group account management, disk formatting and partitioning, local file systems, system startup and shutdown, run levels, backup and restore, printers and printing, serial and parallel ports and devices, basic local area networking, memory management. Prerequisite: Pass CS-140U.

**CS-240W Operating Systems II: Windows**

3 credits, Winter/Summer  
3 class, 1 lab hour/week

Introduces the major functions and features of Windows Professional. Includes installation, file system profiles and policies, security, protocols, internetworking, remote access, printing, and troubleshooting. Focuses on Windows as a client operating system. Prerequisite: Pass CS-140W.

**CS-244 Systems Analysis**

3 credits, Winter/Summer  
3 class hours/week

Overview of the Systems Development Life Cycle emphasizing analytical techniques to develop the correct definition of business problems and project management techniques. Students will prepare a feasibility assessment and develop system requirements for a project. Also offered as an online course. Prerequisite: Pass CS-135DB.

**CS-260 Data Structures**

4 credits, Spring  
4 class hours/week

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 Programming**

4 credits, Spring  
4 class hours/week

Covers the analysis, specification, design and implementation of database applications using a PC based database language. User interface design, client server, and an introduction to SQL. Prerequisites: Pass CS-233VB & pass CS-135DB.

**CS-279N LAN I: Novell Administration**

4 credits, Winter  
6 class-lab hours/week

Hands-on, in-depth look at Novell software with an emphasis on system administration. Topology, protocols, cable types. Design, configuration, security issues, performance issues, trouble shooting of the Novell network operating system. Prerequisites: Pass CS-140W & pass CS-179.

**CS-279W LAN I: Windows Server Administration**

4 credits, Fall/Spring  
6 class-lab hours/week

Installation, configuring, and administering Windows 2000 Server. Topics include security, performance enhancement, user management, printer installation and management. Prerequisite: Pass CS-240W & pass CS-179.

**CS-280 Computer Science/CWE**

3-6 credits  
Fall/Winter/Spring/Summer  
1.5 class, 9-18 job site hours/week

Cooperative work experience. Provides a supervised work experience to supplement the school experience from the academic classroom environment. User support, work with computer applications or programming languages, install or manage PC computer systems, and website development. Required: Instructor consent & a CWE seminar. Prerequisites: Pass CS-121, pass CS-140W & pass CS-160.

**CS-287X Microsoft Exchange Server**

3 credits, Winter  
3 class, 1 lab hour/week

An introduction to installation, administering and troubleshooting Exchange Server. Topics will include internet mail protocols, Exchange Server architecture, installation, management, and Exchange Server security. Prerequisite: Pass CS-279W or Network Administration experience.

**CS-288N LAN II: Novell WAN**

4 credits, not offered every term  
6 class-lab hours/week

Issues involved with interconnecting multiple LANs to form an internetwork using Novell Netware. Network protocols (TCP/IP, etc.), bridges, routers, connections to the Internet, web servers. Hands-on experience with hardware and software. Prerequisite: Pass CS-279N.

**CS-288U Linux/Unix Internetworking**

3 credits, Spring  
3 class, 1 lab hour/week

Advanced system administration of Linux/Unix systems, with a focus on internetworking, interoperating, connection to the Internet, creating a dial-up access system, tools specific to Linux in a networked environment. Emphasizes connectivity to Novell and Microsoft networks. Prerequisite: Pass CS-240U.

**CS-288W LAN II: Windows WAN**

4 credits, not offered every term  
6 class-lab hours/week

Issues involved with interconnecting multiple LANs to form an internetwork using Windows. Network protocols (TCP/IP, etc.), bridges, routers, connections to the Internet, web servers. Hands-on experience with hardware and software. Prerequisite: Pass CS-279W.

**CS-289I Web Server Administration: Internet Information**

3 credits, Spring  
3 class, 1 lab hour/week

An introduction to Microsoft Internet Information Server (IIS) running on Windows 2000 Server. Covers installation, administering, security and troubleshooting IIS 5.0. Additional topics include http, https, ftp protocols and FrontPage extensions. Prerequisite: Pass CS-279W or network administration experience.

**CS-295 Website Technologies II**

3 credits, not offered every term  
3 class hours/week

Continuation of CS-195, culminating in a portfolio. Students submit a project proposal to be admitted. Project involves web design, client side/server side applications incorporated into the project, demonstrating use of digital imaging, streaming media, multimedia concepts. Prerequisites: Pass CS-195 or instructor consent.

**CS-295E FrontPage & Web Design for Educators**

1 credit, not offered every term  
12 class hours/term

Provides the educator with a hands-on opportunity to design and develop web pages using FrontPage, a web page editor. Each student will complete and present an individual web site. Takes place in the computer lab, one student to a computer. Prerequisite: Internet experience.

**CW**

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

## Computer Science Workshops & Short Courses

**CW-050 Introduction to Computers/Windows**

Fall/Winter/Spring/Summer  
12 class hours

A nuts-and-bolts workshop for those who have little or no experience with computers. It (or equivalent experience) serves as a prerequisite for most other workshops.

**CW-052 Electronic Spreadsheets**

Fall/Winter/Spring/Summer  
12 class hours

Includes Levels I, II, III, and IV of MS-Excel.

**CW-053 Internet**

Fall/Winter/Spring/Summer  
12 class hours

Workshops offered include Dreamweaver Internet Fundamentals, FrontPage Levels I & II, and Web Design I & II.

**CW-054 Word Processing**

Fall/Winter/Spring/Summer  
12 class hours

Workshops include Levels I, II, and III of MS-Word.

**CW-055 Software Applications**

Fall/Winter/Spring/Summer

9 class hours

Workshops include MS-Powerpoint.

**CW-056 Database Applications**

Fall/Winter/Spring/Summer

12 class hours

Workshops offered include Levels I, II, and III of MS-Access.

**CWE****Cooperative Work Experience****CWE-010 Pre-Cooperative Work Experience**

2-6 credits

Fall/Winter/Spring/Summer

6-18 lab hours/week

For students who are undecided on a major. Opportunity for career exploration.

**CWE-281 Cooperative Work Experience Seminar I**

Fall/Winter/Spring/Summer

1.5 class hours/week

Prepares students for career success. Uses on-the-job learning experience and case studies to stimulate decision making and discussion. Corequisite for program specific CWE courses.

**CWE-282 Cooperative Work Experience Seminar II**

Fall/Winter/Spring/Summer

1.5 class hours/week

Emphasis on job-related situations and experiences. Case problems introduced to stimulate decision making and discussion. Special projects. Prerequisite: CWE-281. Corequisite for program specific CWE courses.

**CWE-283 Cooperative Work Experience Seminar III**

Fall/Winter/Spring/Summer

1.5 class hours/week

Includes organizing and presenting a career related project to the seminar group. Prerequisite: CWE-282. Corequisite for program specific CWE courses.

**CWE-284 Cooperative Work Experience Seminar IV**

Fall/Winter/Spring/Summer

1.5 class hours/week

Applicable in a limited number of programs. Corequisite for program specific CWE courses.

**Professional/Technical Cooperative Work Experience Classes:**

BA-280 Accounting  
 BA-280 Accounting Clerk  
 AM-280/281 Auto Mechanics  
 BA-280 Business Technology  
 BC-180/280 Building  
 Construction

AB-280 Collision Repair  
 ABR-180 Collision Repair Refinishing  
 CS-280 Computer Science  
 CJA-280/281 Criminal Justice  
 Corrections/Juvenile Corrections

CDT-280 Drafting  
 ECE-280 Early Childhood Ed.  
 EST-180 Employment Skills Training  
 ED-280 Environmental Ed.  
 HS-280 Gerontology  
 HE-280 Health  
 HOR-280/281/282 Horticulture  
 HS-280 Human Services

ED-280 Generalist  
 ED-280 Instructional Assistant  
 MFG-280 Manufacturing  
 BA-280 Marketing  
 BA-280 Office Assistant  
 OST-180 Occupational Skills Training  
 ED-280 Tutor

**Transfer Program Cooperative Work Experience Classes:**

ANT-280 Anthropology  
 ART-280 Art  
 BA-280 Business Administration  
 BI-280 Biology  
 CJA-280/281 Criminal Justice/Corrections

ED-280 Education  
 ENG-280 English  
 G-280 Geology  
 GEO-280 Geography  
 HE-280 Health  
 HST-280 History  
 J-280 Journalism/Public Relations

MTH-280 Mathematics  
 MUS-280 Music  
 PE-280 Physical Education  
 PH-280 Physics  
 PS-280 Political Science  
 PSY-280 Psychology  
 R-280 Religion  
 SOC-280 Sociology  
 SP-280 Speech  
 SPN-280 Spanish  
 TA-280 Theatre Arts

**EC****Economics****EC-115 Introduction to Basic Economics**

3 credits, not offered every year

3 class hours/week

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: Placement in RD-115.

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

4 credits, Fall/Winter/Spring

4 class hours/week

Focuses on micro-economic theory dealing with the behavior of individuals and individual firms. Covers concepts of competition, consumer decisions, the use price of economic resources, and international trade. EC-201/EC-202 meets the Social Science Sequence requirement for the AAOT degree. Also offered as a telecourse. Recommended: Placement in RD-115.

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

4 credits, Fall/Winter/Spring

4 class hours/week

Introduction to economic theory, policy, and institutions. Focuses on macro-economic theory, scarcity, production, money, unemployment, inflation, and international finance. EC-201/EC-202 meets the Social Science Sequence requirement for the AAOT degree. Also offered as a telecourse. Recommended: Placement in RD-115.

**EC-215 American Economic History**

3 credits, not offered every year

3 class hours/week

Studies the historical development of economic institutions in the United States. Includes industry, agriculture, transportation, labor and financial institutions. EC-215/216/230 meets the social science requirement for the AAOT degree. Also offered as HST-205. Recommended: Placement in RD-115.

**EC-216 Introduction to Labor Economics**  
3 credits, not offered every year  
3 class hours/week

Introduces the theory and policy of labor power economics. Explores the history of workers in America as they have been affected by political transitions, labor organizations and conflict with management. EC-215/216/230 meets the Social Science Sequence requirement for the AAOT degree. Also offered as HST-204. Recommended: Placement in RD-115.

**EC-230 International Economics**  
3 credits, not offered every year  
3 class hours/week

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. EC-215/216/230 meets the Social Science Sequence requirement for the AAOT degree. Also offered as HST-206. Recommended: Placement in RD-115.

**ECE**

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

**Early Childhood Education**

**ECE-150 Introduction & Observation in Early Childhood Education**  
3 credits, Fall  
3 class hours/week

Focuses on the history of early childhood education, the value & use of objective observations as a teaching tool, how to plan & adapt your program's goals/objectives for each individual child/family. Includes systematic, weekly observations of children.

**ECE-154 Children's Language & Literacy**  
3 credits, Winter  
3 class hours/week

An overview of children's literature including availability, purpose, ways to improve its use, and appropriateness in school situations. Children's books will be read and evaluated in story groups.

**ECE-175 Infant/Toddler Caregiving**  
1 credit, Fall/Winter/Spring  
12 class hours/term

Presents skills and knowledge to manage quality care in group settings. Four modules: 1. Learning & Development; 2. Group Care; 3. Social Emotional Growth; 4. Family & Provider Relationships.

**ECE-209 Theory & Practicum**  
3 credits, Winter  
3 class hours/week

Develops leadership potential through classroom discussion/field experience at the CCC on-site child care center. Students will gain experience and become oriented to various roles and responsibilities of the early childhood care and education practitioner; work with young children in an organized setting; assist with supervision of observation/assessment and guidance techniques.

**ECE-239 Helping Children & Families Cope with Stress**  
3 credits, Spring  
3 class hours/week

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  
3 class hours/week

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  
1.5 class hours/week, 9 service hours/week

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/care giver while working with young children in an organized setting, observation/assessment and curriculum development.

**ED**

**Education**

**ED-110 Psychology of Learning**  
3 credits, Spring  
33 class hours/term

Applies theories of behavior, motivation, and human development to classroom practice and teaching/tutoring techniques. Required: Program coordinator consent.

**ED-120 Leadership Development I**  
3 credits, Fall  
3 class hours/week

First of a three-term sequence designed to develop leadership skills. Explores classical and modern theories with practical applications. Develop a personal leadership philosophy; conceive and articulate a vision; lead with goals; use logic and creativity in decision making. May be taken in any sequence. Recommended: Placement in RD-115, WR-121.

**ED-121 Leadership Development II**  
3 credits, Winter  
3 class hours/week

Second of a three-term sequence designed to develop leadership skills. Explores classical and modern theories with practical applications. Continuing development of a personal leadership philosophy; time management; conducting effective meetings; empowering and delegating. May be taken in any sequence. Recommended: Placement in RD-115, WR-121.

**ED-122 Leadership Development III**  
3 credits, Spring  
3 class hours/week

Third of a three-term sequence designed to develop leadership skills. Explores classical and modern theories with practical applications. Finalizing a personal leadership philosophy; initiating change; managing conflict; leadership ethics; servant leadership. May be taken in any sequence. Recommended: Placement in RD-115, WR-121.

**ED-123 Classroom Techniques in Reading & Language Arts**

3 credits, Fall  
3 class hours/week

Introduces skills/techniques applied in supplemental reading instruction with elementary age students. Includes reading for meaning using the four cueing systems: comprehension strategies, developing sight/meaning vocabulary, connecting reading/writing, understanding appropriate uses of graphophonics. Required: Program coordinator consent.

**ED-124 Classroom Techniques in Math & Science**

3 credits, Fall  
3 class hours/week

Prepares instructional assistant to help children learn specific mathematical content (facts, skills, concepts), apply mathematical concepts to solve problems, and develop a positive attitude toward mathematics. Math concepts are: patterns, estimation, graphing, addition, subtraction, multiplication, division, and fractions. Required: Program coordinator consent.

**ED-125 Tutor Certification I**

1 credit, Fall/Winter/Spring

10 hours/term  
Covers the philosophy and ethics, tutor responsibilities, guidelines, do's and don'ts, time management, communication skills, critical thinking, Socratic Method, active listening and paraphrasing, and study skills. Required: Program coordinator consent.

**ED-126 Tutor Certification II**

1 credit, Winter

10 hours/term  
Covers characteristics of adult learners, learning styles, cultural awareness, intercultural communications, and tutoring specific subjects. Required: Program coordinator consent.

**ED-127 Tutor Certification III**

1 credit, Spring

10 hours/term  
Covers assertiveness training, tutoring target populations, supervisory and group management skills. Required: Program coordinator consent.

**ED-130 Comprehensive Classroom Management**

3 credits, Winter  
3 class hours/week

Provides a foundation in comprehensive classroom management theory and application related to socio-emotional education, management techniques, and problem solving for effectively handling unproductive student behaviors in the classroom, the cafeteria, assemblies, on the playground, and on field trips. Required: Program coordinator consent.

**ED-131 Teaching Strategies**

3 credits, Fall  
3 class hours/week

Introduces teaching techniques and provides practice through lesson planning and peer teaching. Instructional assistants will plan lessons, teach these lessons to small groups of peers, and participate in self-evaluation and peer evaluation of teaching skill. Required: Program coordinator consent.

**ED-200 Introduction to Education**

3 credits, Fall  
3 class hours/week

Introduction to the teaching profession, with an overview of the realities of teaching in the 21<sup>st</sup> century; examination of the historical, sociological and philosophical foundations of American education.

**ED-210 Electronic Portfolio**

1 credit, Fall/Winter/Spring

1 hour/week  
Focuses on professional portfolio development to document educational experience and expertise. Opportunity to develop a professional portfolio. Includes portfolio demonstrations.

**ED-212 Schools & Society**

3 credits, Winter

3 class hours/week  
Introduces an overview of public education in the US. Explores current purposes and practices in relation to historical and philosophical issues. Addresses the organization, financing, and operation of local school districts. Required: Program coordinator consent.

**ED-213 Advanced Instructional Techniques in Reading**

3 credits, Winter  
3 class hours/week

Prepares instructional assistants to apply a variety of instructional strategies which build upon reading foundations developed in ED-123. Compares and contrasts current instructional strategies and explores the interactive nature of language, reading, writing, and spelling. Required: Program coordinator consent.

**ED-214 Advanced Instructional Techniques in Math & Science**

3 credits, Spring  
3 class hours/week

Prepares instructional assistants. Applies instructional strategies built in ED-124. Explores manipulative mathematics; operations with rational numbers; probability; geometry; measurement; time; and money. Required: Program coordinator consent.

**ED-235 Instructional Technology**

3 credits, Summer  
3 class hours/week

Introduces current advanced technology available in education, and provides tools and practice in evaluating, selecting, and implementing appropriate technology in instruction. Required: Program coordinator consent.

**ED-258 Multicultural Education**

3 credits, Spring/Summer  
3 class hours/week

Introduces the philosophy, activities, and materials applied in developing a culturally sensitive multi-cultural classroom and curriculum. Required: Program coordinator consent.

**ED-268 Educating Mild/Severely Disabled**

3 credits, Summer  
3 class hours/week

Introduces theory and techniques for working with handicapped students. Addresses services and funding provided for mildly and severely handicapped students. Required: Program coordinator consent.

**ED-269 Overview of Students with Special Needs**

3 credits, Spring  
3 class hours/week

Introduces handicapping/medical conditions to recognize, plan for, and understand for instruction/tutoring. Includes: learning disabilities, mental retardation, severe emotional disturbances, physical handicaps, health impairments, autism, traumatic brain injuries, Tourette Syndrome, Attention Deficit Disorder. Required: Program coordinator consent.

**ED-280 Instructional Assistant/CWE**

3-6 credits, Winter  
9-18 job site hours/week

Provides instructional assistants with on-the-job experience/training related to course work and work plan. Supervision/evaluation is provided by college staff and the employing school. Required: Weekly seminar (incorporated with ED-212 Schools & Society). Required: Program coordinator consent.

**ED-280 Education/CWE**

3-6 credits  
Fall/Winter/Spring/Summer  
1.5 class, 6-18 job site hours/term

Cooperative work experience. Provides students with on-the-job work experience in the field of education. Required: Instructor consent & a CWE seminar.

**EE****Electrical Engineering****EE-221 Electrical Circuit Analysis**

5 credits, Spring  
4 class, 3 lab hours/week

Experimental laws, network theorems, and useful computer analysis techniques of electrical circuit analysis. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-252.

**EET**

Courses with this prefix may not transfer with credit to a four-year institution unless otherwise specified.

**Electronics Systems Technology**

Courses listed with the EET prefix are the main core classes for the Electronics Systems Technology program. Many of these classes can be customized to meet the needs of the industry. For additional information on a customized class for your company, contact the Customized Training Department at ext. 3523.

**EET-112 Electronic Test Equipment**

1 credit, not offered every term  
3.5 class hours/week

Provides participants with basic understanding of the operation and set-up of electronic test equipment. Students will set-up, operate and make measurements with various Ohm meters or digital multi-meters, function generator and digital storage oscilloscope.

**EET-127 Semiconductor Circuits I**

4 credits, Spring  
8 class hours/week

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 and MTH-065.

**EET-137 DC Circuits**

3 credits, Fall  
6 class hours/week

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 & Kirchhoff's laws and Norton & Thevenin theorems. Prerequisite: MTH-050

**EET-139 Principles of Troubleshooting I**

2 credits, Fall  
4 class hours/week

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-142 AC Circuits**

3 credits, Winter  
6 class hours/week

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-137.

**EET-157 Digital Logic I**

3 credits, Winter  
6 class hours/week

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

**EET-215 Principles and Applications of Manufacturing Equipment Technology I**

4 credits, Fall  
8 class hours/week

First in a series emphasizing applied electromechanical principles. Covers theory, operation and application of force, work, rate, resistance, energy power and force transformers. Also covers diagnosis, service maintenance and repair of systems. Recommended: EET-137.

**EET-220 Principles and Applications of Manufacturing Equipment Technology II**

3 credits, Spring  
6 class hours/week

Second in a series emphasizing applied electromechanical principles. Covers momentum, waves and vibrations, energy converters, transducers, radiation, light and optical systems, and time constants. Also covers the diagnosis, service maintenance and repair of systems. Prerequisite: EET-215

**EET-227 Semiconductor Circuits II**

3 credits, Fall  
6 class hours/week

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-239 Principles of Troubleshooting II**  
3 credits, Winter  
3 class hours/week

Covers advanced applications of diagnosis, service maintenance and repair of systems, including Total Predictive Maintenance, applied statistical process control, and radio frequency. Prerequisite: EET-139.

**EET-250 Linear Circuits**  
3 credits, Fall  
6 class hours/week

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  
6 class hours/week

Covers basic control system and sub-systems used in the electronics industry covering programmable controllers, sensors, transducers, motion and motor control systems. Students work to the component level and solder to IPC 610A standards. Prerequisites: EET-127, EET-157.

**EET-254 Micro Computer Projects**  
4 credits, Winter  
8 class hours/week

Introduces participants to processor architecture, assembly language & structured programming, I/O interface and system level integration on industry standard devices. Students work to the component level and solder to the IPC 610A standards. Prerequisites: EET-157, EET-257.

**EET-257 Digital Logic II**  
4 credits, Spring  
8 class hours/week

Bus systems and computer peripherals & systems using latches, registers, counters, and memory circuits are developed and analyzed. Prerequisite: EET-157.

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**EL**

***Reading/Study Skills***

See also Reading (RD) and Study Skills (SS)

**EL-111 College Study Skills**  
3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Emphasizes time management, listening/notetaking, testing skills/anxiety, library resources, learning styles, study/reading textbooks, concentration. Prerequisite: Placement in RD-090 (formerly RD-012).

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**EMT**

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

***Emergency Medical Technician***

**EMT-101 EMT Basic Part I**  
5 credits, Fall/Winter  
4 class, 3 lab hours/week

Develops skills and training at the basic life support (BLS) level. Includes signs and symptoms of illness and injury, initial treatment, stabilization, and transportation. Focus on: introduction to EMS, airway management, and patient assessment. Recommended: Placement in RD-115, placement in WR-121, and placement in MTH-065. Prerequisite: AHA CPR Health Care Provider or equivalent.

**EMT-102 EMT Basic Part II**  
5 credits, Winter/Spring  
4 class, 3 lab hour/week,  
16 TBA hours/term

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

**EMT-105 Introduction to Emergency Medical Services**  
3 credits, Fall/Spring  
3 class hours/week

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

**EMT-106 Emergency Communication & Patient Transportation**  
3 credits, Spring  
3 class hours/week,  
16 lab/observation hours/term

Covers EMS operational areas including: Emergency communications and radio use techniques, ambulance operation, maintenance, laws and safety, emergency response and driving techniques, route planning, communications systems, and more. Prerequisite: Pass EMT-101.

**EMT-107 EMT Rescue**  
3 credits, Spring  
3 class hours/week,  
16 lab/observation hours/term

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-116 Oregon EMT Intermediate Part I**  
5 credits, Fall  
4 class, 3 lab hours/week

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 Oregon EMT-Basic certification.

**EMT-117 Oregon EMT Intermediate Part II**  
5 credits, Winter  
4 class, 3 lab hours/week

Continuation of EMT-116. Focus on: cardiac and other medical emergencies, and trauma management. Prerequisite: Pass EMT-116.

**EMT-130 Advanced Cardiac Emergencies**  
3 credits, Spring  
3 class hours/week

Develops skills and training in advanced life support cardiac care at the provider level, in accordance with the American Heart Association Advanced Cardiac Life Support. For ALS providers or those seeking ACLS certification.

**ENG****English****ENG-104 Introduction to Literature: Fiction**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Introduction to American and international short fiction. ENG-104/105/106 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-105 Introduction to Literature: Drama**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Introduction to American and international drama. ENG-104/105/106 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-106 Introduction to Literature: Poetry**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Introduction to American and international poetry. ENG-104/105/106 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-107 World Literature**

3 credits, Fall  
3 class hours/week

The Ancient World: epic, lyric, and dramatic literature with emphasis on Greek, Roman, and Hebrew works. ENG-107/108/109 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-108 World Literature**

3 credits, Winter  
3 class hours/week

The Dark Ages through the Enlightenment, emphasizing Cervantes, Dante, and Voltaire. ENG-107/108/109 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-109 World Literature**

3 credits, Spring  
3 class hours/week

The Romantics through modern times, ranging from Russia to Nigeria and Colombia. ENG-107/108/109 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-116 Vocabulary Building**

3 credits, not offered every year  
3 class hours/week

Covers advanced vocabulary and Greek-Latin root word system. Provides familiarity with concepts included on some standardized entrance exams and in the academic and work worlds. Meets some elective/humanities requirements. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-121 Mystery Fiction**

3 credits, not offered every year  
3 class hours/week

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: Placement in RD-115 & placement in WR-121.

**ENG-125 Oregon Literature**

3 credits, not offered every year  
3 class hours/week

Representative study of Oregon writers in fiction, poetry, and the ballad. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-195 American Film**

3 credits, not offered every term  
3 class hours/week

This course will focus on the history and theory of American film making from 1895 to the present. Recommended: Placement in RD-115. Prerequisite: Placement in WR-121 or instructor consent.

**ENG-201 Shakespeare**

3 credits, Fall  
3 class hours/week

Study of significant plays and sonnets. Selected comedies, histories and tragedies covered each term. ENG-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-202 Shakespeare**

3 credits, Winter  
3 class hours/week

Study of significant plays and sonnets. Selected comedies, histories, and tragedies covered each term. ENG-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-203 Shakespeare**

3 credits, Spring  
3 class hours/week

Study of significant plays and sonnets. Selected comedies, histories, and tragedies covered each term. ENG-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-204 Survey of English Literature**

3 credits, Fall  
3 class hours/week

Fourth to 17th century. Includes early legends, myths, the works of Chaucer and Shakespeare, and 17th century poems and essays. ENG-204/205/206 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-205 Survey of English Literature**

3 credits, Winter  
3 class hours/week

17th to mid-19th century. Includes English epic, satire, poetry, and essay; works by Milton, Blake, Swift, and others. ENG-204/205/206 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-206 Survey of English Literature**

3 credits, Spring  
3 class hours/week

19th and 20th century. Representative works and writers from the late Romantic movement to present day. ENG-204/205/206 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-210 Modern American Indian Literature**

3 credits, not offered every year  
3 class hours/week

Emphasizes contemporary fiction and poetry, including works of James Welch, Leslie Silko, and Scott Momaday. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-215 Literature of the Beat Generation**

3 credits, not offered every year  
3 class hours/week

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: Placement in WR-121.

**ENG-216 Comics and Literature**

3 credits, not offered every term  
3 class hours/week

This class examines the intrinsic literary and artistic qualities of the comics, as well the literature and other art they have inspired. Recommended: Placement in RD-115. Prerequisite: Placement in WR-121 or instructor consent.

**ENG-250 Mythology**

3 credits, Fall  
3 class hours/week

Fundamental myths of Western culture, such as Greek, Roman, Hebrew, and Christian. Comparative analysis of the themes and structures of myths of several cultures and study of influence on the cultures that followed. Insight into the social, psychological, and aesthetic nature of mythology. ENG-250/251/252 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-251 Mythology**

3 credits, Winter  
3 class hours/week

Continuing study of European myths, including Celtic and/or Norse. Comparative analysis of the themes and structures of myths of several cultures and study of their influence on the cultures that followed. Insight into the social, psychological and aesthetic nature of mythology. ENG-250/251/252 meets the Arts & Letters Sequence requirement the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-252 Mythology**

3 credits, Spring  
3 class hours/week

Myths of non-Western cultures, such as Native American, African, or Asian. Comparative analysis of the themes and structures of myths of several cultures and study of their influence on the cultures that followed. Insight into the social, psychological, and aesthetic nature of mythology. ENG-250/251/252 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-253 American Literature**

3 credits, Fall  
3 class hours/week

Pre-Colonial to mid-19th century. Surveys the development of American fiction, nonfiction, poetry, and drama through the study of the works of both major and lesser known writers. ENG-253/254/255 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-254 American Literature**

3 credits, Winter  
3 class hours/week

Mid-19th century to early 20th century. Surveys the development of American fiction, nonfiction, poetry, and drama through the study of the works of both major and lesser known writers. ENG-253/254/255 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-255 American Literature**

3 credits, Spring  
3 class hours/week

Early 20th century to the present. Surveys the development of American fiction, nonfiction, poetry, and drama through the study of the works of both major and lesser known writers. ENG-253/254/255 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-260 Introduction to Women Writers**

3 credits, not offered every year  
3 class hours/week

Study of women writers and women's roles in plays, poems, and fiction. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-266 The Literature of War**

3 credits, not offered every year  
3 class hours/week

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: Placement in RD-115 & placement in WR-121.

**ENG-275 The Bible As Literature**

3 credits, not offered every year  
3 class hours/week

Historical and literary approach to the Old and New Testaments. Recommended: Placement in RD-115 & placement in WR-121.

**ENG-280 English/CWE**

2-6 credits, Fall/Winter/Spring  
1.5 class, 6-18 job site hours/week

Cooperative work experience. Provides students with on-the-job experience in the field of English studies. Required: Instructor consent & a CWE seminar.

**ENL**

Courses with this prefix may transfer with credit to a four-year institution. Courses are intended for ESL students.

**English Non-Native Language****ENL-117 Advanced Grammar A**

3 credits, Fall/Spring  
3 class, 1 lab hours/week

Part A of a 2-part series designed for advanced level non-native speakers of English to gain proficiency/accuracy in subordination and coordination of ideas. Adverbial clauses, discourse connectors, adverb phrases, and noun clauses are covered. Required: Instructor consent. Corequisite: ESL-070.

**ENL-118 Advanced Grammar B**

3 credits, Winter/Summer  
3 class, 1 lab hours/week

Part B of a 2-part series designed for advanced level non-native speakers of English to gain proficiency/accuracy in written and oral expression. Count/noncount nouns, definite/indefinite articles, modals, and conditional sentences are covered. Required: Instructor consent. Corequisite: ESL-070.

**ENL-119 Advanced Reading/Writing**  
6 credits, Fall/Winter/Spring/Summer  
6 class hours/week

Designed for advanced level students to improve academic reading, writing, and editing skills. Required: Instructor consent.

**ENL-120 Advanced Communication Skills**  
3 credits, not offered every term  
3 class, 1 lab hours/week

Designed for advanced non-native speakers of English to gain 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.

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**ERM**

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

## *Energy & Resource Technology*

**ERM-100 Orientation to Energy & Resource Management**  
3 credits, Fall/Spring  
3 class, 3 lab hours/week

Overview of the energy and utility resource industry and career options. Through field trips, guest speakers, and research, students will discover and report on career options in the energy industry.

**ERM-101 Energy & Resource Technology I**  
3 credits, Fall  
3 class, 3 lab hours/week

Examine the history, development and segmentation of the energy industry in the Northwest. Research and report on the effects of regional energy policies and how they affect specific segments of the energy industry.

**ERM-102 Energy & Resource Technology II: Electricity**  
3 credits, Winter  
3 class, 3 lab hours/week

Focus on generation sources of electricity, transmission and final delivery to the consumer. Examine basic principles of alternating and direct current as it affects electrical flow. Research and report on strategies/components of the electrical industry.

**ERM-103 Energy & Resource Technology III: Natural Gas**  
3 credits, Spring  
3 class, 3 lab hours/week

Examine the origin and characteristics of natural gas and industry fundamentals in the Northwest. Focus on natural gas production, processing, transportation and marketing. Research and report on strategies/components for delivery and marketing of natural gas.

**ERM-107 Career Portfolio**  
3 credits, Fall/Spring  
3 class, 3 lab hours/week

Develop and organize a portfolio to record knowledge and learning related to the energy and utility resource industries. Portfolio consists of resume, reference letters, work and learning samples, and network contacts.

**ERM-108 Career Marketing Strategies**  
3 credits, Winter  
3 class, 3 lab hours/week

Expand and perfect portfolio as a job-marketing tool to demonstrate knowledge, skills and abilities in the areas of: energy & resource management, computer literacy, math/logic, and leadership. Plan internship & practice interviewing techniques.

**ERM-170 Energy Industry Performance, Health & Safety I**  
1-12 credits

Fall/Winter/Spring/Summer  
8 class, 14 lab hours/week

Discover and develop industry-approved general behavior regarding the conduct and application of health, safety and performance issues. Course and fieldwork include acquiring and applying industry knowledge, skills, and practices to current and future work conditions.

**ERM-180 Energy & Resource Management/CWE**  
3-6 credits

Fall/Winter/Spring/Summer  
1.5 class, 9-18 job-site hours/week

Practical work experience in, and exploration of, an energy or utility resource company under the supervision of the instructor and employer. Required: instructor consent & CWE seminar or completion of ERM-107.

**ERM-201 Energy Applications I: Renewable Energy Resources**  
6 credits, Fall  
6 class, 6 lab hours

Access and interpret building performance, conversion technologies and the applications of renewable energy resources.

**ERM-202 Energy Applications II**  
6 credits, Winter  
6 class, 6 lab hours

Observe the concepts of leadership and management for energy generation and distribution. Develop strategies to expand application and resources.

**ERM-203 Energy Applications III**  
6 credits, Spring  
6 class, 6 lab hours

Energy seminar. Research and report on current developments of energy applications. Reports with define internship projects.

**ERM-211 Organizational Leadership**  
1-12 credits

Fall/Winter/Spring/Summer  
8 class, 14 lab hours/week

Learn principle and concepts that govern a leader. Develop systems for specific management operations. Focus is on strategic, professional, and interpersonal learning as well as developing self and others.

**ERM-270 Energy Industry Performance, Health & Safety II**  
1-12 credits

Fall/Winter/Spring/Summer  
8 class, 14 lab hours/week

In a leadership role, participate in industry-approved behavior regarding the conduct and application of specific health, safety and performance issues. Course and fieldwork include applying and advancing industry knowledge, skills, and practices.

**ERM-280 Focused Energy & Resource Management/CWE**  
3-6 credits

Fall/Winter/Spring/Summer  
1.5 class, 9-18 job-site hours/week

Targeted on-the-job field experience in an energy or utility company related to the student's focused area of study. Supervised by the instructor and employer. Required: Instructor consent & CWE seminar or ERM-108.

**ERM-286 Advanced Energy & Resource Management Applications**

3-12 credits

Fall/Winter/Spring/Summer

2-8 class, 4-14 job-site hours/week

Focused application in the student's area of interest within the energy & resource industry: electric, gas, telecommunications, water or other alternative energy. Students work with an industry mentor to research/complete an agreed-upon project.

**ESH**

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

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

1-3 variable credits

Fall/Winter/Spring/Summer

33 hours/term

Distance Learning: Online. Students may enroll at anytime during the term. This course is an overview of environmental regulations as they pertain to industry, agriculture, schools and the general public. Major points of environmental law, federal and state regulatory statutes and regulations, and the agencies responsible for their enforcement. This course has been developed with the cooperation of DEQ. For more info visit <http://depts.clackamas.cc.or.us/esh/>

**ESH-101 Hazardous Waste Management**

2 credits, Fall/Winter/Spring/Summer

22 hours/term

Distance Learning: Online. Students may enroll at anytime during the term. DEQ authorized class. This class offers ways to reduce, identify, store, and dispose of hazardous waste in Oregon. Certificate of completion from CCC/DEQ. For more information visit <http://depts.clackamas.cc.or.us/esh/>

**ESL**

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

**English as a Second Language****ESL-010 ESL Tutoring (Literacy)**

0 credit, not offered every term

2-4 class hours/week

Designed for adult students to meet one-on-one or in a small group to focus on specific learning needs. Sessions are held in various public places throughout Clackamas County, such as libraries, schools, churches, and the college campus. Tutors help to set student goals and a plan of learning. Required: Instructor consent.

**ESL-012 Work Ready 1**

0 credit, not offered every term

3-12 hours/week

Beginning level of courses to prepare ESL students for employment, emphasizing life skills necessary for everyday life in the US, developing vocabulary, and improving oral communication, reading, and writing skills to gain or improve employment. Required: Instructor consent.

**ESL-013 Work Ready 2**

0 credit, not offered every term

3-12 hours/week

Upper beginning level of courses to prepare ESL students for employment, emphasizing life skills necessary for everyday life in the US, developing vocabulary, and improving oral communication, reading, and writing skills to gain or improve employment. Required: Instructor consent.

**ESL-014 Work Ready 3**

0 credit, not offered every term

3-12 hours/week

Intermediate level of courses to prepare ESL students for employment, emphasizing life skills necessary for everyday life in the US, developing vocabulary, and improving oral communication, reading, and writing skills to gain or improve employment. Required: Instructor consent.

**ESL-015 Work Ready 4**

0 credit, not offered every term

3-6 class hours/week

Designed for English as a Second Language students who want job-seeking and pre-job training skills while improving their English. Required: Instructor consent.

**ESL-018 Assess/Evaluation for New Students**

0 credit, Fall/Winter/Spring/Summer

2 hours/term

Designed for new students in the adult ESL program to give information about classes offered, departmental and college policies, college services available, campus facilities, student responsibilities, and community resources. Required: Instructor consent.

**ESL-020 Life Skills 1**

0 credit, not offered every term

3-6 class hours/week

Introduces the language necessary to function in day-to-day American society at the beginning level; listening, speaking, grammar, reading, and writing in the contexts of work, family, and community. Required: Instructor consent.

**ESL-021 Life Skills 2**

0 credit, not offered every term

3-6 class hours/week

Introduces the language necessary to function in day-to-day American society at the upper beginning level; listening, speaking, grammar, reading, and writing in the contexts of work, family, and community. Required: Instructor consent.

**ESL-022 Life Skills 1 & 2**

0 credit, Fall/Winter/Spring/Summer

3-6 class hours/week

Introduces the language necessary to function in day-to-day American society at the beginning levels; listening, speaking, grammar, reading, and writing in the contexts of work, family, and community. Required: Instructor consent.

**ESL-023 Life Skills 3**

0 credit, not offered every term

3-6 class hours/week

Designed to improve students' listening, speaking, reading, writing, grammar, and vocabulary at the intermediate level and above. Students' language skills are improved in the contexts of work, family and community. Required: Instructor consent.

**ESL-024 English for the Family**  
0 credit, not offered every term  
3-9 class hours/week

Improves self-sufficiency of families by enabling parents to meet goals, increase language literacy levels, enhance skills/experiences related to employability. Required: Instructor consent.

**ESL-032 Low Intermediate Conversation**  
0 credit, Fall/Winter/Spring/Summer  
3 class hours/week

Designed for low intermediate non-native speakers of English to gain fluency in speaking and listening in functional contexts. Required: Instructor consent.

**ESL-033 Intermediate Conversation**  
0 credit, Fall/Winter/Spring/Summer  
3-6 class hours/week

Designed for intermediate non-native speakers of English to gain fluency in speaking and listening in functional contexts. Required: Instructor consent.

**ESL-034 Upper Intermediate Conversation**  
0 credit, not offered every term  
3 class hours/week

Designed for upper intermediate non-native speakers of English to gain fluency in speaking and listening in the following areas: expressing ideas, solving problems, summarizing, giving instructions, and developing listening comprehension. Required: Instructor consent.

**ESL-035 Advanced Communication Skills**  
0 credit, not offered every term  
3 class, 1 lab hours/week

Designed for advanced non-native speakers of English to gain fluency in speaking and listening in the contexts of school, work, family and community. Prepares students for success in discussions, interviews, conferences, academic notetaking, and presentations. Required: Instructor consent.

**ESL-040 Beginning Grammar**  
0 credit, not offered every term  
3 class hours/week

Designed for beginning non-native speakers of English to gain grammatical accuracy; use of the verb "to be", simple present verb tense, nouns, descriptive/possessive adjectives, simple sentence structures in oral/written communication used for everyday living. Required: Instructor consent.

**ESL-041 Upper Beginning Grammar**  
0 credit, Fall/Winter/Spring/Summer  
3 class hours/week

Designed for upper beginning level non-native speakers of English to gain grammatical accuracy in the use of verb tenses, modals, adverbs of frequency, and comparative adjectives in oral and written communication. Required: Instructor consent.

**ESL-042 Intermediate Grammar A**  
0 credit, Fall/Spring  
3 class hours/week

Part A of a two-part series of classes designed to help intermediate non-native speakers of English gain grammatical accuracy in the use of past tense and used to, past continuous, future and be going to, and adjectives, including comparative and superlative forms in oral and written communication. Required: Instructor consent.

**ESL-043 Intermediate Grammar B**  
0 credit, Winter/Summer  
3 class hours/week

Part B of a two-part series of classes designed to help intermediate non-native speakers of English gain grammatical accuracy in the use of verb forms, modals, and adverbs of frequency in oral and written communication. Required: Instructor consent. Co-requisite: ESL-070.

**ESL-044 Upper Intermediate Grammar A**  
0 credit, Fall/Spring  
3 class, 1 lab hour/week

Part A of a two-part series of classes designed to help the upper intermediate non-native speakers of English gain knowledge and proficiency in the use of verb forms, gerunds, infinitives, and modals. Required: Instructor consent. Co-requisite: ESL-070.

**ESL-045 Advanced Grammar A**  
0 credit, Fall/Spring  
3 class, 1 lab hours/week

Part A of a 2-part series designed for advanced level non-native speakers of English to gain proficiency/accuracy in subordination and coordination of ideas. Adverbial clauses, discourse connectors, adverb phrases, and noun clauses are covered. Required: Instructor consent.

**ESL-046 Advanced Grammar B**  
0 credit, Winter/Summer  
3 class, 1 lab hours/week

Part B of a 2-part series designed for advanced level non-native speakers of English to gain proficiency/accuracy in written and oral expression. Count/noncount nouns, definite/indefinite articles, modals, and conditional sentences are covered. Required: Instructor consent.

**ESL-047 Upper Intermediate Grammar B**  
0 credit, Winter/Summer  
3 class, 1 lab hour/week

Part B of a two-part series of classes designed to help the upper intermediate non-native speaker of English gain knowledge and proficiency in the use of adjective clauses, phrasal verbs, and passive voice. Required: Instructor consent. Co-requisite: ESL-070.

**ESL-050 Beginning Reading/Writing**  
0 credit, Fall/Winter/Spring/Summer  
3 class hours/week

Designed for beginning level students who have limited knowledge of written English. Read and write short sentences and read short paragraphs, gain reading and scanning skills to use in everyday life and in the workplace. Required: Instructor consent.

**ESL-051 Upper Beginning Reading/Writing**  
0 credit, Fall/Winter/Spring/Summer  
3 class hours/week

Designed for the upper beginning level student who reads and writes at the sentence level. Read short texts and write groups of related sentences in paragraph form. Required: Instructor consent.

**ESL-053 Intermediate Reading/Writing**  
0 credit, Fall/Winter/Spring/Summer  
6 class hours/week

Designed for the intermediate level student. Focus is on paragraph level writing with emphasis on reading and writing skills as needed for college courses, the workplace, and everyday life. Required: Instructor consent.

**ESL-054 Upper Intermediate Reading/Writing**  
0 credit, Fall/Winter/Spring/Summer  
6 class hours/week

Designed for non-native speakers to develop reading and writing skills needed to succeed in college, the workplace, and everyday life. Introduction to longer compositions. Required: Instructor consent.

**ESL-055 Advanced Reading/Writing**  
0 credit, Fall/Winter/Spring/Summer  
6 class hours/week

Designed for advanced level students to improve 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-060 Pronunciation**  
0 credit, not offered every term  
3 class, 1 lab hours/week

Designed for ESL students who want to sound more natural when speaking English. Focuses on increasing awareness of the sounds of American English, improving intelligibility, and producing speech more fluently. Required: Instructor consent.

**ESL-063 American Idioms/A**  
0 credit, not offered every term  
3 class hours/week

Part A of a 2-part series of classes. Introduces common American idioms and slang while practicing conversation skills at the upper intermediate level. Required: Instructor consent.

**ESL-064 American Idioms/B**  
0 credit, not offered every term  
3 class hours/week

Part B of a 2-part series of classes. Introduces common American idioms and slang while practicing conversation skills at the upper intermediate level. Required: Instructor consent.

**ESL-067 Video and Conversation**  
0 credit, not offered every term  
2 class hours/week

Intensifies intermediate/advanced ESL language skills in listening/speaking. Outside of class, view Crossroads Café video series, complete workbook exercises. In class, practice listening for specific information, participate in pair, small group, whole class activities. Required: Instructor consent.

**ESL-070 Computer Lab**  
0 credit, Fall/Winter/Spring/Summer  
3 lab hours/week

Designed to demonstrate how to operate a computer to improve English language skills by using language learning software. Required: Instructor consent.

**ESL-071 Listening Lab**  
0 credit, not offered every term  
3 lab hours/week

Improve aural comprehension by listening to audio tapes and following along in books. Required: Instructor consent.

**ESL-072 Reading/Writing Workshop**  
0 credit, not offered every term  
3 class hours/week

Designed for low intermediate to upper intermediate level ESL students to improve reading/writing skills needed for more advanced ESL and college courses, the workplace, and everyday life. Focus on paragraph level writing. Required: Instructor consent.

**ESL-080 Intermediate Reading Skills**  
0 credit, not offered every term  
3 class hours/week

Designed for non-native speakers to develop the reading skills needed to succeed in college and in everyday life. Required: Instructor consent.

**ESL-081 Upper Intermediate Reading Skills**  
0 credit, not offered every term  
3 class hours/week

Designed for non-native speakers to develop reading skills needed to succeed in college and in everyday life. Required: Instructor consent.

**ESL-084 Vocabulary Building**  
0 credit, not offered every term.  
3 class hours/week

Designed to extend upper intermediate to advanced level students' vocabulary range and vocabulary acquisition skills. Required: Instructor consent.

**ESL-086 Wordprocessing/Email/Internet**  
0 credit, not offered every term  
2 class, 1 lab hours/week

Basic introduction to wordprocessing, email, and the Internet for students at intermediate level and above. Use computer tools to improve English proficiency for success in academic, workplace and daily life. Required: Instructor consent.

**ESL-087 Intro/Intercultural Communication**  
0 credit, not offered every term  
3 class hours/week

Explores impact cultural differences have on communication process, increases awareness of students' own cultural behaviors. Discover effective ways to deal with difficult situations where a cultural difference causes a problem. Required: Instructor consent.

**ESL-088 Skills for College Success**  
0 credit, Spring  
3 class hours/week

For upper intermediate/advanced level ESL students who plan to attend a U.S. college or university. Increase knowledge of the culture/norms of the American classroom, college schedules/catalogs, analyze course materials, improve study/test-taking skills. Required: Instructor consent.

**ESL-090 Beginning Workplace ESL**  
0 credit, not offered every term  
1-6 hours/week

Helps beginning level non-native speakers of English acquire the vocabulary, language structures, cultural information and practice they need to successfully perform their jobs, as well as understand company rules, safety procedures, policies and benefits.

**ESL-091 Upper Beginning Workplace ESL**  
0 credit, not offered every term  
1-6 hours/week

Helps upper beginning level non-native speakers of English acquire the vocabulary, language structures, cultural information and practice they need to successfully perform their jobs, as well as understand company rules, safety procedures, policies and benefits.

**ESL-092 Intermediate Workplace ESL**  
0 credit, not offered every term  
1-6 hours/week

Helps intermediate level non-native speakers of English to acquire the vocabulary, language structures, cultural information and practice they need to successfully perform their jobs, as well as understand company rules, safety procedures, policies and benefits.

**ESL-093 Upper Intermediate Workplace ESL**  
0 credit, not offered every term  
1-6 hours/week

Helps upper intermediate level non-native speakers of English to acquire the vocabulary, language structures, cultural information and practice they need to successfully perform their jobs, as well as understand company rules, safety procedures, policies and benefits.

**ESL-094 Advanced Workplace ESL**  
0 credit, not offered every term  
1-6 hours/week

Helps advanced level non-native speakers of English to acquire the vocabulary, language structures, cultural information and practice they need to successfully perform their jobs, as well as understand company rules, safety procedures, policies and benefits.

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## ESR

Courses with these prefixes may not transfer with credit to a four-year institution.

## *Environmental Science*

**ESR-171 Environmental Science**  
4 credits, Fall  
3 class, 3 lab hours/week

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. ESR-171/172/173 meets the science sequence requirement for the AAOT degree. Recommended: Pass MTH-060; placement in RD-115 & placement in WR-121.

**ESR-172 Environmental Science**  
4 credits, Winter  
3 class, 3 lab hours/week

Conservation issues, environmental toxicology, energy principles, environmental effects of fossil fuels and nuclear power, alternative energy sources, water conservation and management, water pollution, and treatment, global warming, air pollution and control. ESR-171/172/173 meets the science sequence requirement for the AAOT degree. Recommended: Pass MTH-060; placement in RD-115 & placement in WR-121.

**ESR-173 Environmental Science**  
4 credits, Spring  
3 class, 3 lab hours/week

Indoor air pollution, ozone depletion, environmental economics, urban environments, waste management, environmental impact of mineral development, environmental impact analysis and planning, biological diversity, ecological succession and restoration, and environmental values. ESR-171/172/173 meets the science sequence requirement for the AAOT degree. Recommended: Pass MTH-060; placement in RD-115 & placement in WR-121.

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## EST

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

## *Employment Skills Training*

**EST-081 Employment Skills Training Seminar**  
0-3 credits

Fall/ Winter/Spring/Summer  
1-3 class hours/week

This course is intended to develop an individualized program of study for a student and to provide workplace skills and address work issues related to his/her career goal. Coursework is aimed at enhancing student employability through individualized projects and applications tailored to particular student needs.

**EST-180 Employment Skills Training**  
2-6 credits  
Fall/Winter/Spring/Summer  
6-18 job site hours/week

This course is intended to provide the student with a training experience related to his/her career goal. Major emphasis will be given to workplace skills and issues. Coursework will focus on student career goals through job site training tailored to particular student needs.

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## FN

## *Food & Nutrition*

**FN-110 Personal Nutrition**  
3 credits, Spring  
3 class hours/week

How nutrition affects health and fitness for the individual and the family. Analysis of present diet and methods to improve food preparation and habits.

**FN-225 Nutrition**  
4 credits, Fall/Winter/Spring  
4 class hours/week

The role of vitamins, minerals, and other nutrients in the development and maintenance of a healthy body. Examines diets for nutritional adequacy and current nutrition controversies. Also offered as a telecourse.

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## FR

## *French*

**FR-101 First-Year French**  
4 credits, Fall  
4 class hours/week

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: Placement in RD-115 & placement in WR-121.

**FR-102 First-Year French**  
4 credits, Winter  
4 class hours/week

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  
4 class hours/week

The first year of academic French is designed to give the student a fundamental knowledge of pronunciation and intonation, structure and syntax as well as comprehension skills sufficient for basic communicative proficiency in the language. Prerequisite: Pass FR-102 or instructor consent.

**FR-111 French Conversation**  
3 credits, not offered every year  
3 class hours/week

Designed to offer students a review of first year structures in the context of situations encountered while traveling, i.e. ordering in a restaurant, finding lodging, giving and asking directions, etc. Emphasis is on oral proficiency and preparing for second-year French. Pass FR-103 or instructor consent.

**FR-201 Second-Year French**

4 credits, Fall  
4 class hours/week

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. FR-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: Pass FR-103 or instructor consent.

**FR-202 Second-Year French**

4 credits, Winter  
4 class hours/week

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. FR-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: Pass FR-201 or instructor consent.

**FR-203 Second-Year French**

4 credits, Spring  
4 class hours/week

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. FR-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: Pass FR-202 or instructor consent.

**FRP**

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

**Fire Science  
(Wildland)****FRP-006 Q & A Wildland Firefighting**

0 credits, Fall/Winter  
1 class hour/term

Provides an overview into wildland firefighting & the requirements to become a wildland firefighter.

**FRP-130 Intro to Wildland Firefighting**

3 credits, Winter  
30 class hours/term

Introduces students to wildland fire behavior & the skills necessary to fight wildland fires under close supervision. This course meets the standards set forth by the NWCG for course numbers S-130 & S-190.

**FRP-270 Basic Air Operations**

1 credit, Spring  
10 class hours/term

This course affords students a survey of the use of aircraft in fire suppression by teaching students how to conduct themselves in & around aircraft. This course meets the standards set forth by the NWCG for course number S-270.

**G****Geology****G-101 General Geology**

4 credits, Fall  
3 class, 3 lab hours/week

For liberal arts majors. Introduces geologic principles and concepts, earth structure, igneous, sedimentary, and metamorphic rock environments; volcanic activity, and volcanic landforms. Introduction to minerals, ores, and basic types of rocks. G-101/102/103 meets the science sequence requirement for the AAOT degree.

**G-102 General Geology**

4 credits, Winter  
3 class, 3 lab hours/week

For liberal arts majors. Principles in landform development of glacial, coastal, desert, groundwater, systems, rivers and erosional processes. Earth history and environmental issues in geology. Introduction to topographic and geologic maps, structural geology, fossils. G-101/102/103 meets the science sequence requirement for the AAOT degree.

**G-103 General Geology**

4 credits, Spring  
3 class, 3 lab hours/week

For liberal arts majors. Principles of plate tectonics, earth's internal structure, seismic activity, mountain building, ocean features, earth resources. Introduction to compass work, field techniques, and GPS use. G-101/102/103 meets the science sequence requirement for the AAOT degree.

**G-119 Rocks & Minerals**

3 credits, not offered every year  
3 class hours/week

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, Winter  
3 class hours/week

Explore the natural history 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-134 GPS, Maps & Compass Techniques**

1 credit, Spring  
3 lab hours/week

Covers GPS (Global Positioning System) use in conjunction with topographic maps for navigation, orientation, plotting routes, and measuring distances. Covers field use of the Brunton compass as a transit and for measuring dip and strike.

**G-145 Geology of Pacific Northwest**

3 credits, Fall  
3 class hours/week

Explore the scenic geology of Northwest landscapes, historic development and current problems in environmental geology. Recognize rock types, geologic processes, and hazards of the Northwest from the Blue Mountains to the coast. Optional field trips provided.

**G-148 Volcanoes & Earthquakes**

3 credits, Spring  
3 class hours/week

Examines the geological processes that create volcanoes and earthquakes and the hazards associated with them. Examine basic geologic features, monitoring techniques, hazards, prediction methods, and future events, using historic episodes of volcanic eruptions and earthquakes.

**G-201 General Geology**

4 credits, Fall  
3 class, 3 lab hours/week

For geology and science majors. Introduces geologic principles and concepts, weathering processes, soils, earth structure, igneous, sedimentary, metamorphic rocks, volcanic activity, and volcanic landforms. Introduction to rock forming minerals, ores, igneous, sedimentary, and metamorphic rocks. G-201/202/203 meets the science sequence requirement for the AAOT degree.

**G-202 General Geology**

4 credits, Winter  
3 class, 3 lab hours/week

For geology and science majors. Principles in landform development of glacial, coastal, desert, groundwater systems; rivers, erosional processes, earth history, fossils, and environmental issues. Introduction to rectangular survey, topographic and geologic maps, structural geology. G-201/202/203 meets the science sequence requirement for the AAOT degree.

**G-203 General Geology**

4 credits, Spring  
3 class, 3 lab hours/week

For geology and science majors. Principles of plate tectonics, earth's internal structure, seismic activity, mountain building, oceanography, earth resources. Introduction to Brunton compass work, field mapping techniques, GPS applications and use. G-201/202/203 meets the science sequence requirement for the AAOT degree.

**G-280 Geology/CWE**

2-6 credits, Fall/Winter/Spring  
1.5 class, 6-18 job site hours/week

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  
2 class hours/week

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  
2 class hours/week

Introduction to programming language for computer solution of problems defined by algorithms. Prerequisite: Pass CS-120 or equivalent experience.

**GE-102 Engineering Computation**

4 credits, Fall  
4 class hours/week

Introduction to data structures for solving engineering problems. Continues developing skills in the algorithmic method for engineering problem solving. Recommended: Placement in RD-115 & placement in WR-121. Corequisite: GE-101A.

**GE-115 Engineering Graphics**

4 credits, Spring  
6 class hours/week

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: Placement in RD-115 & placement in WR-121. Prerequisite: GE-101A.

**GE-211 Statics**

4 credits, Fall  
4 class hours/week

First term of engineering mechanics sequence. Force analysis in structures and machines under various loading conditions. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-253. Corequisite: PH-211.

**GE-212 Dynamics**

4 credits, Winter  
4 class hours/week

Kinematics, kinetics, work-energy, and impulse-momentum relationships of engineering systems. Recommended: Placement in RD-115 & placement in WR-121. Prerequisites: Pass GE-211 & pass PH-211.

**GE-213 Strength of Materials**

4 credits, Spring  
4 class hours/week

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: Placement in RD-115 & 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/Adult Basic Education****GED-011 GED En Español**

0 credit, Fall/Winter/Spring/Summer  
66 hours/term

Basic academic skill development instruction offered in Spanish. Diagnostic tests determine individual academic needs. Open-entry, open-exit class offered at Campus Learning Center. Required: Instructor consent.

**GED-011 GED On TV**

Fall/Winter/Spring/Summer  
20-240 hours/term

This course allows students to complete all requirements to take the GED test to obtain a high school equivalency certificate. Students watch the programs, complete workbooks and the five required tests. For more information call 657-6958, ext. 2416.

**GED-015 GED Preparation**

Fall/Winter/Spring  
20-240 hours/term

Basic academic skill development. Diagnostic tests determine individual academic needs. Students who pass General Educational Development (GED) tests receive high school equivalency certificates. Open-entry, open-exit classes offered at Tri-City Alternative Program and Young Parent Opportunity Program locations. Required: Instructor consent.

**GED-049 Latino GED & Life Skills**

0 credit, Fall/Winter/Spring/Summer  
6 class hours/week

Offered in Spanish. Basic academic skill development with emphasis on requirements to take the GED test to obtain a high school equivalency certificate. Also focuses on basic life skills, personal and career goals and interests.

**GEO****Geography****GEO-100 Introduction to Physical Geography**

3 credits, Fall/Winter/Spring  
3 class hours/week

Physical elements of geography and the environment in which people live. Focuses on natural processes that create physical diversity on the earth including weather and climate, vegetation and soils, and landforms. Any three geography classes meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**GEO-110 Cultural & Human Geography**

3 credits, Fall/Winter/Spring  
3 class hours/week

Human population, agriculture, political patterns, language, religion, folk culture, popular culture, ethnic culture, urban landscapes, industry, and transportation. Any three geography classes meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**GEO-130 Introduction to Environmental Geography**

3 credits, not offered every term  
3 class hours/week

Explores the contemporary global environmental problems such as: overpopulation, over consumption, ozone layer depletion, pollution, acid rain, deforestation, desertification, and waste problems. Examines alternative sources of energy to fossil fuel and sustainable development strategies. Any three geography classes meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**GEO-230 World Regions & Landscapes**

4 credits, Fall  
4 class hours/week

Provides students with the fundamental geographical knowledge of world countries and their path towards development. Familiarizes students with the regional similarities and differences throughout the world. Any three geography classes meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**GEO-280 Geography/CWE**

2-6 credits, Fall/Winter/Spring  
1.5 class, 6-18 job site hours/week

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  
4 class hours/week

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: Placement in RD-115 & placement in WR-121.

**GER-102 First-Year German**

4 credits, Winter  
4 class hours/week

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  
4 class hours/week

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  
4 class hours/week

Review and expansion of basic language skills through discussion, reading, and writing of varied contemporary topics from the German language and cultural area. GER-201/202/203 meets the Arts & Letters requirement for the AAOT degree. Prerequisite: Pass GER-103 or instructor consent.

**GER-202 Second-Year German**

4 credits, Winter  
4 class hours/week

Review and expansion of basic language skills through discussion, reading, and writing of varied contemporary topics from the German language and cultural area. GER-201/202/203 meets the Arts & Letters requirement for the AAOT degree. Prerequisite: Pass GER-201 or instructor consent.

**GER-203 Second-Year German**

4 credits, Spring  
4 class hours/week

Review and expansion of basic language skills through discussion, reading, and writing of varied contemporary topics from the German language and cultural area. GER-201/202/203 meets the Arts & Letters requirement for the AAOT degree. Prerequisite: Pass GER-202 or instructor consent.

**GS****General Science**

See also Arts and Sciences (ASC).

**GS-104 Physics**

4 credits, Spring  
3 class, 3 lab hours/week

Concepts and applications of mechanics, electricity and magnetism, waves, optics, and relativity. GS-104/105 & GS-106 or GS-107 meets the science sequence requirement for the AAOT degree.

**GS-105 Chemistry**

4 credits, Fall  
3 class, 3 lab hours/week

Atmospheric and environmental chemistry including acid rain, pH solutions, periodic table, atomic and molecular structure, radiant energy, combustion and other forms of energy conversion, methods of water purification. GS-104/105 & GS-106 or GS-107 meets the science sequence requirement for the AAOT degree.

**GS-106 Earth Science**

4 credits, Winter  
3 class, 3 lab hours/week

Earth structure, plate tectonics, land form development of shorelines, deserts, mountain ranges, glaciers, deep oceans, etc. Study of minerals, rock of volcanic, sedimentary, and metamorphic origin. GS-104/105/106 meets the science sequence requirement for the AAOT degree.

**GS-107 Astronomy**  
4 credits, Fall/Winter/Spring  
3 class, 3 lab hours/week

Survey of astronomy for non-science majors. Topics may include: history of astronomy, planets and moons of the solar system, asteroids, meteors, comets, properties of stars, stellar evolution, star clusters, properties of galaxies, and cosmology. GS 104/105/107 meets the science sequence requirement for the AAOT degree. Also offered as an online course.

**GS-109 Meteorology**  
4 credits, not offered every year  
66 online hours/term

Distance Learning: Online. A study of the atmosphere, its composition, structure and properties with emphasis on the various processes responsible for weather, climate controls and change, and the impact of atmospheric phenomena on society.

**GS-135 Navigation with GPS Technology**  
1 credit, not offered every term  
15 class hours/5 weeks

Fundamentals of basic land navigation and position determination using traditional methods and global positioning systems (GPS). Students participate in activities using maps and GPS units.

**GS-160 Observational Astronomy**  
3 credits, Summer  
3 class hours/week

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.

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**HD**

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

## **Human Development & Career Planning**

**HD-100 College Survival**  
1-6 credits, not offered every term  
1 class hour/week

Covers various topics supporting student success and retention. May be repeated for credit.

**HD-100 College Survival/Disabled**  
1-6 credits, not offered every term  
1 class hour/week

For disabled students. Addresses the functional difficulties that a disability may impose to academic access and success. Emphasis on developing skills that increase success in college and self advocacy planning for access needs.

**HD-100 The Clackamas Experience**  
1 credit, Fall/Winter/Spring  
1 class hour/week

Designed for international students entering the PIE (Program of Intensive English) program or college for the first time. Introduces the PIE program, college policies and procedures, explores career interests, possible programs of study, matriculation procedures, and culture shock. Required: Instructor consent.

**HD-101 Service Learning Experience I**  
1 credit, Fall/Winter/Spring  
1 class, 22 service hours/term

Provides students with a service learning experience in a community setting. Students complete 22 hours of volunteer work and participate in seminars. Provides information, skill building, reflection and assessment methods. Required: Instructor consent. Pending State approval.

**HD-102 Service Learning Experience II**  
2-6 credits, Fall/Winter/Spring  
8 class, 3-12 lab hours/term

A continuation of HD-101. Recommended: Pass HD-101. Required: Instructor consent. Pending State approval.

**HD-110 Career Planning**  
2 credits, Fall/Winter/Spring/Summer  
2 class hours/week

Identify aptitudes and abilities, examine the potential job market and gain knowledge about training and educational opportunities. This course is part of the Life and Career Options Program. Corequisites: HD-114 & HD-202.

**HD-114 Life Planning**  
2 credits, Fall/Winter/Spring/Summer  
2 class hours/week

Identify personal interests, social and interpersonal skills, home and volunteer activities and develop a plan to use the transferable skills in future employment. This course is part of the Life and Career Options Program. Corequisites: HD-110 & HD-202.

**HD-120 New Student College Success**  
1 credit, Fall/Winter/Spring  
1 class hour/week

Familiarizes students with college services and personnel. Students assess study and educational time management skills and develop educational goals. Recommended for all new full-time students.

**HD-140 Career Exploration**  
1-3 credits  
Fall/Winter/Spring/Summer  
3 class hours/week

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. Also offered as an online course.

**HD-144 Introduction to Assertiveness**  
1 credit, not offered every term  
1 class hour/week

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  
1 class hour/week

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  
1 class hour/week

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  
1 class/hour week

Online course. Introduction to various decision styles for making satisfying personal, social, and work choices. Use this class for current decision needs.

**HD-190 Latino Leadership**  
1-3 credits, Fall/Winter/Spring  
1.5 class hours/week, 6 hours one Saturday/month

Teaches students of Latino descent intercultural and leadership skills, communication strategies, Latino History in the U.S. and the mentoring process.

**HD-202 Life Transitions**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Identify individual goals and objectives and design a program, including personal growth, to overcome barriers to economic self-sufficiency. This course is part of the Life and Career Options Program. Corequisites: HD-110 & HD-114 or HD-208.

**HD-208 Career & Life Planning**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Identify aptitudes and abilities, examine the potential job market and gain knowledge about training and educational opportunities. Identify personal interests, social and interpersonal skills, home and volunteer activities and develop a plan to use the transferable skills in future employment. This course is part of the Life and Career Options Program. Corequisite: HD-202.

**HD-209 LCOP 2: Career Advancement**

3 credits, Fall/Winter/Spring  
3 class hours/week

Explore ways to retain jobs, enhance productivity on the job, develop work skills to advance career opportunities beyond the current level of employment within organizations.

**HD-210 Advanced Life and Career Options (Bridges II)**

3 credits, Fall/Winter/Spring  
3 class hours/week

Continued exploration of education and career options and overcoming the barriers that prevent attainment of personal, education, and career goals. Must have successfully completed Bridges I classes. Prerequisites: HD-202-04 and HD-208-04. Corequisites: SKH-030-05 and SKH-030-06 and HD-120-05. Required: Instructor consent.

**HD-215 Transfer Success**

1 credit, not offered every term  
1 class hour/week

This course is designed to assist students with all elements of the process of transferring from Clackamas to any 4-year college or university.

**HDF**

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

***Family Studies***

See also Early Childhood Education (ECE).

**HDF-140 Contemporary American Families**

3 credits, Spring  
3 class hours/week

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 Effective Parenting I**

3 credits, Fall  
3 class hours/week

Focuses on long-term goals and increasing parent's ability to readjust to changes in children's developmental stages. Explore how young children think, feel, and act, and effective ways to teach children cooperation, discipline and confidence.

**HDF-142 Effective Parenting II**

3 credits, Winter  
3 class hours/week

Explore how parents are a major influence on children's development, and methods of parenting/problem-solving that help to prepare children to meet challenges with confidence; parenting skills to build children's self-esteem, develop responsibility.

**HDF-143 Effective Parenting III**

3 credits, Spring  
3 class hours/week

Emphasizes positive family problem-solving to help children become responsible, caring, loving individuals. Explore why discipline is not learned through threats and bribes. Buffer children from dangers of sexual promiscuity, drug abuse, self-destructive behavior.

**HDF-144 Effective Parenting IV**

3 credits, not offered every term  
3 class hours/week

Focuses on effective communication techniques. Help children deal with feelings, engage in cooperative behavior, and the importance of validating children's feelings.

**HDF-225 Prenatal, Infant & Toddler Development**

3 credits, Fall  
3 class hours/week

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  
3 class hours/week

Emphasis on principles of development in children 2 to 5 years, including physical, cognitive, social and emotional growth, observation and assessment.

**HDF-260 Child Abuse & Neglect**

3 credits, Fall/Winter/Spring  
3 class hours/week

Online course. Overview of child abuse problems for students interested in child care education and/or human services. A look at causes of abuse, abused child, abusive parents, role of teachers, areas of treatment, education, resources that can assist children and parents.

**HE/HPE*****Health*****HE-151 Body & Drugs**

3 credits, Fall/Winter/Spring  
3 class hours/week

Examines drugs, their physiological and psychological effects and implications of treatment and prevention. Covers food additives, prescription medications, and chemicals in the environment.

**HE-204 Nutrition & Weight Control**

3 credits, Fall/Winter/Spring  
3 class hours/week

Methods of maintaining or improving fitness by considering diets and dieting, obesity, types of exercise, physical testing, cardio-vascular fitness and nutritional concepts. Also offered as a tele-course.

**HE-205 Youth Addictions**

3 credits, Winter/Spring  
3 class hours/week

Increase knowledge of adolescent development and programs designed for prevention, assessment, intervention and treatment of chemically dependent youth. Investigate specific techniques for counseling youth. Required for Criminal Justice and Corrections students.

**HE-207 Stress Management/CJ**

1 credit, Fall  
1 class hour/week

Focuses on the effects of and ways to deal with stress, especially among emergency services workers and other high stress professionals.

**HE-249 Mental Health**

3 credits, Fall/Winter/Spring  
3 class hours/week

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  
3 class hours/week

Explores the interaction of health and the quality of life. Includes emotional behavior, drugs, disease, nutrition, human sexuality, cardiovascular functioning, and medical care. Meets health and physical education requirement for the Associate of Arts Oregon Transfer Degree. Also offered as a telecourse and an online course.

**HE-252 First Aid/CPR**

3 credits, Fall/Winter/Spring  
3 class hours/week

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  
3 class hours/week

Covers alcohol as a drug, problem drinking, alcohol use and its effect on family, social and economic well-being, and the rehabilitation process.

**HE-261 Community CPR**

1 credit, Fall/Winter/Spring  
8 class, 2 hours TBA/term

Completion of class with a passing grade of B or better entitles the student to an American Red Cross Certification in Adult, Child and Infant Cardiopulmonary Resuscitation.

**HE-280 Health/CWE**

2-6 credits  
Fall/Winter/Spring/Summer  
1.5 class, 18 job site hours/week

Cooperative work experience. Off-site work experience in a health-related occupation. Required: Instructor consent & a CWE Seminar.

**HPE-295 Health & Fitness for Life**

3 credits, Fall/Winter/Spring/Summer  
5 class hours/week, 5 hours TBA/term

Explores interaction of physical fitness and health. Meets three times a week for personal fitness assessment and two weekly classroom sessions. Related topics include: nutrition, stress reduction, relaxation techniques, goal setting, and weight control. Meets health and physical education requirement for the Associate of Arts Oregon Transfer Degree.

**HOR**

Courses with this prefix may not transfer with credit to a four-year institution unless otherwise specified.

**Horticulture****HOR-111 Horticulture Practicum/Fall**

6 credits, Fall  
7 class, 4 lab hours/week

Aspects of practical horticulture. Emphasis on container and field nursery production, greenhouse crops, turf and landscape installation and maintenance. Practice in basic procedures of plant propagation, soil, water and fertilizer management, and transplanting. Seasonal projects parallel Horticulture classes. **Oregon State University transfer course.**

**HOR-114 Garden Design**

1 credit, Winter or Spring  
10.5 class hours/term

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  
3 class, 1 lab hour/week

Environmental influences on plant growth, crop scheduling, greenhouse structures and equipment. Emphasis on foliage and flowering potted plant production.

**HOR-123 Landscape Maintenance**

3 credits, Fall  
3 class, 1 lab hour/week

Principles and practices of landscape maintenance, plant growth and development, soil-water-fertilizer management, pruning, turf, pest control, diagnosis of problems in trees and shrubs, and maintenance scheduling.

**HOR-130 Plant Propagation Theory**

3 credits, Winter  
3 class hours/week

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  
3 class, 1 lab hour/week

Emphasis on dormant pruning of fruiting and ornamental plants. Training in dormant pruning and training of grapes, fruit trees, deciduous, evergreens, ornamental trees and shrubs. Basic woody plant anatomy, growth, and development.

**HOR-132 Pesticide Selection & Use**

3 credits, Winter/Spring  
3 class hours/week

Study of control methods for weed, insect, and disease pests affecting ornamental plants, emphasizing chemical and non-chemical control options, selection and proper application when handling pesticides is included. State testing for pesticide license and recertification credit is available. Also offered as an online course.

**HOR-133 Horticulture Practicum/Winter**

6 credits, Winter  
7 class, 4 lab hours/week

Emphasis on container and field nursery production, greenhouse crops, turf and landscape installation and maintenance. Practice in basic procedures of plant propagation, soil, water and fertilizer management, transplanting, pruning, pesticide application, and equipment operation.

**HOR-134 Herb Growing & Gardening**

1 credit, Winter or Spring  
10.5 class hours/term

Study of herb plant propagation and garden use. Garden culture and design covered.

**HOR-140 Soils & Fertilizers**

3 credits, Spring  
3 class hours/week

Soil characteristics and management, including nutritional elements and the relationship between the soil and plant growth.

**HOR-142 Greenhouse Crops-Bedding Plant**

3 credits, Spring  
3 class, 1 lab hour/week

Detailed study of environmental influences on individual crops, their requirements, scheduling, including annual, biennial, and perennial plant production.

**HOR-143 Horticulture Practicum/Spring**

6 credits, Spring  
7 class, 4 lab hours/week

Emphasis on container and field nursery production, greenhouse crops, turf and landscape installation and maintenance. Practice of plant propagation, soil, water and fertilizer management, transplanting, equipment operation, and maintenance. Seasonal projects parallel Horticulture classes.

**HOR-144 Basic Pruning**

1 credit, Winter/Spring  
16 class hours/term

Why and how to prune trees, shrubs, and vines. Covers tools used for various pruning practices.

**HOR-145 Turf Installation & Maintenance**

3 credits, Spring  
3 class, 1 lab hour/week

Installation and maintenance of turf grasses commonly used in landscape construction. Emphasizes select cultural practices, irrigation, weed and pest identification and control.

**HOR-146 Fruit Tree Short Course**

1 credit, Spring  
15 class hours/term

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-211 Native Plant Identification**

1 credit, Summer  
10 class hours/term

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  
3 class, 1 lab hour/week

Specializes in flower arranging using seasonal varieties of plants grown in the garden. Floral arrangements will be modern and contemporary and use modern and contemporary containers. Cultural techniques for growing suitable varieties will be covered.

**HOR-213 Computer-Aided Landscape Design**

3 credits, Winter  
3 class hours/week

Development of skills with LandCadd software and its use in landscape design. Computer-aided design (CAD) techniques needed to produce finished landscape designs, plant lists, and reports. Prerequisite: Pass CS-090 & pass HOR-229.

**HOR-215 Herbaceous Perennials**

3 credits, Summer  
4 class hours/week

The identification, propagation, selection and garden culture as well as individual attributes of herbaceous perennial plants, including the evolution of perennial garden design and current gardening styles. **Oregon State University transfer course.**

**HOR-220 Plant Propagation/Fall**

3 credits, Fall  
3 class, 1 lab hour/week

Proper techniques for reproducing plants from seeds, cuttings, and grafting. Emphasis on seasonal plant production. (See also HOR-233 & HOR-242.)

**HOR-222 Horticultural Computer Applications [C]**

2 credits, Fall/Winter  
20 class hours/term

Utilizes database, spreadsheet, word-processing, and other computer programs for record keeping and management for growers and landscape businesses. Meets computer literacy requirement. **Oregon State University transfer course.** Prerequisite: Pass CS-090.

**HOR-223 Flower Arranging**

3 credits, Fall  
3 class, 1 lab hour/week

Development of skills in designing table arrangements using cut flowers, artificial, and dried flowers.

**HOR-224 Landscape Installation**

3 credits, Fall  
3 class, 1 lab hour/week

Materials and practices in landscape installation, including plan reading, materials take-off, estimating, bidding, scheduling, grading, construction materials, and plant installation.

**HOR-225 Principles of Arboriculture**

3 credits, Fall  
3 class hours/week

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  
3 class, 1 lab hour/week

Identification of deciduous trees, shrubs, and groundcovers, including their cultural requirements in the landscape. **Oregon State University transfer course.**

**HOR-227 Plant Identification/Winter**

3 credits, Winter  
3 class, 1 lab hour/week

Identification of conifers and broadleaved evergreens, shrubs, and groundcovers, including their cultural requirements in the landscape. **Oregon State University transfer course.**

**HOR-228 Plant Identification/Spring**

3 credits, Spring  
3 class, 1 lab hour/week

Identification of flowering trees, shrubs, and groundcovers, including their cultural requirements in the landscape. **Oregon State University transfer course.**

**HOR-229 Basic Landscape Design**

3 credits, Fall  
3 class, 1 lab hour/week

Introduction to landscape planning, including basic drafting skills, grading, drainage, and site planning.

**HOR-230 Equipment Operation & Maintenance**

3 credits, Winter  
3 class, 1 lab hour/week

Selection, operation, and maintenance of power driven machines, such as mowers, rototillers, chain saws, edgers, sprayers, tractors, and related equipment for nursery and landscape applications.

**HOR-231 Irrigation/Drainage Design**

3 credits, Fall/Winter  
3 class, 1 lab hour/week

Design of irrigation and drainage systems for various situations, including underground and above-ground, residential and commercial systems.

**HOR-232 Commercial Floral Design**

3 credits, Winter  
3 class, 1 lab hour/week

Creating specific floral pieces including corsages, wedding and funeral arrangements using cut flowers, artificial, and dried flowers.

**HOR-233 Plant Propagation/Winter**

3 credits, Winter  
3 class, 1 lab hour/week

Proper techniques for reproducing plants using cuttings, grafting, and division. Emphasis on seasonal plant production. (See also HOR-220 & HOR-242.)

**HOR-234 Intermediate Landscape Design**

3 credits, Winter  
3 class, 1 lab hour/week

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. **Oregon State University transfer course.**

**HOR-235 Weed Identification**

2 credits, Fall  
20 class hours/term

Identification and life cycles of weeds commonly found in landscapes and nurseries. Up to 15 recertification credits may be granted by the Oregon Department of Agriculture towards pesticide license renewal.

**HOR-236 Insect Identification**

2 credits, Fall  
20 class hours/term

Identification and life cycles of insects which damage ornamental plants in greenhouses, landscapes, and nurseries. UP to 15 recertification credits may be granted by the Oregon Department of Agriculture towards pesticide license renewal.

**HOR-237 Disease Identification**

2 credits, Winter  
20 class hours/term

Identification of ornamental plant diseases which occur in greenhouses, landscapes, and nurseries. Up to 15 recertification credits may be granted by the Oregon Department of Agriculture towards pesticide license renewal.

**HOR-238 Landscape Business Operations**

3 credits, Winter  
3 class hours/week

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, Fall  
24 class hours/term

The safe use of rope and saddle tree climbing procedures will be covered through lecture, discussion, and field practice.

**HOR-240 Irrigation/Drainage Practices**

3 credits, Spring  
3 class, 1 lab hour/week

Materials, equipment, and methods used to install irrigation systems in landscape areas. Emphasis on home lawns, gardens, and larger areas, including drainage methods for improved performances.

**HOR-241 Nursery Management**

3 credits, Spring  
3 class hours/week

Essentials of nursery practices, including containers and field growing practices, crop scheduling, management, and marketing.

**HOR-242 Plant Propagation/Spring**

3 credits, Spring  
3 class, 1 lab hour/week

Proper techniques for reproducing plants from seed, cuttings, division, and micro-propagation. Emphasis on seasonal plant production. (See also HOR-220 & HOR-233.)

**HOR-243 Tree & Shrub Pruning/Spring**

3 credits, Spring  
3 class, 1 lab hour/week

Pruning of woody ornamentals, including trees, shrubs, vines, and groundcovers. Emphasis on pruning of spring flowering ornamentals and training new growth.

**HOR-244 Environmental Landscape Design**

3 credits, Spring  
3 class, 1 lab hour/week

Design of landscapes to develop ecosystems using plants to encourage wildlife and low maintenance. Includes the proper use and installation of wildlife food plants and various water habitats.

**HOR-245 Advanced Landscape Design**

3 credits, Spring  
3 class, 1 lab hour/week

Advanced skill development in drawing, site analysis, and design, including commercial and residential landscapes meeting professional standards. **Oregon State University transfer course.**

**HOR-246 Organic Gardening**

3 credits, Spring  
3 class, 1 lab hour/term

Philosophy, writers, principles and practices of organic gardening. Organic gardening techniques appropriate to the maritime Pacific Northwest.

**HOR-247 Hardscape Installation**

3 credits, Spring  
3 class, 1 lab hour/week

Materials and construction methods used in landscape hardscape development with emphasis placed on design, materials selection, construction and maintenance of hardscape features for walls, patios, lighting, fencing, decks, and water features.

**HOR-248 Flower Arrangers Garden/Spring**

3 credits, Spring  
3 class, 1 lab hour/week

Specializes in flower arranging using seasonal varieties of plants grown in the garden. Floral arrangements will be modern and contemporary and use modern and contemporary containers. Cultural techniques for growing suitable varieties will be covered.

**HOR-250 Western Herbal Medicine**

1 credit, Spring  
12 class hours/term

This course introduces botanical medicine with a focus on herbs that can be grown locally. Instruction will focus on the components and medicinal uses of herbs. The class will make teas for respiratory infections, digestion, and steam treatments.

**HOR-251 Herbal Medicine Making**

1 credit, Spring  
12 class hours/term

Instruction will be provided in making medicinal teas, skin salve, tincture, infused oil, medicinal vinegar and cough syrup. Covers what ingredients to use and why each is important.

**HOR-252 Kitchen Medicine**

1 credit, Spring  
12 class hours/term

Instruction will focus on how to use common foods, herbs, spices, and water as medicine. This is a practical course to maintain health with resources at hand.

**HOR-280 Horticulture/CWE**

3 credits, Fall/Winter/Spring/Summer  
1.5 class, 10 job site hours/week

Cooperative work experience. On-the-job experience in the various segments of horticulture. Students enroll in co-op after completing nine credits of horticulture courses. Required: A CWE seminar.

**HOR-281 Horticulture/CWE**

6 credits, Fall/Winter/Spring/Summer  
1.5 class, 19 job site hours/week

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  
1.5 class, 10 job site hours/week

Cooperative work experience. On-the-job experience in the various segments of horticulture. Students enroll in co-op after completing nine credits of horticulture courses. This class is available to students in the Horticulture program who wish to use co-op as an elective credit. Required: A CWE seminar.

**HS**

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

## *Human Services/ Gerontology*

**HS-100 Introduction to Human Services**

3 credits, Fall  
3 class hours/week

Student will examine interpersonal skills, personal values, decisions and problems for human service trainees. The struggles, stress, demands, strains and rewards of working in this field will be addressed. Required for Human Services degree.

**HS-120 Basic Caregiver Training**

3 credits, Fall/Winter/Spring/Summer  
2 week class/6 days

A 35-hour basic training course for those who provide direct care to frail elderly and disabled persons in a variety of care settings including Adult Foster Homes, Assisted Living, and home care. Enrollment open to anyone interested in aging issues and elder care.

**HS-130 Introduction to Hospice Care**

2 credits, not offered every term  
5 class hours/week

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  
3 class hours/week

Explores local community social service resources, types of services, eligibility criteria, mission, policies, politics, service delivery systems of agencies, identification of client needs, and referral processes, historical, political and social trends.

**HS-155 Support Seniors in Community**

3 credits, not offered every term  
3 hours/week, 10 weeks

For housing managers, volunteers, and professionals who work with seniors in the community. Obtain resource information and tools you will need to enhance your skills in dealing with the elderly on a daily basis.

**HS-165 Activity Director**

3 credits, Fall  
3 class hours/week

Provides training for activity directors in long-term care facilities. Focuses on therapeutic activities and the appropriate use of people and material resources to promote continual growth and development in long-term residents.

**HS-170 Field Experience in Human Services**

3 credits, Spring  
3 class hours/week

Exploration of Human Services in the workplace and organizations, including work stress, supervision, ethics, cultural diversity, and social responsibility. Prerequisite to Human Services practicum courses. Requirement for Human Services degree.

**HS-280 Gerontology/CWE**

3-6 credits, Spring  
1 class, 15 lab hours/week

Cooperative work experience. On-the-job experience to acquaint gerontology students with the roles and related activities of organizations serving the elderly. This is an opportunity to evaluate the practice theories and techniques learned in the classroom. Required: Instructor consent & a CWE seminar.

**HS-280 Human Services Generalist I/CWE**

4 credits, Spring  
12 field experience hours/week

Cooperative work experience. Supervised experience in human services including but not limited to: early childhood care, criminal/juvenile justice; gerontology, social service and other related occupations. Prerequisite: HS-170 Introduction to Field Experience. Required: Instructor consent.

**HS-281 Human Services Generalist II/CWE**

4 credits, Winter/Spring  
12 field experience hours/week

Cooperative work experience level II. Supervised experience in human services including but not limited to: early childhood care, criminal/juvenile justice; gerontology, social service and other related occupations. Prerequisite: HS-170 Introduction to Field Experience. Required: Instructor consent.

**HS-282 Human Services Generalist III/CWE**

4 credits, Winter/Spring  
12 field experience hours/week

Cooperative work experience level III. Supervised experience in human services including but not limited to: early childhood care, criminal/juvenile justice; gerontology, social service and other related occupations. Prerequisite: HS-170 Introduction to Field Experience. Required: Instructor consent.

**HST*****History*****HST-101 History of Western Civilization****4 credits, Fall/Winter****4 class hours/week**

Origins and development of western civilization from ancient times to the 1300s. HST-101/102/103 meets the Social Science Sequence requirement for the AAOT degree. Also offered as a three credit telecourse. Recommended: Placement in RD-115.

**HST-102 History of Western Civilization****4 credits, Winter/Spring****4 class hours/week**

Origins and development of western civilization from the Renaissance to the 1800s. HST-101/102/103 meets the Social Science Sequence requirement for the AAOT degree. Also offered as a three credit telecourse. Recommended: Placement in RD-115.

**HST-103 History of Western Civilization****4 credits, Fall/Spring****4 class hours/week**

Origins and development of western civilization in the 19th and 20th centuries. HST-101/102/103 meets the Social Science Sequence requirement for the AAOT degree. Also offered as a three credit telecourse. Recommended: Placement in RD-115.

**HST-201 History of the United States****4 credits, Fall****4 class hours/week**

Covers the period from early discovery to the Age of Jackson. HST-201/202/203 meets the Social Science Sequence requirement for the AAOT degree. Recommended sequence be taken in order. Also offered as a 3 credit telecourse. Recommended: Placement in RD-115.

**HST-202 History of the United States****4 credits, Winter****4 class hours/week**

Covers the period from the Age of Jackson to World War I. HST-201/202/203 meets the Social Science Sequence requirement for the AAOT degree. Recommended sequence be taken in order. Also offered as a 3 credit telecourse. Recommended: Placement in RD-115.

**HST-203 History of the United States****4 credits, Spring****4 class hours/week**

Covers the period since WWI. HST-201/202/203 meets the Social Science Sequence requirement for the AAOT degree. Recommended sequence be taken in order. Also offered as a three credit telecourse. Recommended: Placement in RD-115.

**HST-204 History of Organized Labor in the United States****3 credits, not offered every year****3 class hours/week**

A course that studies the history of organized labor in the United States from the Revolutionary War to the present. HST-204/205/206 meets the Social Science Sequence requirement for the AAOT degree. Also offered as EC-216. Recommended: Placement in RD-115.

**HST-205 American Economic History****3 credits, not offered every year****3 class hours/week**

Studies the historical development of economic institutions in the United States. Includes industry, agriculture, transportation, labor and financial institutions. HST-204/205/206 meets the Social Science Sequence requirement for the AAOT degree. Also offered as EC-215. Recommended: Placement in RD-115.

**HST-206 Modern Economic History****3 credits, not offered every year****3 class hours/week**

A study of global events since the era of mercantilism affecting the economic development/underdevelopment of countries within the international community of nations. HST-204/205/206 meets the Social Science Sequence requirement for the AAOT degree. Also offered as EC-230. Recommended: Placement in RD-115.

**HST-238 History of Oregon****3 credits, Fall****3 class hours/week**

A survey of Oregon history from the 18<sup>th</sup> century exploration through the early period of John McLoughlin and Ft. Vancouver. Emphasis on the Lewis and Clark expedition. HST-238/239/240 meets the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**HST-239 History of Oregon****3 credits, Winter****3 class hours/week**

Oregon history from earliest days of Oregon City through the nineteenth century. Emphasis on the Oregon Trail and first territorial government. HST-238/239/240 meets the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**HST-240 History of Oregon****3 credits, Spring****3 class hours/week**

Oregon history in the 20<sup>th</sup> century, with all the developing political issues and controversies. Emphasis on Portland and the emerging national recognition. HST-238/239/240 meets the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**HST-280 History/CWE****2-6 credits****Fall/Winter/Spring/Summer****1.5 class, 6-18 job site hours/week**

Cooperative work experience. Provides students with on-the-job work experience in the field of history. Required: Instructor consent & a CWE seminar.

**HTM**

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

***Hospitality & Tourism Management***

All HTM courses are HOSTED online through Chemeketa Community College and are not offered every term.

**HTM-100 Introduction to the Hospitality Industry****3 credits, Fall****33 online hours/term**

Distance Learning: Online. Introduces the student to the hospitality industry. Defines the hospitality industry as a single, interrelated industry composed of food and beverage, travel and tourism, lodging, meeting and planning, and recreation, recreational entertainment, eco and heritage tourism.

**HTM-102 Hotel, Restaurant and Travel Law**

3 credits, Winter

33 online hours/term

Distance Learning: Online. Legal aspects of the hospitality and tourism industry: Americans with Disabilities Act, sexual harassment and discrimination, civil rights issues, basic court procedures, contract law, negligence, guest relationship obligations, alcohol liability, travel agent relationships, and licensing and regulations.

**HTM-103 Marketing in the Hospitality Industry**

3 credits, Spring

33 online hours/term

Distance Learning: Online. Learn marketing techniques and analyze industry specific marketing strategies. Covers products, services, and sales conditions within the industry.

**HTM-104 Introduction to the Travel and Tourism Industry**

3 credits, not offered every term

33 online hours/term

Distance Learning: Online. Promotes understanding and knowledge of the diverse elements that comprise the travel and tourism industry and the factors that influence growth and development. Examples of tourism development practices utilized in Oregon will be used.

**HTM-105 Introduction to the Food and Beverage Industry**

3 credits, not offered every term

33 online hours/term

Distance Learning: Online. Overview of the food industry, its structure, organization, size, economic impact, regulatory industries and peripheral industries; managerial problems and practices; and trade journals and resources, with a broad review of the various food service segments.

**HTM-106 Introduction to the Lodging Industry**

3 credits, not offered every term

33 online hours/term

Distance Learning: Online. Learn about the lodging industry's structure, size, and scope; managerial practices, human resources, accounting and budgeting; structure and organization within individual properties. Covers front office procedures and explore career opportunities.

**HTM-107 Sanitation and Safety for Managers**

3 credits, not offered every term

33 online hours/term

Distance Learning: Online. Covers current principles and practices of safety and sanitation management; Hazard Analysis Critical Control Point (HACCP) system, water and waste systems, and hazardous materials. A national certificate is issued upon completion by NRA.

**HTM-111 Cultural Heritage Tourism**

3 credits, not offered every term

33 online hours/term

Distance Learning: Online. An overview course designed to explore the subject of cultural heritage tourism and the value of this niche market.

**HTM-112 Bed and Breakfast Operations**

3 credits, not offered every term

33 online hours/term

Distance Learning: Online. Explores the subject of the bed and breakfast and innkeeping industry. Discusses the realities of purchasing, owning and operating a successful inn. Topics will explore design, financing, operations, food service and sanitation, marketing and governmental regulations.

**HTM-119 Introduction to Casino Management**

3 credits, not offered every term

33 online hours/term

Distance Learning: Online. The history and culture of gaming, gaming trends in the U.S., casino hotel organizational structure, government regulation, and casino games and Native American casinos. Practices and problems associated with casino management including staffing, controls, credit, security, marketing and entertainment.

**HTM-123 Computer Reservation Systems**

3 credits, not offered every term

33 online hours/term

Distance Learning: Online. Utilizes various computer reservation systems to train students for successful employment in a travel agency. Display available flights, auto rentals, lodging and accommodations, and other related travel information. Solving practical problems that travel agents encounter in the workplace.

**HTM-126 Meeting & Event Planning**

3 credits, not offered every term

33 online hours/term

Distance Learning: Online. Management and operations of the convention and meetings market. Introduction to the meetings industry, promotional activities, negotiations for meeting services, convention market salesmanship, customer service, and convention servicing. Facilities, technology and media are discussed.

**HTM-127 Travel Sales & eCommerce**

3 credits, not offered every term

33 online hours/term

Distance Learning: Online. Applies concepts and techniques to sample sales dialogues, examples and case studies. The impact of the Internet and e-commerce trends and the functionality of travel e-commerce sites. How e-commerce travel sites integrate with Global Distribution Systems.

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**HUM*****Humanities*****HUM-170 Metamorphoses [C]**

5 credits, Fall

3 class, 2 TBA hours/week

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. HUM-170/171/172 fulfill the Arts & Letters Sequence requirement for the AAOT degree. They also meet the University Studies Freshman Inquiry requirement at PSU. Meets computer literacy requirement. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-171 Metamorphoses [C]**

5 credits, Winter

3 class, 2 TBA hours/week

Explores the effect of change on individuals and societies. Helps students evaluate the probable success of various means of promoting personal, social/cultural/political, and paradigmatic change through readings in Darwin, Marx, Gandhi, and Kafka. HUM-170/171/172 fulfill the Arts & Letters Sequence requirement for the AAOT degree. They also meet the University Studies Freshman Inquiry requirement at PSU. Meets computer literacy requirement. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-172 Metamorphoses [C]**

5 credits, Spring  
3 class, 2 TBA hours/week

Explores, analyzes, and evaluates the changes occurring now. Through independent study, peer instruction, website and digital portfolio development, students will examine the intersections of cultural, social, individual, religious, paradigmatic shifts happening in our own lifetimes. HUM-170/171/172 fulfill the Arts & Letters Sequence requirement for the AAOT degree. They also meet the University Studies Freshman Inquiry requirement at PSU. Meets computer literacy requirement. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-220 Modern War in American Popular Culture**

4 credits, not offered every term  
4 class hours/week

Emphasizes observation, reflection, description, and critical thinking in order to gain a deeper understanding of the war in Vietnam and the Gulf War as seminal events represented in American popular culture. Any three 200-level Humanities Inquiry courses meets the Arts & Letters Sequences requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-221 Science in American Popular Culture**

4 credits, not offered every term  
4 class hours/week

Emphasizes observations, reflection, description, and critical thinking in order to gain a deeper understanding of the development of evolutionary theory, catastrophe theory, and historical disasters as represented in American popular culture. Any three 200-level Humanities Inquiry courses meets the Arts & Letters Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-222 Civil Rights in American Popular Culture**

4 credits, not offered every term  
4 class hours/week

Emphasizes observation, reflection, description, and critical thinking in order to gain a deeper understanding of civil rights history as represented in American popular culture and the ways in which concepts of civil rights have expanded. Any three 200-level Humanities Inquiry courses meets the Arts & Letters Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-226 Science & Religion**

4 credits, not offered every term  
4 class hours/week

Examines different aspects of science and religion and how scientific inquiry affects beliefs. Discusses the historical development of astronomy, cosmology, physics, biology, and theology. Investigates the current state of questions in religion and science. Any three 200-level Humanities Inquiry courses meets the Arts & Letters Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-227 Civil War & Psychology**

4 credits, not offered every term  
4 class hours/week

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. Any three 200-level Humanities Inquiry courses meets the Arts & Letters Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-228 The Renaissance**

4 credits, not offered every term  
4 class hours/week

Students gain insight into its influence on architecture, emphasis upon development of individual personality, confidence in the power of formal education, belief in citizens' participation in public life, and the rise of scientific inquiry. Any three 200-level Humanities Inquiry courses meets the Arts & Letters Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-229 Latin American Studies**

4 credits, not offered every term  
4 class hours/week

Survey and analysis of Latin America from pre-colonization to the modern era. Focuses on the political, social, cultural, and economic structure of Latin America. Discusses race and class relations, imperialism, revolution, neo-colonialism, and dependency theory. Any three 200-level Humanities Inquiry courses meets the Arts & Letters Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-230 Gender & Material Culture**

4 credits, not offered every term  
4 class hours/week

Provides in-depth study of social and cultural significance of material culture as it applies to gender, within a historical context. Focuses is on the material world of American society from the colonial era to present. Any three 200-level Humanities Inquiry courses meets the Arts & Letters Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-231 Engendered Identities**  
4 credits, not offered every term  
4 class hours/week

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. Any three 200-level Humanities Inquiry courses meets the Arts & Letters Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-232 Women in American History**  
4 credits, not offered every term  
4 class hours/week

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. Any three 200-level Humanities Inquiry courses meet the Arts & Letters Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-233 Electronic Culture [C]**  
4 credits, not offered every term  
4 class hours/week

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. Any three 200-level Humanities Inquiry courses meet the Arts & Letters Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**HUM-234 Freedom, Privacy and Technology [C]**  
4 credits, not offered every term  
4 class hours/week

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. Any three 200-level Humanities Inquiry courses meet the Arts & Letters Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

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## J *Journalism*

**J-134 Photojournalism**  
3 credits, Fall/Spring  
3 class hours/week

Emphasizes composition, lighting, and weather conditions, and creative ways to illustrate a story. Weekly shooting assignments. Recommended: Basic photography skills.

**J-211 Mass Media & Society**  
3 credits, Spring  
3 class hours/week

Introductory class provides an understanding of the development and operations of media. Includes discussion of newspapers, magazines, electronic media and advertising, and public relations. Required for journalism majors at the University of Oregon. Recommended: Placement in RD-115.

**J-215 Publications Lab [C]**  
1 credit, Fall/Winter/Spring  
3 lab hours/week

Provides opportunity to work on student publications in areas of writing, photography, editing, production, or advertising. Meets computer literacy requirement.

**J-216 Reporting [C]**  
3 credits, Fall/Winter/Spring  
3 class hours/week

Introduces the student to the fundamentals of journalism: news gathering, newspaper style, interviewing, lead writing, news writing and the laws of libel. Meets computer literacy requirement. Prerequisite: Pass WR-095.

**J-218 Editing & Design [C]**  
3 credits, Winter  
3 class hours/week

Instruction in copy editing, headline writing, page design, layout, and desktop publishing. Meets computer literacy requirement.

**J-226 Electronic Newspaper Production [C]**  
3 credits, Fall/Winter/Spring  
3 class hours/week

Weekly production of The Clackamas Print, the college newspaper. Students participate in an afternoon lab, producing design, layout and paste-up of the paper using desktop publishing. Meets computer literacy requirement.

**J-280 Journalism/Public Relations/CWE**  
2-6 credits, Fall/Winter/Spring  
1.5 class, 6-18 job site hours/week

Cooperative work experience. Provides students with on-the-job experience and training related to journalism. Required: Instructor consent & a CWE seminar.

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## JPN

### *Japanese*

**JPN-101 First-Year Japanese**  
4 credits, not offered every year  
4 class hours/week

Basic functional Japanese for communication in real life settings through reading, writing, speaking, and listening. Recommended: Placement in RD-115 & placement in WR-121.

**JPN-102 First-Year Japanese**  
4 credits, not offered every year  
4 class hours/week

Basic functional Japanese for communication in real life settings through reading, writing, speaking, and listening. Prerequisite: Pass JPN-101 or instructor consent.

**JPN-103 First-Year Japanese**  
4 credits, not offered every year  
4 class hours/week

Basic functional Japanese for communication in real life settings through reading, writing, speaking, and listening. Prerequisite: Pass JPN-102 or instructor consent.

**JPN-201 Second-Year Japanese**  
4 credits, not offered every year  
4 class hours/week

Expansion of basic Japanese skills with emphasis on intensive use of spoken Japanese and Kanji characters. JPN-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: Pass JPN-103 or instructor consent.

**JPN-202 Second-Year Japanese**  
4 credits, not offered every year  
4 class hours/week

Expansion of basic Japanese skills with emphasis on intensive use of spoken Japanese and Kanji characters. JPN-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: Pass JPN-201 or instructor consent.

**JPN-203 Second-Year Japanese**  
4 credits, not offered every year  
4 class hours/week

Expansion of basic Japanese skills with emphasis on intensive use of spoken Japanese and Kanji characters. JPN-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: Pass JPN-202 or instructor consent.

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**MA**

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

## ***Medical Assistant***

**MA-110 Medical Terminology**  
3 credits, Fall/Winter/Spring  
3 class hours/week

Understanding and effectively communicating with other health care professionals. Includes pronunciation, spelling, and meaning of words. Introduction to pathophysiology/disease processes.

**MA-112 Medical Office Practice**  
3 credits, Fall  
3 class hours/week

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. Restricted to Medical Assistant students.

**MA-115 Phlebotomy**  
1 credit, Spring  
1 class, 1 lab hour/week

Develops basic understanding and application of blood specimen collection and handling techniques used in the ambulatory care setting and hospital laboratory setting. Restricted to Medical Assistant students.

**MA-116 Introduction to Medications**  
2 credits, Winter  
2 class hours/week

Medications commonly administered in the ambulatory care setting. Legal aspects of administering medications as well as therapeutic and adverse outcomes of medications. Principles of preparing and administration of oral and parenteral medications. Restricted to Medical Assistant students. Prerequisite or corequisite: MTH-054.

**MA-117 Clinical Lab Procedures I**  
2 credits, Winter  
2 class, 1 lab hours/week

Introduces common laboratory procedures and terminology used in the ambulatory care setting. Restricted to Medical Assistant students who have completed fall term requirements.

**MA-118 Examination Room Techniques**  
3 credits, Winter  
2 class, 3 lab hours/week

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. Restricted to Medical Assistant students who have completed fall term requirements. Prerequisite: Pass BI-055, pass MA-110 & pass MA-112.

**MA-119 Medical Assistant Practicum I**  
4 credits, Winter  
2 class, 9 lab hours/week

Supervised assignment in the ambulatory care setting to gain administrative experience. May not be challenged. Restricted to Medical Assistant students who have completed fall term requirements. Corequisites: MA-116 & MA-118.

**MA-120 Medical Assistant Practicum II**  
6 credits, Spring  
2 class, 12 lab hours/week

Supervised assignment in the ambulatory care setting to gain clinical experience. May not be challenged. Restricted to Medical Assistant students who have completed fall and winter term requirements. Corequisites: MA-115, MA-121 & MA-125.

**MA-121 Clinical Lab Procedures II**  
2 credits, Spring  
2 class, 1 lab hours/week

Continuation of common laboratory procedures used in the ambulatory care setting. May not be challenged. Restricted to Medical Assistant students. Prerequisite: Pass MA-117.

**MA-125 Fundamentals of Human Development**  
3 credits, Spring  
3 class hours/week

Development across the lifespan. Includes bio-psycho-social aspects. Restricted to Medical Assistant students.

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**MFG**

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

## ***Manufacturing Technology***

The Manufacturing Department has a variety of programs and classes. Most Manufacturing classes can be customized to meet the needs of industry. For additional information contact the Customized Training Department at ext. 3523.

**MFG-047 Manufacturing Specialist I**  
10 credits, not offered every term  
20 class hours/week

Workplace readiness course whereby students will gain an understanding of manufacturing processes through hands on experience. Topics may include: machining fundamentals, CNC machine operation and welding processes. Workplace success skills and interpersonal skills also covered. Corequisite: MFG-048.

**MFG-048 Manufacturing Specialist II**  
10 credits, not offered every term  
20 class hours/week

A continuation of MFG-047. Corequisite: MFG-047.

**MFG-049 Semiconductor Operator I**  
10 credits, not offered every term  
20 class hours/week

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: MFG-050.

**MFG-050 Semiconductor Operator II**  
10 credits, not offered every term  
20 class hours/week

A continuation of MFG-049. Corequisite: MFG-049.

**MFG-104 Print Reading**  
2 credits, Fall/Winter/Spring  
2 class hours/week

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, Fall/Winter/Spring  
2.5 class hours/week

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, not offered every term  
3 class hours/week

Introduces participants to the application of gauging and inspection using Geometric Dimensioning and Tolerancing. Students will identify inspection equipment and inspect GDT characteristics while experiencing their manufacturing implications.

**MFG-107 Industrial Safety & OSHA**  
3 credits, Fall/Winter/Spring  
3 class hours/week

Covers safety hazards and OSHA requirements in the workplace. Covers eye safety, grinding wheel hazards, electrical and chemical hazards, slips and falls, back injuries, and environmental regulations. Independent projects will be required.

**MFG-109 Computer Literacy for Technicians [C]**  
3 credits, Fall/Winter/Spring  
3.5 class hours/week

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. Meets computer literacy requirement.

**MFG-110 Manufacturing Special Projects**  
1-9 credits, Fall/Winter/Spring  
18 class hours/week

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. Recommended: MFG-111, MFG-112, MFG-113, MFG-201 or instructor consent.

**MFG-111 Machine Tool Fundamentals I**  
3-9 credits, Fall/Winter/Spring  
18 class hours/week

Covers machine tool operations including drill presses, lathes, and milling machines. The selection and use of taps and drills along with internal and external threading, and simple step milling will be discussed. Recommended: MFG-104 & MFG-107.

**MFG-112 Machine Tool Fundamentals II**  
3-9 credits, Fall/Winter/Spring  
18 class hours/week

Covers setup and operation of the vertical milling machine and boring techniques on the lathe. Surface grinding and the selection of abrasive grinding wheels will also be discussed. Recommended: MFG-111.

**MFG-113 Machine Tool Fundamentals III**  
3-9 credits, Fall/Winter/Spring  
18 class hours/week

Topics include offset boring heads, rotary tables and indexing devices. Also covers applied technical math, inspection techniques, optical comparators, coordinate measuring machine, and cylindrical grinder. Recommended: MFG-111 & MFG-112.

**MFG-120 New Student College Success**  
1 credit, not offered every term  
1 class hour/week

Course designed to introduce students to each other and skills needed to achieve college success. Recommended for all new students in the Manufacturing field.

**MFG-124 Statistical Process Control**  
1-3 credits, Spring  
3 class hours/week

Concepts and methods to organize and implement an ongoing quality improvement program. Integrates Dr. Demings management philosophy with problem solving and charting techniques. Covers  $\bar{x}$ , R and C charts, and capability analysis.

**MFG-130 Basic Electricity I**  
3 credits, Fall  
3 class hours/week

For students who have little or no training in electricity. Concepts presented from theoretical and practical viewpoint using examples common to the trade. Circuits, atomic structure, electron theory, parallel and combination direct current is discussed. Recommended: MTH-060.

**MFG-131 Basic Electricity II**  
3 credits, Winter  
3 class hours/week

Alternating circuits, single and three phase circuits, and basic load calculations are discussed. Transformers, relays, solenoids, and motors are discussed. Lighting circuits containing both incandescent and electric discharge lighting are also discussed. Recommended: MTH-060 & MFG-130.

**MFG-132 Basic Electricity III**  
3 credits, Spring  
3 class hours/week

Course designed to gain knowledge of the National Electric Code (NEC) or Oregon Electrical Specialty Code as they apply to the scope of the Limited Building Maintenance Electrical License. Recommended: MFG-130 & MFG-131.

**MFG-140 Principles of Fluid Power**  
3 credits, not offered every term  
6 class hours/week

Hydraulic and pneumatic technology as used in industry today. Principles of hydraulics, and basic components including valves, cylinders, pumps, motors, piping, fluid, fluid conditions and accessories are covered.

**MFG-200 Introduction to CNC Programming**

1 credit, not offered every term  
4 class hours/week, 5 weeks

Short course designed to prepare students for further study in CNC programming. Covers fundamentals of G & M code programming by completing several CNC programs, using simulation software and by testing their programs on a vertical machining center. Recommended: MFG-111.

**MFG-201 CNC Programming I**

4 credits, Fall/Winter  
7.5 class hours/week

Class for persons with little or no previous experience. Students will be taught how to operate a CNC machining center and to write a G&M-code program. Recommended: MFG-109 & MFG-112.

**MFG-202 CNC Programming II**

4 credits, Winter  
7.5 class hours/week

Second course in the CNC programming series. Includes sub-programs and 4<sup>th</sup> axis programming for the milling center and the basics of programming and operation of CNC turning center. Recommended: MFG-201.

**MFG-203 CNC Programming III-Electrical Discharge Machining**

3 credits, Spring  
6 class hours/week

Introduces the principles and operation of Electrical Discharge Machining (EDM). Operating principles, dielectric fluids, electrode wear, power setting and surface finish control will be discussed. Includes hands-on training on a Hansvedt, sinker-type EDM. Recommended: MFG-201 & MFG-204.

**MFG-204 Computer-Aided Manufacturing I**

4 credits, Fall  
7.5 class hours/week

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  
7.5 class hours/week

Continuation of the Computer-Aided Manufacturing series. Topics include industrial controls and automation, robotics and motion control. Students will refine their knowledge of Computer-Aided Manufacturing through hands-on laboratory activities. Recommended: MFG-204.

**MFG-206 Computer-Aided Manufacturing III**

2 credits, Spring  
4 class hours/week

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 [C]**

3 credits, Winter  
3.5 class hours/week

Course meets the higher-level computer literacy needs. Primary focus is structured computer programming in Visual Basic language and application of programming industrial automation. Hands-on experience in pneumatics, PLCs and data acquisition. Course assumes basic knowledge of PC, Internet and file management. Recommended: MFG-109.

**MFG-210 CAM Special Projects**

1-4 credits, not offered every term  
8 class hours/week

Allows students to integrate and improve CNC and CAD/CAM manufacturing skills. Students are assigned a variety of hands-on projects based on their skill level and interest. Recommended: MFG-201 & MFG-204. (May be taken concurrently with MFG-204).

**MFG-211 Machine Tool Fundamentals IV**

6 credits, Fall/Winter/Spring  
12 class hours/week

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  
6 class hours/week

Introduces metallurgy and material 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-240 Coordinate Measuring Machine Basics**

2 credits, not offered every term  
4 class hours/week

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-246 CNC Machine: Set-up & Operate**

1-3 credits, not offered every term  
6 class hours/week

Designed to instruct new CNC operators or the transitional manual machinist in the disciplines of CNC machine operation and set-up as it relates to a 3-axis vertical mill.

**MFG-271 MasterCam Mill I**

4 credits, not offered every term  
8 class hours/week

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  
8 class hours/week

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  
6 class hours/week

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-280 Manufacturing Technology/  
CWE**

2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Practical experience in the manufacturing trades. Coordination of instruction will occur with industry and the manufacturing and cooperative work departments. Required: Instructor consent & a CWE seminar.

**MIT****Medical Imaging  
Technology****MIT-103 Introduction to Medical Imaging**

3 credits, Fall/Winter/Spring

33 online hours/term

Distance Learning: Online. Introduces the art and science of medical imaging. History and development of radiography, vascular technology, diagnostic medical sonography, nuclear medicine; ethics; medical law; the health care industry, and the related professional and regulatory organizations. Recommended: Placement in WR-101 or WR-121.

**MTH****Mathematics****MTH-010 Fundamentals of  
Arithmetic I**

4 credits, Fall/Winter/Spring/Summer

4 class hours/week

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

4 class hours/week

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.

**MTH-050 Technical Mathematics I**

3 credits, Fall/Winter/Spring/Summer

4 class hours/week

Topics include problem-solving, estimating, metric measurement, simple geometry, ratios and proportions, scientific notation, accuracy and precision of measurements, and an introduction to algebra. Prerequisite: Pass MTH-020.

**MTH-054 Math for Health Care  
Professionals**

3 credits, Fall/Winter/Spring

3 class hours/week

Topics include problem solving, ratios and proportions, accuracy and precision of metric, apothecary and household systems of measurement and calculating medication doses. Prerequisite: Pass MTH-020.

**MTH-060 Algebra I**

4 credits, Fall/Winter/Spring/Summer

4 class hours/week

Algebra fundamentals for review or for the beginner. Topics include operations on integers, first degree equations and inequalities, operations on algebraic expressions, and an introduction to graphing techniques. Also offered as an online course. Prerequisite: Pass MTH-020.

**MTH-065 Algebra II**

4 credits, Fall/Winter/Spring/Summer

4 class hours/week

Factoring techniques, operations and equations involving rational expressions, introduction to radicals, solving quadratic equations. Also offered as an online course. Prerequisite: Pass MTH-060.

**MTH-080 Technical Mathematics II**

3 credits, Fall/Winter/Spring/Summer

4 class hours/week

Topics include introduction to statistics, graphing data, linear equations, linear systems of equations, trigonometry, and applications of geometry. Prerequisite: Pass MTH-050.

**MTH-082 Math for Water Technology**

1-4 credits, Fall/Winter

1 class hour/week

Math problem solving for water, wastewater and ultrapure water applications. Problems include flow rate, chemical dosage, detention time, treatment plant loading, treatment process efficiency, unit conversion and process control. Prerequisite: Pass MTH-065.

**MTH-085 Technical Mathematics III**

3 credits, Fall/Winter/Spring/Summer

4 class hours/week

Topics include power equations, root equations, nonlinear equations, quadratic equations, functions, trigonometric functions, and applications of solid geometry. Prerequisite: Pass MTH-080.

**MTH-092 Math for Computer Technicians**

4 credits, Fall/Winter

4 class hours/week

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: Placement in RD-115 & placement in WR-121. Prerequisites: Pass CS-120, pass MTH-065 & pass WR-090 (formerly WR-011).

**MTH-095 Algebra III**

4 credits, Fall/Winter/Spring/Summer

4 class hours/week

Uses a graphing utility to study topics that include quadratic equations and inequalities; relations and functions including graphing linear equations and inequalities in two variables; quadratic equations in two variables; exponents and radicals; conic sections. Also offered as an online course. Prerequisite: Pass MTH-065.

**MTH-105 Introduction to Contemporary  
Math**

4 credits, Fall/Winter/Spring

4 class hours/week

Transfer mathematics course for nonscience majors. Includes the study of sets, problem solving, counting techniques, probability, introduction to statistics and fractals. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-095.

**MTH-111 College Algebra**

4 credits, Fall/Winter/Spring/Summer

4 class hours/week

A transfer course designed for students preparing for trigonometry or statistics. Topics include relations and functions, theory of equations, rational functions, exponential and logarithmic functions, an introduction to matrices, and matrix solutions to linear systems, sequences and series. Also offered as an online course. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-095.

**MTH-112 Trigonometry/Pre-Calculus**  
4 credits, Fall/Winter/Spring/Summer  
4 class hours/week

Trigonometry developed using the unit circle. Topics include trigonometric functions and their inverses, graphs of trigonometric functions, equations and identities, applications, an introduction to vectors, polar graphs, complex numbers, and conic sections. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-111.

**MTH-211 Fundamentals of Elementary Math I**

4 credits, Fall  
4 class hours/week

Problem solving, logic, set theory, and whole numbers. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-095.

**MTH-212 Fundamentals of Elementary Math II**

4 credits, Winter  
4 class hours/week

Integers, rational numbers, real numbers, probability and statistics. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-211.

**MTH-213 Fundamentals of Elementary Math III**

4 credits, Spring  
4 class hours/week

Geometry, measurement, computer software applications. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-212.

**MTH-231 Elements of Discrete Math**

4 credits, not offered every year

4 class hours/week

A transfer course designed for computer science, electrical engineering, and mathematics majors. Topics include logic, relations, digraphs, lattices, Boolean algebras, and circuit simplification. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-111.

**MTH-243 Probability & Statistics**  
4 credits, Fall/Winter/Spring/Summer  
4 class hours/week

Descriptive statistics, elementary probability, random variables, and inferences on the mean. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-111.

**MTH-244 Statistics**  
4 credits, Winter/Spring/Summer  
4 class hours/week

Hypothesis tests and confidence intervals for one and two populations, statistical quality control, linear regression, test for association, and analysis of variance. A student project is required. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-243.

**MTH-251 Calculus I**  
5 credits, Fall/Winter/Spring/Summer  
5 class hours/week

Topics and applications of differentiation. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-112.

**MTH-252 Calculus II**  
5 credits, Fall/Winter/Spring  
5 class hours/week

Topics and applications of integration. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-251.

**MTH-253 Calculus III**  
5 credits, Winter/Spring  
5 class hours/week

Additional topics in calculus including sequences and series. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-252.

**MTH-254 Vector Calculus**  
5 credits, Fall/Spring  
5 class hours/week

The study of vectors and analytic geometry in three-space, the calculus of vector-valued functions, and the calculus of several variables. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-253.

**MTH-256 Differential Equations**  
4 credits, Spring  
4 class hours/week

Introduction to the basic concepts, theory, methods, and applications of ordinary differential equations. Numerical solutions and Laplace transforms will be presented. Recommended: Placement in RD-115 & placement in WR-121. Corequisite: MTH-253.

**MTH-261 Linear Algebra**  
4 credits, Winter  
4 class hours/week

Systems of equations, vectors, matrices, linear transformations, eigenvalues and eigenvectors, and applications of these topics. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass MTH-252.

**MTH-280 Mathematics/CWE**  
2-6 credits, Fall/Winter/Spring/  
Summer

1.5 class, 6-18 job site hours/week  
Cooperative work experience. Practical experience in teaching, tutoring or applying mathematics while supervised by a teacher or mathematician. Required: Instructor consent & a CWE seminar.

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**MUP**

***Music Performance***

**MUP-100 Individual Lessons: Non-Music Majors**

1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
Private lessons for beginners, non-music majors, and students who receive a low rating in MUP 171-191 auditions. Brass, woodwind, percussion, string and keyboard instruments, and voice.

**MUP-102 Concert Band**  
1 credit, Fall/Winter/Spring  
1-2 class hours/week

Performance and study of traditional and contemporary band literature. Emphasis on musical style and basic instrumental techniques as applied to ensemble playing. Tuition waivers, additional credit, and affiliation with the Lewis & Clark Band or Marylhurst Orchestra available by special arrangement. Required: ability to read music and play a band instrument.

**MUP-104 Pep Band**  
0-1 credit, Fall/Winter/Spring  
1 class hour/week, 10 performance hours/term

Instrumental performing group concentrating on rock, pop, and contemporary styles in the small to medium-sized group setting. No audition.

**MUP-105 Jazz Ensemble**

2 credits, Fall/Winter/Spring  
6 class hours/week

Instrumental performing group concentrating on jazz, Afro-Cuban, funk, and contemporary styles in the "big-band" setting. Includes exploration of jazz improvisation and styles of famous jazz orchestras and composers.

**MUP-121 Clackamas Chorale**

1 credit, Fall/Winter/Spring  
2 class hours/week

College-level vocal ensemble (mixed, male and female) focusing on a variety of musical styles, sound vocal techniques, and sight singing. Nonmajors, including community singers, welcome. No audition.

**MUP-122 Chamber Choir**

2 credits, Fall/Winter/Spring  
6 class hours/week

Select vocal ensemble which rehearses and performs choral music from the Renaissance to the 20th century. Provides preparation for entering professional fields of music and performance. Emphasis on a cappella singing applied to appropriate chamber music. Recommended for vocal music majors.

**MUP-125 Vocal Jazz Ensemble**

2 credits, Fall/Winter/Spring  
6 class hours/week

Performing ensemble that cultivates musical, professional, and personal growth through rehearsal and performance. Includes study of jazz as it applies to vocal ensemble combined with rhythm section. Emphasis on style, improvisation, and techniques.

**MUP-142 Chamber Ensemble: Jazz Combo I**

0-1 credit, Fall/Winter/Spring  
1-2 class hours/week

Instrumental performing group concentrating on jazz, Afro-Cuban, and contemporary styles in the combo/small group setting. Includes exploration of jazz improvisation and styles of famous jazz performers, and composers. Required: Instructor consent.

**MUP-158 Chamber Ensemble**

0-2 credits, Fall/Winter/Spring  
2-3 class hours/week

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.

**MUP-171 Individual Lessons: Jazz Piano**

1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week

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  
One 30-minute private lesson/week

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-174 Individual Lessons: Jazz Voice**

1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week

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  
One 30-minute private lesson/week

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  
One 30-minute private lesson/week

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  
One 30-minute private lesson/week

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  
One 30-minute private lesson/week

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-178 Individual Lessons: Jazz Bass**

1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week

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  
One 30-minute private lesson/week

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-180 Individual Lessons: Jazz Guitar**

1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week

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  
One 30-minute private lesson/week

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-181 Individual Lessons: Jazz Flute**

1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week

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  
One 30-minute private lesson/week

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  
One 30-minute private lesson/week

College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-183 Individual Lessons: Jazz Clarinet**

1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
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  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-184 Individual Lessons: Jazz Saxophone**

1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
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  
One 30-minute private lesson/week  
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  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-186 Individual Lessons: Jazz Trumpet**

1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
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  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-188 Individual Lessons: Jazz Trombone**

1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
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  
One 30-minute private lesson/week  
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  
One 30-minute private lesson/week  
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  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-191 Individual Lessons: Jazz Percussion**

1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
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  
One 30-minute private lesson/week  
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  
1-2 class hours/week  
Instrumental performing group concentrating on percussion literature from all musical periods. Tuition waivers available to deserving students. Required: Instructor consent.

**MUP-202 Concert Band**

1-2 credits, Fall/Winter/Spring  
2-4 class hours/week  
Performance and study of traditional and contemporary band literature. Emphasis on musical style and basic instrumental techniques as applied to ensemble playing. Tuition waivers, additional credit, and affiliation with the Marylhurst Orchestra available by special arrangement. Required: Ability to read music and play a band instrument.

**MUP-204 Pep Band**

0-1 credit, Fall/Winter/Spring  
1 class hour/week, 10 performance hours/term  
Instrumental performing group concentrating on rock, pop, and contemporary styles in the small to medium-sized group setting. No audition.

**MUP-205 Jazz Ensemble**

2 credits, Fall/Winter/Spring  
6 class hours/week  
Instrumental performing group concentrating on jazz, Afro-Cuban, funk, and contemporary styles in the "big-band" setting. Includes exploration of jazz improvisation and styles of famous jazz orchestras and composers.

**MUP-221 Clackamas Chorale**

1 credit, Fall/Winter/Spring  
2 class hours/week  
College-level vocal ensemble mixed, male and female) focusing on a variety of musical styles, sound vocal techniques, and sight singing. Nonmajors, including community singers, welcome. No audition.

**MUP-222 Chamber Choir**

2 credits, Fall/Winter/Spring  
6 class hours/week  
Select vocal ensemble which rehearses and performs choral music from the Renaissance to the 20th century. Provides preparation for entering professional fields of music and performance. Emphasis on a cappella singing applied to appropriate chamber music. Recommended for vocal music majors.

**MUP-225 Vocal Jazz Ensemble**

2 credits, Fall/Winter/Spring  
6 class hours/week  
Performing ensemble that cultivates musical, professional, and personal growth through rehearsal and performance. Includes study of jazz as it applies to vocal ensemble combined with rhythm section. Emphasis on style, improvisation, and techniques.

**MUP-242 Chamber Ensemble: Jazz Combo IV**  
0-1 credit, Fall/Winter/Spring  
1-2 class hours/week

Instrumental performing group concentrating on jazz, Afro-Cuban, and contemporary styles in the combo/small group setting. Includes exploration of jazz improvisation and styles of famous jazz performers, and composers.

**MUP-258 Chamber Ensemble**  
0-2 credits, Fall/Winter/Spring  
2-3 class hours/week

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.

**MUP-271 Individual Lessons: Piano**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-271 Individual Lessons: Jazz Piano**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

**MUP-274 Individual Lessons: Voice**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-274 Individual Lessons: Jazz Voice**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

**MUP-275 Individual Lessons: Violin**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-276 Individual Lessons: Viola**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-277 Individual Lessons: Cello**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-278 Individual Lessons: Bass**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-278 Individual Lessons: Jazz Bass**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

**MUP-280 Individual Lessons: Guitar**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-280 Individual Lessons: Jazz Guitar**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

**MUP-281 Individual Lessons: Flute**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-281 Individual Lessons: Jazz Flute**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

**MUP-282 Individual Lessons: Oboe**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-283 Individual Lessons: Clarinet**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-283 Individual Lessons: Jazz Clarinet**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

**MUP-284 Individual Lessons: Saxophone**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-284 Individual Lessons: Jazz Saxophone**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

**MUP-285 Individual Lessons: Bassoon**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-286 Individual Lessons: Trumpet**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-286 Individual Lessons: Jazz Trumpet**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

**MUP-288 Individual Lessons: Trombone**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-288 Individual Lessons: Jazz Trombone**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

**MUP-289 Individual Lessons: Baritone**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-290 Individual Lessons: Tuba**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-291 Individual Lessons: Percussion**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons required for music majors and available to qualified nonmajors. End-of-term juried performance mandatory. Corequisite: MUS-189.

**MUP-291 Individual Lessons: Jazz Percussion**  
1 credit, Fall/Winter/Spring/Summer  
One 30-minute private lesson/week  
College level private lessons available to music majors and qualified nonmajors. End-of-term juried performance mandatory.

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## MUS

### *Music*

**MUS-101 Music Fundamentals**  
3 credits, Fall  
3 class hours/week  
Introduction to fundamentals of reading and writing music. Designed for non-music majors or majors needing substantial preparation for Music Theory I.

**MUS-101L MIDI Lab [C]**  
0 credit, Fall  
1 lab hour/week  
A MIDI lab in which Music Fundamentals students improve their music skills and become familiar with music-related software packages. The applications are designed to reinforce concepts presented in MUS-101. Meets computer literacy requirement.

**MUS-102 Music Fundamentals**  
3 credits, Winter  
3 class hours/week  
Introduction to fundamentals of reading and writing music. Designed for non-music majors or majors needing substantial preparation for Music Theory I.

**MUS-102L MIDI Lab [C]**  
0 credit, Winter  
1 lab hour/week  
A MIDI lab in which Music Fundamentals students improve their music skills and become familiar with music-related software packages. The applications are designed to reinforce concepts presented in MUS-102. Meets computer literacy requirement.

**MUS-103 Music Fundamentals**  
3 credits, Spring  
3 class hours/week  
Introduction to fundamentals of reading and writing music. Designed for non-music majors or majors needing substantial preparation for Music Theory I.

**MUS-103L MIDI Lab [C]**  
0 credit, Winter  
1 lab hour/week  
A MIDI lab in which Music Fundamentals students improve their music skills and become familiar with music-related software packages. The applications are designed to reinforce concepts presented in MUS-103. Meets computer literacy requirement.

**MUS-105 Music Appreciation [C]**  
3 credits, Fall/Winter/Spring/Summer  
33 online hours/term  
Distance Learning: Online. Explores music from the Medieval through the 20th Century featuring instrumental and vocal music. Study of musical terms, instruments of the orchestra, musical genres and composers including Haydn, Mozart, Beethoven, Tchaikovsky, Brahms, and Stravinsky. Meets computer literacy requirement.

**MUS-106 Audio Recording at Home**  
0-1 credit  
Fall/Winter/Spring/Summer  
Weekend course/10 class hours  
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**  
0-3 credits  
Fall/Winter/Spring/Summer  
1-3 class hours/week  
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**  
0-3 credits, Fall/Winter/Spring  
1-3 class hours/week  
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**  
0-3 credits, Fall/Winter/Spring  
1-3 class hours/week

Exploration of digital recording/editing software and production of CD project. Advanced exploration of techniques and tools used in audio recording. Areas of study include signal path, microphone applications, software, hardware, outboard gear, tracking, mixing, and editing. Analog, digital, and hard drive recording will be explored. Software/hardware includes ProTools, ADAT, Mackie, etc. Prerequisite: Pass MUS-107 & pass MUS-108.

**MUS-110 Introduction to Music Theory**  
3 credits, Fall  
3 class hours/week

Builds familiarity with notes in treble and bass clef. Teaches visual and auditory recognition of rhythmic and pitch patterns. Includes scales, intervals, triads, and cadences. Requires fundamental music reading skill.

**MUS-111 Music Theory I**  
3 credits, Fall  
3 class hours/week

Presents the diatonic material and structure of tonal music in theory and practice. Required for music majors. MUS-111/112/113 meets the Arts & Letters Sequence requirement for the AAOT degree. Required: Ability to read music. Recommended: Placement in MTH-111, placement in RD-115 & placement in WR-121. Corequisites: MUS-111L, MUS-114 & MUS-127.

**MUS-111L MIDI Lab [C]**  
0 credit, Fall  
1 lab hour/week

Introduces students to Finale (music notation software) on Macintosh computers. Required for first-year music majors. Meets the computer literacy requirement. Corequisites: MUS-111, MUS-114 & MUS-127.

**MUS-112 Music Theory I**  
3 credits, Winter  
3 class hours/week

Presents the diatonic material and structure of tonal music in theory and practice. Required for music majors. MUS-111/112/113 meets the Arts & Letters Sequence requirement for the AAOT degree. Required: Ability to read music. Recommended: Placement in MTH-111, placement in RD-115 & placement in WR-121. Corequisites: MUS-112L, MUS-115 & MUS-128. Prerequisites: Pass MUS-111 & pass MUS-111L.

**MUS-112L MIDI Lab [C]**  
0 credit, Winter  
1 lab hour/week

Introduces students to Finale (music notation software) on Macintosh computers. Required for first-year music majors. Meets computer literacy requirement. Corequisites: MUS-112, MUS-115 & MUS-128.

**MUS-113 Music Theory I**  
3 credits, Spring  
3 class hours/week

Presents the diatonic material and structure of tonal music in theory and practice. Required for music majors. MUS-111/112/113 meets the Arts & Letters Sequence requirement for the AAOT degree. Required: Ability to read music. Recommended: Placement in MTH-111, placement in RD-115 & placement in WR-121. Corequisites: MUS-113L, MUS-116 & MUS-129. Prerequisites: Pass MUS-112 & pass MUS-112L.

**MUS-113L MIDI Lab [C]**  
0 credit, Spring  
1 lab hour/week

Introduces students to Finale (music notation software) on Macintosh computers. Required for first-year music majors. Meets computer literacy requirement. Corequisites: MUS-113, MUS-116 & MUS-129.

**MUS-114 Aural Skills I**  
2 credits, Fall  
2 class hours/week

Diatonic sight singing in major keys using sol feg syllables and moveable "do". Melodic dictation and aural recognition of intervals and triads. Required for first-year music majors. Corequisites: MUS-111, MUS-111L & MUS-127.

**MUS-115 Aural Skills I**  
2 credits, Winter  
2 class hours/week

Diatonic sight singing in major keys using sol feg syllables and moveable "do". Melodic dictation and aural recognition of intervals, triads, and 7th chords. Required for first-year music majors. Corequisites: MUS-112, MUS-128 & MUS-112L. Prerequisite: Pass MUS-114.

**MUS-116 Aural Skills I**  
2 credits, Spring  
2 class hours/week

Diatonic sight singing in major keys using sol feg syllables and moveable "do". Melodic dictation and aural recognition of intervals, triads, and 7th chords. Required for first-year music majors. Corequisites: MUS-113, MUS-113L & MUS-129. Prerequisite: Pass MUS-115.

**MUS-120 Finale I [C]**  
2 credits, not offered every term  
2 class hours/week

Fundamentals, specialized techniques and in-depth study or advanced techniques of computer-generated music notation via Finale for Macintosh. Meets computer literacy requirement. Prerequisites: Pass MUS-113, pass MUS-113L & pass MUS-129.

**MUS-121 Finale II [C]**  
2 credits, not offered every term  
2 class hours/week

Fundamentals, specialized techniques and in-depth study or advanced techniques of computer-generated music notation via Finale for Macintosh. Meets computer literacy requirement. Prerequisite: Pass MUS-120.

**MUS-122 Finale III [C]**  
2 credits, not offered every term  
2 class hours/week

Fundamentals, specialized techniques and in-depth study or advanced techniques of computer-generated music notation via Finale for Macintosh. Meets computer literacy requirement. Prerequisite: Pass MUS-121.

**MUS-124 Jazz Arranging/Finale [C]**  
3 credits, not offered every term  
3 class hours/week

Introduction to jazz arranging taught via Finale, a music notation program. Includes ranges, transposition, and playing techniques of various instruments. Emphasis on current stylistic approached and integration of electronic instruments. Meets computer literacy requirement.

**MUS-127 Keyboard Skills I**

2 credits, Fall  
2 class hours/week

Develops basic keyboard skills. Studies keyboard applications of the materials of tonal music. Required for music majors. Corequisites: MUS-111, MUS-111L & MUS-114.

**MUS-128 Keyboard Skills I**

2 credits, Winter  
2 class hours/week

Develops basic keyboard skills. Studies keyboard applications of the materials of tonal music. Required for music majors. Corequisites: MUS-112, MUS-112L & MUS-115. Prerequisite: Pass MUS-127.

**MUS-129 Keyboard Skills I**

2 credits, Spring  
2 class hours/week

Develops basic keyboard skills. Studies keyboard applications of the materials of tonal music. Required for music majors. Corequisites: MUS-113, MUS-113L & MUS-116. Prerequisite: Pass MUS-128.

**MUS-130 Music & Media: Sex, Drugs, Rock & Roll**

1 credit, Fall/Winter/Spring  
10 class hours/term (weekend course)

Explores the relationship of music to economic, political, cultural, and artistic subjects. Examines how music serves and is served by pop culture and media.

**MUS-131 Piano for Pleasure**

1 credit, Fall  
2 class hours/week

Beginning classroom piano instruction for non-music majors. Includes reading, theory, technique exercises, and the opportunity to share your music with others. All levels welcome, beginners through advanced.

**MUS-132 Piano for Pleasure**

1 credit, Winter  
2 class hours/week

Beginning classroom piano instruction for non-music majors. Includes reading, theory, technique exercises, and the opportunity to share your music with others. All levels welcome, beginners through advanced.

**MUS-133 Piano for Pleasure**

1 credit, Spring  
2 class hours/week

Beginning classroom piano instruction for non-music majors. Includes reading, theory, technique exercises, and the opportunity to share your music with others. All levels welcome, beginners through advanced.

**MUS-134 Group Voice**

1 credit, Fall  
2 class hours/week

Basic vocal techniques for the solo and ensemble singer. For music and non-music majors, voice and music education majors, and/or students who received low rating on MUP-174 audition.

**MUS-135 Group Voice**

1 credit, Winter  
2 class hours/week

Basic vocal techniques for the solo and ensemble singer. For music and non-music majors, voice and music education majors, and/or students who received low rating on MUP-174 audition.

**MUS-136 Group Voice**

1 credit, Spring  
2 class hours/week

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  
2 class hours/week

For beginning to advanced players. Covers finger picking, lead guitar, rock and popular styles, music reading, and music theory. Students provide own instrument.

**MUS-138 Group Guitar II**

1 credit, Winter  
2 class hours/week

For intermediate to advanced players. Covers finger picking, lead guitar, rock and popular styles, music reading, and music theory. Students provide own instrument.

**MUS-139 Group Guitar III**

1 credit, Spring  
2 class hours/week

For intermediate to advanced players. Covers finger picking, lead guitar, rock and popular styles, music reading, and music theory. Students provide own instrument.

**MUS-140 Careers in Music**

0-3 credits, Fall  
3 class hours/week

An overview of the music industry career opportunities. Studies include recording studio management/engineering, music merchandising, promotion, music contracting, agent/personal manager, live performing, teaching, technical support, record business, video and film production/editing, retailing, and instrument repair.

**MUS-141 Introduction to the Music Business**

0-3 credits, Winter  
1-3 class hours/week

Presents basic information useful in operating/working in music-related businesses. Explores basic office setup, contact management, sole proprietorships, partnerships, corporations, taxes, insurance, record keeping, contractors/employees, unions, booking, promotion, touring, and networking. Explores structure of the industry and relationship to the entertainment industry as a whole. Examines music industry roles.

**MUS-142 Introduction To Electronic Music I: MIDI**

0-3 credits, Fall/Winter/Spring  
1-3 class hours/week

Introduction to synthesis, MIDI sequencing, basic musical elements, and the basics of production. Learn how to make beats, loops, etc. Uses CuBase VST, Roland sound modules, Fatar keyboard controllers, Behrenger mixers, and other common production software/hardware.

**MUS-143 Introduction To Electronic Music II: Sequencing & Sampling**

0-3 credits, Winter/Spring  
1-3 class hours/week

An introduction to digital audio in the MIDI environment. This course continues MIDI sequencing, and integrates audio into the MIDI environment. Uses CuBase VST, 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**  
0-3 credits, Spring  
1-3 class hours/week

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, CuBase VST, and other common production software/hardware. Prerequisites: Pass MUS-142 & pass MUS-143.

**MUS-145 Introduction to Digital Sound, Video & Animation**  
0-3 credits, not offered every term  
1-3 class hours/week

An introduction to new media. Includes sound, video, animation, mp3, DVD, and compression technology.

**MUS-146 Entertainment Law & New Media**  
0-3 credits, not offered every term  
1-3 class hours/week

The basic elements of copyright law and licensing as it applies to artists, songwriters, composers, film makers, and New Media Artists. How to protect your intellectual property and benefit from your rights as a copyright owner.

**MUS-189 Performance & Repertoire**  
1 credit, Fall/Winter/Spring  
1 class hour/week

A performance forum required for all students studying privately at the MUP 171-191 and MUP 271-291 levels. Each student must perform as a soloist on his/her major instrument at least once a term and must be present for performances of classmates. Performers will be critiqued by the instructor. Students will be required to attend approved concerts.

**MUS-201 Music Literature: Greek-Renaissance**  
3 credits, not offered every year  
3 class hours/week

For nonmajors. Emphasis on cultivating understanding of music through study of elements, forms, and historical styles. MUS-201, MUS-202, MUS-203, MUS-204, MUS-205, & MUS-206, any three, meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**MUS-202 Music Literature: Baroque-Classical**  
3 credits, Fall  
3 class hours/week

For nonmajors. Emphasis on cultivating understanding of music through study of elements, forms, and historical styles. MUS-201, MUS-202, MUS-203, MUS-204, MUS-205 & MUS-206, any three, meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**MUS-203 Music Literature: Romantic-the 20th Century**  
3 credits, not offered every year  
3 class hours/week

For nonmajors. Emphasis on cultivating understanding of music through study of elements, forms, and historical styles. MUS-201, MUS-202, MUS-203, MUS-204, MUS-205 & MUS-206, any three, meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**MUS-204 Music Literature: American Folk Music**  
3 credits, not offered every year  
3 class hours/week

For nonmajors. Emphasis on cultivating understanding of music through study of elements, forms, and historical styles. MUS-201, MUS-202, MUS-203, MUS-204, MUS-205 & MUS-206, any three, meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**MUS-205 Music Literature: History of Jazz**  
3 credits, Winter  
3 class hours/week

For nonmajors. Emphasis on cultivating understanding of music through a study of elements, forms, and historical styles. MUS-201, MUS-202, MUS-203, MUS-204, MUS-205 & MUS-206, any three, meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**MUS-206 Music Literature: History of Rock**  
3 credits, Spring  
3 class hours/week

For nonmajors. Emphasis on cultivating understanding of music through study of elements, forms, and historical styles. MUS-201, MUS-202, MUS-203, MUS-204, MUS-205 & MUS-206, any three, meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**MUS-211 Music Theory II**  
3 credits, Fall  
3 class hours/week

Advanced study of the chromatic materials and structure of tonal music. Required for second-year music majors. Recommended: Placement in MTH-111, RD-115 & WR-121. Corequisites: MUS-211L, MUS-214 & MUS-224. Prerequisites: Pass MUS-113, pass MUS-113L, pass MUS-116 & pass MUS-129.

**MUS-211L MIDI Lab [C]**  
0 credit, Fall

1 lab hour/week

Advanced use of Finale (music notation software) and basic use of QuarkXPress (desktop publishing software) on Macintosh computers. Required for second-year music majors. Meets computer literacy requirement. Corequisites: MUS-211, MUS-214 & MUS-224. Prerequisite: Pass MUS-113L.

**MUS-212 Music Theory II**  
3 credits, Winter  
3 class hours/week

Advanced study of the chromatic material and structure of tonal music. Required for second-year music majors. Corequisites: MUS-212L, MUS-215 & MUS-225. Prerequisite: Pass MUS-211L & pass MUS-211.

**MUS-212L MIDI Lab [C]**  
0 credit, Winter  
1 lab hour/week

Advanced use of Finale (music notation software) and basic use of QuarkXPress (desktop publishing software) on Macintosh computers. Required for second-year music majors. Meets computer literacy requirement. Corequisites: MUS-215, MUS-225 & MUS-212. Prerequisite: Pass MUS-211L.

**MUS-213 Music Theory II**

3 credits, Spring  
3 class hours/week

Advanced study of the chromatic material and structure of tonal music. Required for second-year music majors. Corequisites: MUS-213L, MUS-216 & MUS-226. Prerequisites: Pass MUS-212L & pass MUS-212.

**MUS-213L MIDI Lab [C]**

0 credit, Spring  
1 lab hour/week

Advanced use of Finale (music notation software) and basic use of QuarkXPress (desktop publishing software) on Macintosh computers. Required for second-year music majors. Meets computer literacy requirement. Corequisites: MUS-213, MUS-216 & MUS-226. Prerequisite: Pass MUS-212L.

**MUS-214 Keyboard Skills II**

2 credits, Fall  
2 class hours/week

Advanced keyboard applications of the materials of diatonic and chromatic music. Required for second-year music majors. Corequisites: MUS-211, MUS-211L & MUS-224. Prerequisite: Pass MUS-129.

**MUS-215 Keyboard Skills II**

2 credits, Winter  
2 class hours/week

Advanced keyboard applications of the materials of diatonic and chromatic music. Required for second-year music majors. Corequisites: MUS-212, MUS-212L & MUS-225. Prerequisite: Pass MUS-214.

**MUS-216 Keyboard Skills II**

2 credits, Spring  
2 class hours/week

Advanced keyboard applications of the materials of diatonic and chromatic music. Required for second-year music majors. Corequisites: MUS-213, MUS-213L & MUS-226. Prerequisite: Pass MUS-215.

**MUS-224 Aural Skills II**

2 credits, Fall  
2 class hours/week

Diatonic and chromatic sight singing with sol feg syllables and moveable "do". Four-part dictation including all chromatic devices studied in Theory II. Required for second-year music majors. Corequisites: MUS-211, MUS-211L & MUS-214. Prerequisite: Pass MUS-116.

**MUS-225 Aural Skills II**

2 credits, Winter  
2 class hours/week

Diatonic and chromatic sight singing with sol feg syllables and moveable "do". Four-part dictation including all chromatic devices studied in Theory II. Required for second-year music majors. Corequisites: MUS-212, MUS-212L & MUS-215. Prerequisite: Pass MUS-214.

**MUS-226 Aural Skills II**

2 credits, Spring  
2 class hours/week

Diatonic and chromatic sight singing with sol feg syllables and moveable "do". Four-part dictation including all chromatic devices studied in Theory II. Required for second-year music majors. Corequisites: MUS-213, MUS-213L & MUS-216. Prerequisite: Pass MUS-225.

**MUS-280 Recording Studio/CWE**

2-6 credits  
Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Overview of recording studio production and management via placement in a working recording studio as an observer/intern. This experience can include work both in the studio and alongside freelance sound engineers who work in a variety of situations. Required: Instructor consent & a CWE seminar. Prerequisites: Pass MUS-107 & pass MUS-108.

**MUS-280 Sound Technician/CWE**

2-6 credits  
Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Overview of live sound engineering, production, and management via placement in a working live performance venue as an observer/intern. This experience can include work both in the venue and alongside freelance live sound engineers. Required: Instructor consent & a CWE seminar. Prerequisites: Pass MUS-107 & pass MUS-108.

**MUS-280 Music Retail/CWE**

2-6 credits  
Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Overview of the music retail occupation via placement in a working music retail situation as an observer/intern. This experience can include a variety of settings. Required: Instructor consent & a CWE seminar.

**MUS-280 Music Librarianship/CWE**

2-6 credits  
Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Overview of the field of music librarianship via placement in a working situation as an observer/intern. Includes work in existing music libraries alongside professional music librarians who work in a variety of situations. Required: Instructor consent & a CWE seminar.

**MUS-280 Music Engraving/CWE**

2-6 credits  
Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Overview of the field of music engraving and copying via placement in a working situation as an observer/intern. Includes work alongside professional music copyists who work in a variety of situations. Required: Instructor consent & a CWE seminar.

**MUS-280 Music Therapy/CWE**

2-6 credits  
Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Overview of the field of music therapy via placement in a working situation in an observer/intern capacity. Includes work alongside professional music therapists who work in a variety of situations. Required: Instructor consent & a CWE seminar.

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**NUR****Nursing****NUR-100 Fundamental Frameworks of Nursing I**

1 credit, Fall  
24 class hours/term

The beginning course in a competency-based curriculum. Introduces key principles and concepts that form the foundation of nursing practice. Students will be introduced to critical thinking, group function and roles and evaluation methods. Limited to admitted nursing students.

**NUR-101 Nursing I**

4 credits, Fall  
4 class hours/week

Introductory course for the Nursing Program. Presents concepts, principles and skills, while emphasizing the nursing process and critical thinking skills. Studies the care of clients with integumentary, sensory and mobility problems, stressing roles and responsibilities. May not be challenged. Limited to admitted nursing students. Prerequisites: Pass BI-234 with a "C" or better & computer literacy requirement.

**NUR-101C Nursing I Clinical**

4 credits, Fall  
12 clinical/lab hours/week

Clinical application of NUR-101 content.

**NUR-102 Nursing II**

4 credits, Winter  
4 class hours/week

Covers the problems and needs of the perioperative client, clients with cultural, language and sensory barriers, and clients with respiratory, cardiovascular problems, HIV/AIDS and other immunologic disorders. Teaching and learning principles are addressed. May not be challenged. Limited to admitted nursing students. Prerequisites: Pass BI-231, pass NUR-101, pass PHC-211, with a "C" or better.

**NUR-102C Nursing II Clinical**

4 credits, Winter  
12 clinical/lab hours/week

Clinical application of NUR-101 and NUR-102 content.

**NUR-103 Nursing III**

4 credits, Spring  
4 class hours/week

Examines nursing care of clients with endocrine disorders, gastrointestinal and genitourinary problems, and cancer is addressed. May not be challenged. Limited to admitted nursing students. Prerequisites: Pass BI-232, pass NUR-102 & pass PHC-212, all with a "C" or better.

**NUR-103C Nursing III Clinical**

4 credits, Spring  
12 clinical/lab hours/week

Clinical application of NUR-101, NUR-102 and NUR-103 content.

**NUR-112 Discipline of Professional Nursing I**

1 credit, Fall  
10 class hours/term

First course to the 6-term series of 1-credit hour courses. Communication skills introduced include therapeutic vs. non-therapeutic interaction, establishing professional boundaries, and communication modes and methods. Group roles and principles will be introduced. Limited to admitted nursing students.

**NUR-113 Discipline of Professional Nursing II**

1 credit, Winter  
10 class hours/term

Second course in the 6-term series of 1-credit hour courses. Focuses on the student's transition from a member of the public to a member of the nursing profession. Develop increasing professional refinement, critical thinking skills and ultimately application of those skills. Prerequisite: Pass NUR-112.

**NUR-114 Discipline of Professional Nursing III**

1 credit, Spring  
10 class hours/term

Third course in the 6-term series of 1-credit hour courses. Application of role expectations to new leadership experiences in the clinical settings. Students apply the process of delegation and decision making as it relates to patient care. Prerequisite: Pass NUR-113.

**NUR-200 Fundamental Frameworks of Nursing II**

1 credit, Fall  
24 class hours/term

Continuation of NUR-100. Advanced concepts of key principles and concepts that form the foundation of nursing practice. Advanced critical thinking skills will form a framework for processing information and planning strategies for delivering and evaluating patient care. Limited to admitted nursing students.

**NUR-201 Nursing IV**

4 credits, Fall  
4 class hours/week

Theoretical and practical application of nursing concepts to the care of clients. Includes nursing care of the childbearing family, clients with gynecological problems, and selected medical and surgical conditions of children. NUR-201/202/203 must be taken in order. May not be challenged. Limited to admitted nursing students. Prerequisite: Pass NUR-103 with a "C" or better.

**NUR-201C Nursing IV Clinical**

6 credits, Fall  
18 clinical/lab hours/week

Clinical application of first year theory, skills and NUR-201 content.

**NUR-202 Nursing V**

4 credits, Winter  
4 class/week

Theoretical and practical application related to the care of clients with psychiatric and neurological disorders; disorders of the blood and blood forming organs; and clients with peripheral vascular disorders. May not be challenged. Limited to admitted nursing students. Prerequisite: Pass NUR-201 with a "C" or better.

**NUR-202C Nursing V Clinical**

6 credits, Winter  
18 clinical/lab hours/week

Clinical application of previous and current program content.

**NUR-203 Nursing VI**

4 credits, Spring  
4 class hours/week

Theoretical and practical applications of nursing concepts related to the care of clients requiring high activity nursing interventions. Focuses on critical thinking, decision making, and client care management. May not be challenged. Limited to admitted nursing students. Prerequisite: Pass NUR-202 with a "C" or better.

**NUR-203C Nursing VI Clinical**

6 credits, Spring  
18 clinical/lab hours/week

Clinical application of previous and current program content.

**NUR-212 Discipline of Professional Nursing IV**

1 credit, Fall  
10 class hours/term

Fourth course in the 6-term series of 1-credit hour courses. Professional refinement of critical thinking skills and the application of those skills. Communication skills introduced include managing conflict, teaching/learning processes and problem solving. Prerequisite: Pass NUR-114.

**NUR-213 Discipline of Professional Nursing V**

1 credit, Winter  
10 class hours/term

Fifth course in the 6-term series of 1-credit hour courses. Guiding principles and communication skills required for planned change, ethical decision making and crisis intervention will be explored. Prerequisite: Pass NUR-212.

**NUR-214 Discipline of Professional Nursing VI**

1 credit, Spring  
10 class hours/term

Sixth course in the 6-term series of 1-credit hour courses. Current and historical roles and responsibilities of the professional nurse as a leader in health care of clients in the community. Social, political, educational and economic issues. Prerequisite: Pass NUR-213.

**NUR-217 EKG Interpretation**

1 credit, Spring  
3 class hours/week

Four-week course focuses on developing skills in arrhythmia recognition and interpretation. Overview of cardiac A & P, and electro-physiology. Recommended for graduating nurses or practicing registered nurses who desire to increase their knowledge in EKG analysis.

**NUR-218 Neonatal Resuscitation**

1 credit, Fall  
20 class hours/term

Gain knowledge and skills needed to perform neonatal resuscitation. Includes how to use resuscitation equipment, manikins, and presents simulated situations for practice. Prerequisite: Pass NUR-103 with a "C" or better. Corequisite: NUR-201.

**NUR-240 Nursing Care of Children with Special Needs**

1 credit, Spring  
32 clinical hours

Care of the child who is medically fragile or has special needs. Assessment of physical status, growth and development, tube feeding, seizure disorders, and care planning. One hour of seminar per shift for sharing and analysis of interactions, responses, and assessments. Open to Level I & II students in the Nursing program. Corequisite: NUR-103 or NUR-203. Prerequisite: Pass NUR-102, with a "C" or better. Required: Instructor consent.

**NUR-288 Physical Assessment**

3 credits, Spring  
2 class, 3 lab hour/week

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. Limited to registered nurses and nursing students.

**OS**

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

**Study Skills**

See also English as a Second Language (ESL), Reading (EL).

**OS-010 Study Skills/Student Athletes**

1-3 credits, Fall

Learning strategies for college targeted for student athletes. Explores academic strengths and weaknesses, tips for student success, and study skills.

**OS-011 Effective Study Skills**

1-3 credits

Fall/Winter/Spring/Summer

Variable credit online course emphasizes learning skills for college success: time management, listening, notetaking, study/reading textbooks, concentration, test preparation/anxiety, library resources. Prerequisite: Placement in RD-090 (formerly RD-012) or pass RD-080 (formerly RD-010).

**OST**

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

**Occupational Skills Training****OST-180 Occupational Skills Training Program**

2-15 credits

Fall/Winter/Spring/Summer

1.5 class, 6-40 job site hours/week

On-site job training in specific occupational areas not currently offered at CCC. The occupational areas are chosen by the student and vocational or agency counselor and CCC program coordinator. Required: Instructor consent & a seminar.

**PE****Physical Education****PE-131 Introduction to Physical Education Health & Recreation**

3 credits, Spring, every other year  
3 class hours/week

Provides overview of the profession. Examines professional orientation, philosophy, performance objectives, personal qualifications, professional organizations and publications, and job opportunities. Recommended: Placement in WR-121.

**PE-185 Physical Education**

1 credit, Fall/Winter/Spring  
3 activity hours/week

Activities may include badminton, basketball, conditioning, aerobic dance (both regular & step) modern dance, ballet, tap and jazz dance, self defense, tai chi, soccer, golf, jogging, karate, mountaineering, horseback riding, racquetball, exercise and relaxation, tennis, skiing (downhill and cross country) softball, swimming, volleyball, and weight training. Current physical examination before enrolling in a physical education course is recommended.

**PE-260 Care/Prevention of Athletic Injuries**

2 credits, Winter/Spring  
3 class, 3 lab hours/week

Care and prevention of athletic injuries. Taping techniques and rehabilitation methods of injury will be discussed and practiced.

**PE-280 Physical Education/CWE**

2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

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-292 Swim/Safety Instructor**

1 credit, Fall/Winter/Spring  
3 class hours/week

American Red Cross water safety instructor course. Certification given upon completion.

**PE-293 Lifeguard Training**

1 credit, Fall/Winter/Spring  
3 class hours/week

American Red Cross Lifeguard Training course. Certification given upon completion.

**PE-194/PE-294 Professional Activities**

1-2 credits, Fall/Winter/Spring  
6 class hours/week

For Physical Education majors and minors. Basic skills, methods and techniques of teaching physical education. Activities offered are: basketball/volleyball, fundamentals of movement, field games, conditioning, tennis/badminton, or track and field.

**PE-294 Philosophy of Coaching**

2 credits, Fall/Winter  
3 class hours/week

This course is designed to enhance the leadership, teaching, and management skills of coaches as they relate to interaction with athletes at all levels. Group discussions and seminar sessions relating to coaching philosophies, ethics, practice planning, motivation, and dealing with parents, peers and assistants.

**PH****Physics**

See also Technical Physics (TPH).

**PH-121 General Astronomy**

4 credits, Fall  
3 class, 3 lab hours/week

Discusses the history of astronomy, the earth and its moon, and the other planets in our solar system, along with asteroids, meteors, and comets. PH-121/122/123 meets the Science Sequence requirement for the AAOT degree. Also offered as an online course. Recommended: Placement in RD-115, placement in WR-121; placement in MTH-105 or MTH-111.

**PH-122 General Astronomy**

4 credits, Winter  
3 class, 3 lab hours/week

Discusses the properties of our sun and other stars, and stellar evolution. PH-121/122/123 meets the Science Sequence requirement for the AAOT degree. Also offered as an online course. Recommended: Placement in RD-115, placement in WR-121; placement in MTH-105 or MTH-111.

**PH-123 General Astronomy**

4 credits, Spring  
3 class, 3 lab hours/week

Discusses star clusters, the properties of our own galaxy and the other galaxies, and cosmology. PH-121/122/123 meets the Science Sequence requirement for the AAOT degree. Also offered as an online course. Recommended: Placement in RD-115, placement in WR-121; placement in MTH-105 or MTH-111.

**PH-201 General Physics**

5 credits, Fall  
4 class, 3 lab hours/week

Units and vectors, kinematics, forces, Newton's Laws of Motion, circular motion, work and energy, impulse and momentum, rotational motion. PH-201/202/203 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass MTH-111.

**PH-202 General Physics**

5 credits, Winter  
4 class, 3 lab hours/week

Elasticity and simple harmonic motion, fluid statics and dynamics, heat energy and phase changes, heat transfer, kinetic theory of gases, waves and sound, wave interference, electric forces and fields. PH-201/202/203 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass PH-201.

**PH-203 General Physics**

5 credits, Spring  
4 class, 3 lab hours/week

Electrical energy and voltage, Ohm's Law and DC circuits, magnetic forces and fields, EM induction, reflection and refraction of light, optical instruments, particles and waves, special relativity. PH-201/202/203 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass PH-202.

**PH-211 General Physics With Calculus**

5 credits, Fall  
4 class, 3 lab hours/week

Vector mathematics, kinematics, Newton's Laws of Motion, work and energy, impulse and momentum, rotational motion. PH-211/212/213 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass MTH-251.

**PH-212 General Physics With Calculus**

5 credits, Winter  
4 class, 3 lab hours/week

Elasticity and equilibrium, periodic motion, temperature and heat, first law of thermodynamics, mechanical waves and interference, electric forces and fields, Gauss' law. PH-211/212/213 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass PH-211.

**PH-213 General Physics With Calculus**

5 credits, Spring  
4 class, 3 lab hours/week

Electric potential, capacitance, Ohm's Law and DC circuits, magnetic field and forces, EM induction, AC circuits, properties of light, geometric optics, special relativity. PH-211/212/213 meets the science sequence requirement for the AAOT degree. Prerequisite: Pass PH-212.

**PH-280 Physics/CWE**

2-6 credits  
Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week  
Cooperative work experience. Provides students with on-the-job experience and training related to Physics. A weekly seminar class is required and covers on-the-job issues and procedures. Supervision and evaluation of the student's job performance provided by qualified college staff and a supervisor at the employment site. Required: Instructor consent & a CWE seminar.

**PHC****Pharmacology****PHC-211 Pharmacology I**

2 credits, Fall/Spring  
2 class hours/week

Study of pharmacological properties, therapeutic and adverse effects on the body of cardiovascular, psychotherapeutic, autonomic nervous system drugs, and pain management. Prerequisites: BI-231 & BI-232 or admission to Nursing Program.

**PHC-212 Pharmacology II**

2 credits, Winter/Spring  
2 class hours/week

Study of pharmacological properties, therapeutic and adverse effects of drugs on the respiratory, gastrointestinal, and endocrine system. Covers hormones, anti-inflammatory, anti-microbial, anti-infection and neoplastic agents. Prerequisite: PHC-211.

**PHL*****Philosophy*****PHL-101 Philosophical Problems**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Presents a variety of topics that may include: the nature of reality, knowledge, and doubt; the human condition; truth; and the search for meaning. Any three philosophy courses meet the Arts & Letters Sequence requirement for the AAOT degree. Also offered as a telecourse. Recommended: Placement in RD-115.

**PHL-102 Ethics**

3 credits, Fall/Winter/Spring  
3 class hours/week

Introduces the study of morality: e.g., right and wrong, free will and determinism, morals and society. Any three philosophy courses meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PHL-103 Critical Reasoning**

3 credits, Fall/Winter/Spring  
3 class hours/week

Focuses on improving reasoning and critical assessment ability. Emphasizes practical methods, involves study of editorials, essays, propaganda, and advertisements. Any three philosophy courses meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PHL-205 Moral Issues**

3 credits, not offered every term  
3 class hours/week

Philosophical examination of selected moral issues such as the environment, biomedical ethics, human experimentation, professional ethics, privacy, and war. Any three philosophy courses meet the Arts & Letters Sequence requirement for AAOT degree. Recommended: Placement in RD-115.

**PHL-210 Philosophy of Religion**

3 credits, not offered every term  
3 class hours/week

Introduces philosophic basis of religious thought in world culture. Explores different points of view. Any three philosophy courses meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PHL-213 Asian Philosophy**

3 credits, Winter/Spring/Summer  
3 class hours/week

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. Any three philosophy courses meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PHL-215 History of Western Philosophy**

3 credits, not offered every term  
3 class hours/week

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. Any three philosophy courses meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PIE**

Courses with this prefix may 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  
3 class hours/week

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-022 Life Skills 1 & 2**

0 credit, Fall/Winter/Spring/Summer  
3-6 class hours/week

Introduces the language necessary to function in day-to-day American society at the beginning levels; listening, speaking, grammar, reading, and writing in the contexts of work, family, and community. Required: Instructor consent.

**PIE-033 Intermediate Conversation**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Designed for intermediate non-native speakers of English to gain fluency in speaking and listening in functional contexts. Required: Instructor consent.

**PIE-034 Upper Intermediate****Conversation**

3 credit, not offered every term  
3 class hours/week

Designed for upper intermediate non-native speakers of English to gain fluency in speaking and listening in the following areas: expressing ideas, solving problems, summarizing, giving instructions, and developing listening comprehension. Required: Instructor consent.

**PIE-040 Beginning Grammar**

0 credit, not offered every term  
3 class hours/week

Designed for beginning non-native speakers of English to gain grammatical accuracy; use of the verb "to be", simple present verb tense, nouns, descriptive/possessive adjectives, simple sentence structures in oral/written communication used for everyday living. Required: Instructor consent.

**PIE-041 Upper Beginning Grammar**

0 credit, Fall/Winter/Spring/Summer  
3 class hours/week

Designed for upper beginning level non-native speakers of English to gain grammatical accuracy in the use of verb tenses, modals, adverbs of frequency, and comparative adjectives in oral and written communication. Required: Instructor consent.

**PIE-042 Intermediate Grammar A**

3 credit, Fall/Spring  
3 class, 1 lab hour/week

Part A of a two-part series of classes designed to help intermediate non-native speakers of English gain grammatical accuracy in the use of past tense and used to, past continuous, future and be going to, and adjectives, including comparative and superlative forms in oral and written communication. Required: Instructor consent. Co-requisite: ESL-070.

**PIE-043 Intermediate Grammar B**

3 credit, Winter/Summer  
3 class, 1 lab hour/week

Part B of a two-part series of classes designed to help intermediate non-native speakers of English gain grammatical accuracy in the use of verb forms, modals, and adverbs of frequency in oral and written communication. Required: Instructor consent. Co-requisite: ESL-070.

**PIE-044 Upper Intermediate Grammar A**  
3 credit, Fall/Spring  
3 class, 1 lab hour/week

Part A of a two-part series of classes designed to help the upper intermediate non-native speakers of English gain knowledge and proficiency in the use of verb forms, gerunds, infinitives, and modals. Required: Instructor consent. Co-requisite: ESL-070.

**PIE-047 Upper Intermediate Grammar B**  
3 credit, Winter/Summer  
3 class, 1 lab hour/week

Part B of a two-part series of classes designed to help the upper intermediate non-native speaker of English gain knowledge and proficiency in the use of adjective clauses, phrasal verbs, and passive voice. Required: Instructor consent. Co-requisite: ESL-070.

**PIE-050 Beginning Reading/Writing**  
0 credit, Fall/Winter/Spring/Summer  
3 class hours/week

Designed for beginning level students who have limited knowledge of written English. Read and write short sentences and read short paragraphs, gain reading and scanning skills to use in everyday life and in the workplace. Required: Instructor consent.

**PIE-051 Upper Beginning Reading/Writing**  
0 credit, Fall/Winter/Spring/Summer  
3 class hours/week

Designed for the upper beginning level student who reads and writes at the sentence level. Read short texts and write groups of related sentences in paragraph form. Required: Instructor consent.

**PIE-053 Intermediate Reading/Writing**  
6 credits, Fall/Winter/Spring/Summer  
6 class hours/week

Designed for the intermediate level student. Focus is on paragraph level writing with emphasis on reading and writing skills as needed for more advanced ESL and college courses, in the workplace, and in everyday life. Required: Instructor consent.

**PIE 054 Upper Intermediate Reading/Writing**  
6 credits, Fall/Winter/Spring/Summer  
6 class hours/week

Designed for non-native speakers to develop the reading and writing skills needed to succeed in college and in everyday life. Introduction to longer compositions. Required: Instructor consent.

**PIE-060 Pronunciation**  
3 credits, not offered every term  
3 class, 1 lab hours/week

Designed for ESL students who want to sound more natural when speaking English. Focuses on increasing awareness of the sounds of American English, improving intelligibility, and producing speech more fluently. Required: Instructor consent.

**PIE-063 American Idioms A**  
3 credits, not offered every term  
3 class hours/week

Part A of a 2-part series of classes. Introduces common American idioms while practicing conversation skills. Required: Instructor consent.

**PIE-064 American Idioms B**  
3 credits, not offered every term  
3 class hours/week

Part B of a 2-part series of classes. Introduces common American idioms while practicing conversation skills. Required: Instructor consent.

**PIE-067 Video and Conversation**  
0 credit, not offered every term  
2 class hours/week

Intensifies intermediate/advanced ESL language skills in listening/speaking. Outside of class, view Crossroads Café video series, complete workbook exercises. In class, practice listening for specific information, participate in pair, small group, whole class activities. Required: Instructor consent.

**PIE-072 Reading/Writing Workshop**  
3 credits, not offered every term  
3 class hours/week

Designed for low intermediate to upper intermediate level ESL student to improve reading/writing skills needed for more advanced ESL and college courses, the workplace, and everyday life. Focus is on paragraph level writing. Required: Instructor consent.

**PIE-080 Intermediate Reading Skills**  
3 credits, not offered every term  
3 class hours/week

Designed for non-native speakers to develop the reading skills needed to succeed in college and in everyday life. Required: Instructor consent.

**PIE-081 Upper Intermediate Reading Skills**  
3 credits, not offered every term  
3 class hours/week

Designed for non-native speakers to develop reading skills needed to succeed in college and in everyday life. Required: Instructor consent.

**PIE-084 Vocabulary Building**  
0 credit, not offered every term  
3 class hours/week

Designed to extend upper intermediate to advanced level students' vocabulary range and vocabulary acquisition skills. Required: Instructor consent.

**PIE-085 TOEFL/TOEIC Preparation**  
0 credit, not offered every term  
1 class, 2 lab hours/week

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 the test components, test-taking techniques, strategies and computer skills.

**PIE-086 Wordprocessing/Email/Internet**  
0 credit, not offered every term  
2 class, 1 lab hours/week

Basic introduction to wordprocessing, email, and the Internet for students of intermediate level and above. Use computer tools to improve English proficiency for success in academic, workplace and daily life. Required: Instructor consent.

**PIE-088 Skills for College Success**  
3 credits, not offered every term  
3 class hours/week

For upper intermediate/advanced level PIE students who plan to attend a U.S. college or university. Increase knowledge of the culture/norms of the American classroom, college schedules/catalogs, analyze course materials, improve study/test-taking skills. Required: Instructor consent.

**PS*****Political Science*****PS-201 US Government: National Political Process**

**3 credits, Fall**  
**3 class hours/week**

Reviews the development of the U.S. Constitution, including democratic vs. republican theories of government, evolution of civil liberties, and principles of equal protection of the law. Examines present state of Congress, presidency, and Supreme Court. Any three political science courses meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PS-202 US Government: National Government Institutions**

**3 credits, Winter**  
**3 class hours/week**

Examines American political parties, the role of money in politics and American political participation in general. Examines American domestic, economic and foreign policy. Any three political science courses meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PS-203 US Government: State/Local Institutions**

**3 credits, Spring**  
**3 class hours/week**

Introduction to American state and local government, with emphasis on Oregon political behavior in states and communities. Any three political science courses meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PS-204 Introduction to Comparative Politics**

**3 credits, Fall**  
**3 class hours/week**

Explores the various ideologies, institutions, and processes that constitute the nation-states that make up the world political system. Any three political science courses meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PS-205 International Relations**

**3 credits, Spring**  
**3 class hours/week**

Analysis of relations among nations and the nature of international relations, including diplomacy, peacekeeping and war as instruments of foreign policy. Any three political science courses meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PS-206 Introduction to Political Theory**

**3 credits, Winter**  
**3 class hours/week**

Introduces the fundamental political question: What is justice? Examines the writings of political thinkers, such as Plato, Marx, Locke, and Madison. Any three political science courses meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PS-225 Introduction to Political Ideologies**

**3 credits, Fall**  
**3 class hours/week**

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. Any three political science courses meet the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PS-280 Political Science/CWE**

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

**1.5 class, 6-18 job site hours/week**  
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**  
**3 class hours/week**

Introduction to interpersonal relationships and human relations in a social context. Includes individual and group activities, lecture, and discussions with an emphasis on student participation. Recommended: Placement in RD-115.

**PSY-110 Psychology: An Overview**

**3 credits, Fall/Spring**  
**33 hours/term**

Telecourse/Campus TV. A general introduction to the field of psychology. Explores a wide variety of topics. Recommended: Placement in RD-115.

**PSY-142 Personal Development/College Success**

**3 credits, not offered every year**  
**3 class hours/week**

Development of problem-solving skills in personal and academic situations, including goal setting and improving decision-making abilities. Recommended: Placement in RD-115.

**PSY-200 Psychology As Natural Science**

**3 credits, Fall/Winter/Spring/Summer**  
**3 class hours/week**

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. PSY-200, PSY-205 and either PSY-218 or PSY-219 meets the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PSY-205 Psychology As a Social Science**

**3 credits, Fall/Winter/Spring**  
**3 class hours/week**

Principles of conditioning and social psychology, the study of how groups affect the individual. Further topics may include motivation, personality, development, and stress. PSY-200, PSY-205 and either PSY-218 or PSY-219 meets the Social Science Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**PSY-214 Introduction to Personality**

**3 credits, Winter**  
**3 class hours/week**

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: Placement in RD-115.

**PSY-215 Introduction to Developmental Psychology**

**3 credits, Fall/Winter/Spring/Summer**  
**3 class hours/week**

Research and theories regarding the development of the individual from conception to death, including physical, social and cognitive changes. Recommended: Placement in RD-115.

**PSY-216 Introduction to Social Psychology**  
3 credits, not offered every year  
3 class hours/week

Examines how we think about and interact with others. Includes perception, attributions, aggression, attitude formation, attraction, intimacy, social influence, and prejudice. Recommended: Placement in RD-115.

**PSY-218 Introduction to Experimental Psychology**  
3 credits, not offered every year  
3 class hours/week

Introduction to the principles of the scientific method in general and to the specific methods used in psychological research. PSY-200, PSY-205 and either PSY-218 or PSY-219 meets the Social Science Sequence requirement for the AAOT degree. Recommended for students pursuing a psychology major. Recommended: Placement in RD-115.

**PSY-219 Introduction to Abnormal Psychology**  
3 credits, Fall/Winter/Spring  
3 class hours/week

Introduction to abnormal psychology including disorders and approaches to treatment. PSY-200, PSY-205 and either PSY-218 or PSY-219 meets the Social Science Sequence requirement for the AAOT degree. May be taken in any order, but recommend PSY-200 precede PSY-219. Also offered as a telecourse. Recommended: Placement in RD-115.

**PSY-221 Introduction to Counseling**  
3 credits, Winter/Spring  
3 class hours/week

Provides an overview of the theoretical background for different approaches to counseling. Recommended: Placement in RD-115.

**PSY-231 Introduction to Human Sexuality**  
3 credits, Fall/Winter/Spring  
3 class hours/week

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: Placement in RD-115.

**PSY-240 Interpersonal Awareness & Growth**  
3 credits, Fall/Winter  
3 class hours/week

Examines the dynamics of personality and explores techniques for overcoming self-defeating behaviors. Develops methods for making personal changes. Recommended: Placement in RD-115.

**PSY-280 Psychology/CWE**  
2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

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**  
3 credits, Fall/Winter/Spring  
3 class hours/week

The nature of myth and story, ancient religions, ideas of God, Judaism, and introduction to religious topics. R-101/102/103 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**R-102 Comparative Religions**  
3 credits, Fall/Winter/Spring  
3 class hours/week

Covers written and oral sources, Christianity, Islam, and includes the history and philosophy of other Western religious developments. R-101/102/103 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**R-103 Comparative Religions**  
3 credits, Fall/Winter/Spring  
3 class hours/week

The history, ideas, and philosophy of the Eastern religions including Buddhism, Hinduism, and Taoism. R-101/102/103 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**R-204 History of Christianity**  
3 credits, Fall  
3 class hours/week

Covers early development of Christianity post-apostolic to early Medieval period. Includes investigation of basic theological tenets of the developing church. R-204/205/206 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**R-205 History of Christianity**  
3 credits, Winter  
3 class hours/week

Covers Medieval to Reformation and examines reactions, effects, and doctrinal development of the periods. R-204/205/206 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**R-206 History of Christianity**  
3 credits, Spring  
3 class hours/week

Includes life and teachings of Reformers. Focus on growth of Christianity in modern world. Includes current doctrinal interpretations, folk religions, and cults. R-204/205/206 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**R-207 Judaic Studies: Scriptures & Development**  
3 credits, not offered every year  
3 class hours/week

Jewish history emphasizing the Bible as a historical source. Traces the history of ancient Judaism up through the Jewish Revolt against Rome, the Talmudic Age, and the relationship between Judaism and Early Christianity. R-207/208/209 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**R-208 Judaic Studies: The Diaspora, Conflict, and Kabala**  
3 credits, not offered every year  
3 class hours/week

Explores the spread of Judaism through the Diaspora, the development of the Kabala, Judaism's relationship and conflicts with Christianity, and Islam in Western History through the Middle Ages and the Renaissance. R-207/208/209 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**R-209 Judaic Studies: Holocaust & Modern Age**  
3 credits, not offered every year  
3 class hours/week

Explores the experience of the Jewish people during the Holocaust, the creation of the State of Israel, and the Arab-Israeli conflicts. Explores attempts to achieve peace during the 19<sup>th</sup> through the 21<sup>st</sup> centuries and current Jewish practices. R-207/208/209 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115.

**R-210 World Religions**  
3 credits, Winter  
3 class hours/week

Telecourse/Campus TV. 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: Placement in RD-115.

**R-211 History of the Old Testament**  
3 credits, not offered every year  
3 class hours/week

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: Placement in RD-115.

**R-212 History of the New Testament**  
3 credits, not offered every year  
3 class hours/week

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: Placement in RD-115.

**R-280 Religion/CWE**  
2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Provides students with on-the-job work experience in the field of religion. Required: Instructor consent & a CWE seminar.

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**RD**

**Reading**

See also Reading/Skills (EL & SKO).

**RD-080 Basic Reading Skills**  
1-3 credits, Fall/Winter/Spring  
3 class hours/week

Identifies individual reading strengths/weaknesses. Emphasizes basic reading skills in vocabulary, main idea, inferences, comprehension. Prerequisite: Placement in RD-080 (formerly RD-010).

**RD-090 Intermediate Reading Skills**  
3 credits  
Fall/Winter/Spring/Summer  
3 class hours/week

Introduces and reinforces skills for success in entry level college classes. Emphasizes vocabulary building, comprehension, textbook reading strategies, critical thinking. Prerequisite: Placement in RD-090 (formerly RD-012) or pass RD-080 (formerly RD-010).

**RD-115 College Reading**  
3 credits, Fall/Winter/Spring  
3 class hours/week

Emphasizes reading comprehension, critical reading and thinking, vocabulary development, and speed techniques for college-level reading. Prerequisite: Placement in RD-115 or pass RD-090 (formerly RD-012).

**RD-120 Critical Reading**  
3 credits, Winter/Spring  
3 class hours/week

Read and evaluate a variety of essays, articles, and short stories. Discuss literal, figurative, and inferential meanings. Prerequisite: Pass RD-115.

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**RE**

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

**Real Estate**

**RE-110 Real Estate Practices**  
3 credits, not offered every term  
3 class hours/week

Procedures involved in listing, selling, and closing of residential property. Emphasis on agency relationships, Oregon Real Estate License Law, listing agreements, client trust accounts, co-op transactions, neutral escrows, closing procedures, code of ethics.

**RE-112 Real Estate Law I**  
3 credits, not offered every term  
3 class hours/week

Survey of general and Oregon Real Estate Law as it applies to ownership, use, and transfer of real property. Emphasis on basic real property law.

**RE-116 Real Estate Finance I**  
3 credits, not offered every term  
3 class hours/week

Methods of financing the acquisition of real property. Emphasis on lending laws, mortgage market, financing documents, foreclosures, governmental loan programs, appraisals, mathematical calculations, and taxation.

**RE-118 Real Estate Appraisal I**  
3 credits, Fall  
3 class hours/week

Real estate appraisal principles and methodologies used in the valuation of residential property.

**RE-228 Real Estate Appraisal II**  
3 credits, Winter  
3 class hours/week

Application of the basic principles and methodologies of the valuation of residential property. A number of practical problems and a case study are reviewed. Prerequisite: Pass RE-118 or instructor consent.

**RE-238 Real Estate Appraisal III**  
3 credits, Spring  
3 class hours/week

Income property appraisal principles and methodology. Prerequisite: Pass RE-228 or instructor consent.

**RE-239 Real Estate Appraisal IV**  
3 credits, not offered every year  
3 class hours/week

Reinforces the student's ability to perform the appraisal of income-producing properties. Prerequisite: Pass RE-238 or instructor consent.

**RUS*****Russian*****RUS-101 First-Year Russian**

4 credits, Fall  
4 class hours/week

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: Placement in RD-115 & placement in WR-121.

**RUS-102 First-Year Russian**

4 credits, Winter  
4 class hours/week

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 designed for students without a background in the language. 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  
4 class hours/week

Continues introduction of 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. Prerequisite: Pass RUS-102 or instructor consent.

**RUS-201 Second-Year Russian**

4 credits, not offered every year  
4 class hours/week

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. Course is conducted in Russian as much as possible. RUS-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: RUS-103 or instructor consent.

**RUS-202 Second-Year Russian**

4 credits, not offered every year  
4 class hours/week

Second of a three-term sequence in intermediate Russian which continues to focus on all of the language skills presented up through RUS-201. RUS-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: RUS-201 or instructor consent.

**RUS-203 Second-Year Russian**

4 credits, not offered every year  
4 class hours/week

Third of a three-term sequence in intermediate Russian which continues to focus on all of the language skills presented up through RUS-202. RUS-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: RUS-202 or instructor consent.

**SBM**

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

***Small Business Management*****SBM-020 Greenhouse/NxLevel™**

Fall/Winter/Spring/Summer  
3 class hours/week, 20 weeks

Comprehensive two-term program for the entrepreneur starting up any type of new business or taking a fresh look at an established business. Evening classes in a seminar format, plus individual business counseling. Certificate awarded upon completion.

**SBM-021 Small Business Management I**

Fall/Winter/Spring/Summer  
3 class hours/month, 10 months

First year of a three-year program to help owners and managers of established businesses manage more effectively and achieve success. Monthly evening class meetings plus individual business counseling. Class topics emphasize financial analysis, goals, and communication. Required: Instructor consent.

**SBM-022 Small Business Management II**

Fall/Winter/Spring/Summer  
3 class hours/month, 10 months

Second-year topics emphasize marketing concepts and strategy. Monthly evening class meetings plus individual business counseling. Required: Instructor consent.

**SBM-023 Small Business Management III**

Fall/Winter/Spring/Summer  
3 class hours/month, 10 months

Third-year topics emphasize integrating strategies and business growth. Monthly evening class meetings plus individual business counseling. Certificate upon completion. Required: Instructor consent.

**SKH**

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

***TACT (Training in Adaptive Computer Technology)*****SKH-020 Computer Access Evaluation**

1 credit, Fall/Winter/Spring/Summer  
22 lab hours/term

Provides disability assessment, matches appropriate adaptive computer technology and surveys current computer skills. Must have documented disability and instructor approval. May be taken concurrently with SKH-25. Required: Instructor consent.

**SKH-025 Adapted Keyboarding**

1-2 credits  
Fall/Winter/Spring/Summer  
8 lab hours/week

Develops touch typing skills working toward a basic typing rate of 20/22 w.p.m. Must have documented disability. Required: Instructor consent.

**SKH-030 Computer Access I [C]**

1-3 credits  
Fall/Winter/Spring/Summer  
12 lab hours/week

Introduction to the use of an access technology appropriate to a student's ability, in the context of basic word processing. Must have documented disability. Meets computer literacy requirement. Required: Instructor consent.

**SKH-035 Computer Access II [C]**

1-3 credits  
Fall/Winter/Spring/Summer  
12 lab hours/week

Covers word processing and other software applications such as spreadsheets and database manager. Must have documented disability. Meets computer literacy requirement. Required: Instructor consent.

**SKH-040 Computer Access Projects**  
1-6 credits  
Fall/Winter/Spring/Summer  
18 lab hours/week

For students who have completed TACT Center curriculum and need to use the Center's facilities to facilitate academic course work. Must have documented disability. Required: Instructor consent.

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## SKO

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

## Reading

See also Study Skills (EL), Study Skills (OS) and Reading (RD).

**SKO-010 Reading, Spelling, Vocabulary**  
1-3 credits  
Fall/Winter/Spring/Summer  
1-3 lab hours/week

Independent study of reading, spelling, and vocabulary building. Recommended: Placement in RD-090 (formerly RD-012).

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## SM

Courses with this prefix may not transfer with credit to a four-year institution unless otherwise specified.

## Microelectronics Systems Technology

Courses listed with the SM prefix and courses listed in the Electronics Systems Technology section with the EET prefix are the main core classes for the Microelectronics Systems Technology program. Many of these classes can be customized to meet the needs of the industry. For additional information on a customized class for your company, contact the Customized Training Department at ext. 3523.

**SM-136 Photolithography**  
2 credits, Spring  
2 class hours/week

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  
2 class hours/week

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  
2 class hours/week

Provides an overview of basic processes involved in the fabrication of finished silicon wafers, oxidation and deposition processes. Troubleshooting of common equipment is emphasized. Prerequisite: SM-150.

**SM-170 Semiconductor Processing III**  
2 credits, Spring  
2 class hours/week

Covers the essential process and equipment related to etching, diffusion and ion implantation. Troubleshooting of common equipment and process related problems are emphasized. Prerequisite: SM-150.

**SM-229 Vacuum Technology**  
2 credits, Spring  
2 class hours/week

Focuses on elementary theory and practice of vacuum equipment for microelectronics processing. Students study vacuum fundamentals, pumps and equipment used in vacuum systems. Prerequisite: SM-150.

**SM-280 Electronics & Microelectronics/ CWE**  
2-6 credits  
Fall/Winter/Spring/Summer  
1.5 class, 6-18 job site hours/week

Cooperative work experience. Practical experience in the high-tech industry. Coordination of instruction will occur with industry and the manufacturing and cooperative work departments. Required: Instructor consent & a CWE seminar.

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## SOC

## Sociology

**SOC-204 Introduction to Sociology**  
3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

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. SOC-204/205/206 meets the Social Science Sequence requirement for the AAOT degree. Also offered as a telecourse. Recommended: Placement in RD-115 & placement in WR-121.

**SOC-205 Social Stratification and Social System**  
3 credits, Fall/Winter/Spring  
3 class hours/week

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. SOC-204/205/206 meets the Social Science Sequence requirement for the AAOT degree. Also offered as a telecourse. Recommended: Placement in RD-115 & placement in WR-121.

**SOC-206 Institutions and Social Change**  
3 credits, Fall/Winter/Spring  
3 class hours/week

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. SOC-204/205/206 meets the Social Science Sequence requirement for the AAOT degree. Also offered as a telecourse. Recommended: Placement in RD-115 & placement in WR-121.

**SOC-223 Psycho-Social Aspects of Aging**  
3 credits, Winter  
3 class hours/week

An individual and societal perspective. Emphasis on normal versus abnormal aging, major life transitions, and providing services to the aged. Recommended: Placement in WR-121.

**SOC-225 Social Problems**

3 credits, Fall/Winter/Spring

3 class hours/week

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: Placement in RD-115 & placement in WR-121.

**SOC-230 Perspectives on Aging**

3 credits, Fall

3 class hours/week

Overview of the field of gerontology. Characteristics of old people: Myths, stereotypes, and realities. Issues in aging: economic/political, physical/mental, and psychological/social. Networks of programs to serve the aged: governmental/families, and formal/informal. Recommended: Placement in WR-121.

**SOC-231 Health & Biological Aspects of Aging**

3 credits, Winter

3 class hours/week

Normal biological aging and the effects of life-style and disease on functional ability. Use tools to screen older people for functional and nutritional status and develop plans to enhance independence. Recommended: Placement in WR-121.

**SOC-232 Encounters With Death**

3 credits, Spring

3 class hours/week

Introduces current studies and programs in death, dying, grief, and bereavement. Activities and discussion designed to enable students to identify and face feelings about death. Recommended: Placement in WR-121.

**SOC-280 Sociology/CWE**

2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

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

3 class hours/week

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-111 Public Speaking**

3 credits, Fall/Winter/Spring/Summer

3 class hours/week

Practice in organization, research, and delivery of a variety of speeches. Note: Certain sections of SP-111 meet the computer literacy requirement. Prerequisites: Placement in RD-115 & placement in WR-121.

**SP-112 Persuasive Speaking**

3 credits, Winter

3 class hours/week

Persuasive speaking, audience analysis, study of reasoning, and the basic theories of persuasion. SP-112, SP-126, SP-218 & SP-219, any three, meet the Arts & Letters Sequence requirement for the AAOT degree. Prerequisites: Placement in RD-115 & placement in WR-121.

**SP-115 Introduction to Intercultural Communication**

3 credits, Spring

3 class hours/week

Explores impact cultural differences have on communication process, increases awareness of students' own cultural behaviors. Explores the cultural differences between cultures. Discover effective ways to deal with difficult situations where a cultural difference causes a problem. Required: Instructor consent.

**SP-126 Communication Between Sexes**

3 credits, Fall/Winter/Spring

3 class hours/week

Examines ways women and men are different and similar in their communication behaviors. Traditions, myths, social roles and current issues are discussed. SP-112, SP-126, SP-218 & SP-219, any three, meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**SP-129 Oral Interpretation**

1-3 credits, Fall/Winter/Spring

3 class hours/week

Oral interpretation of literature from the areas of prose, poetry and drama. Analyze specific literary works and communicate understanding through performance. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisites: SP-221 or SP-222 or SP-223.

**SP-150 Competitive Platform Speaking**

1-3 credits, Fall/Winter/Spring

3 class hours/week

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: Placement in RD-115 & placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisites: SP-221 or SP-222 or SP-223.

**SP-167 Parliamentary Procedure**

1-3 credits, Fall/Winter/Spring

3 class hours/week

The principles and practice of parliamentary procedure to develop skills in conducting business during meetings. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisites: SP-221 or SP-222 or SP-223.

**SP-211 Communication Theory**

3 credits, not offered every year

3 class hours/week

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. SP-211, SP-218 & SP-219 meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115. Prerequisites: Pass SP-100 or pass SP-111 & pass WR-121.

**SP-218 Interpersonal Communication**  
3 credits, not offered every term  
3 class hours/week

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. SP-112, SP-126, SP-218 & SP-219, any three, meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**SP-219 Small Group Communication**  
3 credits, not offered every term  
3 class hours/week

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. SP-112, SP-126, SP-218 & SP-219, any three, meet the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**SP-221 Speech & Debate: Forensics**  
1 credit, Fall  
3 lab hours/week

Practical application of public speaking skills in a variety of settings. Preparation for and participation in intercollegiate forensic activities. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisites: SP-129 or SP-150 or SP-167.

**SP-222 Speech & Debate: Forensics**  
1 credit, Winter  
3 lab hours/week

Practical application of public speaking skills in a variety of settings. Preparation for and participation in intercollegiate forensic activities. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisites: SP-129 or SP-150 or SP-167.

**SP-223 Speech & Debate: Forensics**  
1 credit, Spring  
3 lab hours/week

Practical application of public speaking skills in a variety of settings. Preparation for and participation in intercollegiate forensic activities. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisites: SP-129 or SP-150 or SP-167.

**SP-224 Speech & Debate: Forensics**  
1 credit, Fall  
3 lab hours/week

Practical application of public speaking skills in a variety of settings. Preparation for and participation in intercollegiate forensic activities. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisites: SP-229 or SP-250 or SP-267.

**SP-225 Speech & Debate: Forensics**  
1 credit, Winter  
3 lab hours/week

Practical application of public speaking skills in a variety of settings. Preparation for and participation in intercollegiate forensic activities. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisites: SP-229 or SP-250 or SP-267.

**SP-226 Speech & Debate: Forensics**  
1 credit, Spring  
3 lab hours/week

Practical application of public speaking skills in a variety of settings. Preparation for and participation in intercollegiate forensic activities. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisites: SP-229 or SP-250 or SP-267.

**SP-229 Oral Interpretation**  
1-3 credits, Fall/Winter/Spring  
3 class hours/week

Oral interpretation of literature from the areas of prose, poetry and drama. Analyze specific literary works and communicate that understanding through performance. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisites: SP-224 or SP-225 or SP-226.

**SP-250 Competitive Platform Speaking**  
1-3 credits, Fall/Winter/Spring  
3 class hours/week

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: Placement in RD-115 & placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisites: SP-224 or SP-225 or SP-226.

**SP-267 Parliamentary Procedure**  
1-3 credits, Fall/Winter/Spring  
3 class hours/week

The principles and practice of parliamentary procedure to develop skills in conducting business during meetings. Recommended: Placement in RD-115 & placement in WR-121. Prerequisite: Pass SP-111 or instructor consent. Corequisites: SP-224 or SP-225 or SP-226.

**SP-280 Speech/CWE**  
2-6 credits, Fall/Winter/Spring  
1.5 class, 6-18 job site hours/week

Cooperative work experience. Provides students with on-the-job work experience in the field of communications. Required: Instructor consent & a CWE seminar.

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**SPN**

**Spanish**

**SPN-101 First-Year Spanish**  
4 credits, Fall/Winter/Summer  
4 class hours/week

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. When offered winter and/or spring term, course continues in summer as intensive Spanish or as study in Mexico or Spain. Offered summer term as an intensive 3-week course. Recommended: Placement in RD-115 & placement in WR-121.

**SPN-102 First-Year Spanish**  
4 credits, Summer/Winter  
4 class hours/week

Second of a three-term foundational, multimedia course for beginners. Initial emphasis is on speaking and listening comprehension, with secondary emphasis on reading and writing. Various cultural themes are presented. SPN-101/102/103 must be taken in sequence. Offered summer term as intensive 3-week course. Prerequisite: Pass SPN-101 or instructor consent.

**SPN-103 First-Year Spanish**  
4 credits, Spring/Summer  
4 class hours/week

Third of a three-term foundational, multimedia course for beginners. Initial emphasis is on speaking and listening comprehension, with secondary emphasis on reading and writing. Various cultural themes are presented. SPN-101/102/103 must be taken in sequence. Offered summer term as intensive 3-week course. Prerequisite: Pass SPN-102 or instructor consent.

**SPN-111 Spanish Conversation**  
3 credits, not offered every year  
3 class hours/week

A conversation course emphasizing the development of oral proficiency in Spanish. Topics will include conversing in situation encountered in everyday life. The grammar of the language will be covered only insofar as it supports realistic conversation and is necessary for clarification. Prerequisite: SPN-101 or instructor consent.

**SPN-112 Spanish Conversation**  
3 credits, not offered every year  
3 class hours/week

A continuation of SPN-111 with additional emphasis on reading, comprehending, and discussing written and oral publications. Prerequisite: SPN-111 or instructor consent.

**SPN-113 Spanish Conversation**  
3 credits, not offered every year  
3 class hours/week

A continuation of SPN-112 with opportunities for students to explore and discuss areas of personal interest at a deeper level. Prerequisite: SPN-112 or instructor consent.

**SPN-120 Spanish for Health Professionals**  
3 credits, not offered every year  
3 class hours/week

A course for students enrolled in the CCC nursing program and other health care professionals. Presents the specialized vocabulary needed to communicate with Spanish-speaking patients in health-care settings. Emphasizes personalized questions, grammatical exercises, dialogues, role-playing activities, and situations that resemble the use of Spanish in daily contact with patients. Prerequisite: SPN-101 or instructor consent.

**SPN-201 Second-Year Spanish**  
4 credits, Fall  
4 class hours/week

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. SPN-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: Pass SPN-103 or instructor consent.

**SPN-202 Second-Year Spanish**  
4 credits, Winter  
4 class hours/week

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. SPN-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: Pass SPN-201 or instructor consent.

**SPN-203 Second-Year Spanish**  
4 credits, Spring  
4 class hours/week

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. SPN-201/202/203 meets the Arts & Letters Sequence requirement for the AAOT degree. Prerequisite: Pass SPN-202 or instructor consent.

**SPN-214 Spanish for Native Speakers**  
4 credits, not offered every year  
4 class hours/week

First of a three-term sequence that focuses on reading development, orthography, lexical expansion, and the formal grammar of standard Spanish. Course includes presentation of literary genres, such as the short story, and examines contrasts between forms of popular Spanish and written Spanish. Prerequisite: Native or near-native ability in Spanish.

**SPN-215 Spanish for Native Speakers**  
4 credits, not offered every year  
4 class hours/week

Second of a three-term sequence that focuses on reading development, orthography, lexical expansion, and the formal grammar of standard Spanish. Course includes presentation of literary genres, such as the short story, and examines contrasts between forms of popular Spanish and written Spanish. Prerequisite: Pass SPN-214 or instructor consent.

**SPN-216 Spanish for Native Speakers**  
4 credits, not offered every year  
4 class hours/week

Third of a three-term sequence that focuses on reading development, orthography, lexical expansion, and the formal grammar of standard Spanish. Course includes presentation of literary genres, such as the short story, and examines contrasts between forms of popular Spanish and written Spanish. Prerequisite: Pass SPN-215 or instructor consent.

**SPN-280 Spanish/CWE**  
2-6 credits

Fall/Winter/Spring/Summer

1.5 class, 6-18 job site hours/week

Cooperative work experience. Provides students with on-the-job work experience in the field of Spanish. Required: Instructor consent & a CWE seminar.

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## SSC

### *Social Science Inquiry*

**SSC-150 The Columbia Basin: Watershed of the Great Northwest [C]**  
5 credits, Fall

5 class hours/week

The Columbia River watershed dominates the culture and economy of the Pacific Northwest, past, present, and future. This course explores the Columbia River Basin and its natural and human history. Includes field trips. SSC-150/151/152 meets the Social Science Sequence requirement for the AAOT degree. Sequence also meets the University Studies Freshman Inquiry requirement at PSU. Meets computer literacy requirement. Recommended: Placement in RD-115.

**SSC-151 The Columbia Basin: Watershed of the Great Northwest [C]**  
 5 credits, Winter  
 5 class hours/week

The Columbia River is the largest river in the western United States. This course focuses on social issues of the management of the Columbia River Basin and its resources, with Portland as the metropolis of the watershed. Includes field trips. SSC-150/151/152 meets the Social Science Sequence requirement for the AAOT degree. Sequence also meets the University Studies Freshman Inquiry requirement at PSU. Meets computer literacy requirement. Prerequisite: Pass SSC-150.

**SSC-152 The Columbia Basin: Watershed of the Great Northwest [C]**  
 5 credits, Spring  
 5 class hours/week

Issues and opportunities associated with the Columbia River watershed are of immediate importance. This course grapples with the future of the Columbia River Basin and the living organisms (including humans) dwelling in it. Includes field trips. SSC-150/151/152 meets the Social Science Sequence requirement for the AAOT degree. Sequence also meets the University Studies Freshman Inquiry requirement at PSU. Meets computer literacy requirement. Prerequisite: Pass SSC-151.

**SSC-160 Faith & Reason [C]**  
 5 credits, Fall  
 3 class, 2 TBA hours/week

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. SSC-160/161/162 meets the Social Science Sequence requirement for the AAOT degree. Sequence also meets the University Studies Freshman Inquiry requirement at PSU. Meets computer literacy requirement. Recommended: Placement in RD-115.

**SSC-161 Faith & Reason [C]**  
 5 credits, Winter  
 3 class, 2 TBA hours/week

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. SSC-160/161/162 meets the Social Science Sequence requirement for the AAOT degree. Sequence also meets the University Studies Freshman Inquiry requirement at PSU. Meets computer literacy requirement. Prerequisite: SSC-160.

**SSC-162 Faith & Reason [C]**  
 5 credits, Spring  
 3 class, 2 TBA hours/week

Introduction to classical philosophy, sacred texts, modern fiction, poetry, theology, evolutionary biology, and cosmology. Consideration of how personal concepts of faith and reason and institutions of science and religion, shape personal intellectual landscape. SSC-160/161/162 meets the Social Science Sequence requirement for the AAOT degree. Sequence also meets the University Studies Freshman Inquiry requirement at PSU. Meets computer literacy requirement. Prerequisite: SSC-161.

**SSC-220 Modern War & American Popular Culture**  
 4 credits, not offered every term  
 4 class hours/week

Emphasizes observation, reflection, description, and critical thinking in order to gain a deeper understanding of the war in Vietnam and the Gulf War as seminal events represented in American popular culture. Any three 200-level Social Science Inquiry courses meets the Social Science Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**SSC-221 Science in American Popular Culture**  
 4 credits, not offered every term  
 4 class hours/week

Emphasizes observations, reflection, description, and critical thinking in order to gain a deeper understanding of the development of evolutionary theory, catastrophe theory, and historical disasters as represented in American popular culture. Any three 200-level Social Science Inquiry courses meets the Social Science Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**SSC-222 Civil Rights in American Popular Culture**  
 4 credits, not offered every term  
 4 class hours/week

Emphasizes observations, reflection, description, and critical thinking in order to gain a deeper understanding of civil rights history as represented in American popular culture and the ways in which the concepts of the civil rights have expanded. Any three 200-level Social Science Inquiry courses meets the Social Science Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**SSC-226 Science & Religion**  
 4 credits, not offered every term  
 4 class hours/week

Examines different aspects of science and religion and how scientific inquiry affects beliefs. Discusses historical development of astronomy, cosmology, physics, biology, and theology. Any three 200-level Social Science Inquiry courses meets the Social Science Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**SSC-227 Civil War & Psychology**  
4 credits, not offered every term  
4 class hours/week

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. Any three 200-level Social Science Inquiry courses meets the Social Science Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**SSC-228 The Renaissance**  
4 credits, not offered every term  
4 class hours/week

Students gain insight into its influence on architecture, emphasis upon the development of individual personality, confidence in the power of formal education, belief in the citizen's participation in public life, and the rise of scientific inquiry. Any three 200-level Social Science Inquiry courses meets the Social Science Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**SSC-229 Latin American Studies**  
4 credits, not offered every term  
4 class hours/week

Survey and analysis of Latin America from pre-colonization to the modern era. Focuses on the political, social, cultural, and economic structure of Latin America. Discusses race and class relations, imperialism, revolution, neo-colonialism, and dependency theory. Any three 200-level Social Science Inquiry courses meets the Social Science Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**SSC-230 Gender & Material Culture**  
4 credits, not offered every term  
4 class hours/week

Provides an in-depth study of social and cultural significance of material culture as it applies to gender, within a historical context. Focuses on the material world of American society from the colonial era to the present. Any three 200-level Social Science Inquiry courses meets the Social Science Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**SSC-231 Engendered Identities**  
4 credits, not offered every term  
4 class hours/week

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. Any three 200-level Social Science Inquiry courses meets the Social Science Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**SSC-232 Women in American History**  
4 credits, not offered every term  
4 class hours/week

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. Any three 200-level Social Science Inquiry courses meets the Social Science Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**SSC-233 Electronic Culture [C]**  
4 credits, not offered every term  
4 class hours/week

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. Any three 200-level Social Science Inquiry courses meets the Social Science Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

**SSC-234 Freedom, Privacy and Technology [C]**  
4 credits, not offered every term  
4 class hours/week

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. Any three 200-level Social Science Inquiry courses meets the Social Science Sequence requirement for the AAOT degree and the University Studies Sophomore Inquiry requirement at PSU. Recommended: Placement in RD-115 & placement in WR-121.

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**TA**

**Theatre Arts**

**TA-101 Appreciation of Theatre Arts**  
3 credits, Fall  
3 hours/week

Develop personal understanding of theatre by attending productions. Plays are reviewed and evaluated in written form and in group discussion. TA-101/102/103 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in WR-121.

**TA-102 Appreciation of Theatre Arts**  
3 credits, Winter  
3 hours/week

Develop personal understanding of theatre by attending productions. Plays are reviewed and evaluated in written form and in group discussion. TA-101/102/103 meets the Arts & Letters Sequence requirement for the AAOT degree.

**TA-103 Appreciation of Theatre Arts**  
3 credits, Spring  
3 hours/week

Develop personal understanding of theatre by attending productions. Plays are reviewed and evaluated in written form and in group discussion. TA-101/102/103 meets the Arts & Letters Sequence requirement for the AAOT degree.

**TA-111 Fundamentals of Technical Theatre**  
4 credits, Fall  
3 class, 3 lab hours/week

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  
3 class, 3 lab hours/week

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  
3 class, 3 lab hours/week

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**

3 credits, Fall  
3 class hours/week

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. TA-141/142/143 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121.

**TA-142 Acting II**

3 credits, Winter  
3 class hours/week

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. TA-141/142/143 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & WR-121.

**TA-143 Acting III**

3 credits, Spring  
3 class hours/week

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. TA-141/142/143 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & 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  
3-9 lab hours/week

Training in theatre production through intensive study and rehearsal of scenes and plays for public performances. Required: Instructor consent.

**TA-195 One-Act Plays**

1-3 credits, Fall/Winter/Spring  
3-9 lab hours/week

Training in special forms of theatrical presentation through in-class intensive preparation, study, and program development for public presentation. Required: Instructor consent.

**TA-211 Technical Theatre Study**

4 credits, Fall  
3 class, 3 lab hours/week

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 mainstage production. TA-211/212/213 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121. Prerequisites: Pass TA-111, pass TA-112 & pass TA-113.

**TA-212 Technical Theatre Study**

4 credits, Winter  
3 class, 3 lab hours/week

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 mainstage production. TA-211/212/213 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121. Prerequisites: Pass TA-111, pass TA-112 & pass TA-113.

**TA-213 Technical Theatre Study**

4 credits, Spring  
3 class, 3 lab hours/week

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 mainstage production. TA-211/212/213 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121. Prerequisites: Pass TA-111, pass TA-112 & pass TA-113.

**TA-241 Shakespeare for Actors**

3 credits, not offered every term  
3 class hours/week

Explore character development and performance with particular emphasis on style, genre, language and rhythm. Lecture, discussion and student presentations based on select texts. TA-241/242/243 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121. Prerequisites: Pass TA-141, pass TA-142 & pass TA-143.

**TA-242 Acting Techniques: Scene Study**

3 credits, not offered every term  
3 class hours/week

An overview of Western theater history from the time of the Greeks to the present. Lecture, discussion and student presentation, including performances from selected scenes, will be used to explore each era of theater. TA-241/242/243 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement into RD-115 & WR-121. Prerequisites: Pass TA-141, pass TA-142 & pass TA-143.

**TA-243 Play Direction**

3 credits, not offered every term  
3 class hours/week

Theory, philosophy and practice of play directing. Casting and rehearsal of players, production organization, script analysis and scene building. TA-241/242/243 meets the Arts & Letters Sequence requirement for the AAOT degree. Recommended: Placement in RD-115 & placement in WR-121. Prerequisites: Pass TA-141, pass TA-142 & pass TA-143.

**TA-253 Theatre Rehearsal/Performance**

1-3 credits, Fall/Winter/Spring  
3-9 lab hours/week

Training in theatre production through intensive study and rehearsal of scenes and plays for public performances. Required: Instructor consent.

**TA-280 Theatre/CWE**

2-6 credits, Fall/Winter/Spring  
1.5 class, 6-18 job site hours/week

Cooperative work experience. Provides student with a learning experience related to course of study and career goal. Major emphasis will be given to on-the-job experience and training. Required: Instructor consent & a CWE seminar.

**TA-295 One-Act Plays**

1-3 credits, Fall/Winter/Spring  
3-9 lab hours/week

Training in special forms of theatrical presentation through in-class intensive preparation, study, and program development for public presentation. Required: Instructor consent.

**TPH**

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

**Technical Physics**

See also Physics (PH).

**TPH-100 Technical Physics**

3 credits, Winter  
3 class, 2 lab hours/week

Designed to meet the needs of a technical program. Includes vectors, equations of motion, forces, work, energy, and power. Prerequisite: Pass MTH-080.

**WLD**

Courses with this prefix may not transfer with credit to a four-year institution unless otherwise specified.

**Welding Technology**

Courses listed with the WLD prefix are the main core classes for the Welding Technology program. Many of these classes can be customized to meet the needs of the industry. For additional information on a customized class for your company, contact the Customized Training Department at 503-657-6958, ext. 3523.

**WLD-100 Welders' Print Reading I**

3 credits, Winter  
3 class hours/week

Provides instruction in reading and interpretation of sketches and prints common in welding practice. Conventional drafting symbols, welding symbols, development of basic shop drawings, & projects.

**WLD-102 Introduction to Welding**

2 credits  
Fall/Winter/Spring/Summer  
4 class hours/week

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-111 Shielded Metal Arc Welding (SMAW)**

8 credits, Fall  
16 class hours/week

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-113 GMAW/FCAW Welding (Wirefeed)**

8 credits, Winter  
16 class hours/week

Provides opportunity to acquire the knowledge and skills to perform fillet welds in all positions with GMAW and FCAW. Oxy-fuel cutting also covered.

**WLD-115 GTAW Welding (TIG)**

8 credits, Spring  
16 class hours/week

Provides opportunity to acquire knowledge and skills to perform fillet welds in various positions on steel, stainless steel and aluminum with the GTAW process. Plasma cutting also covered.

**WLD-150 Welding Processes**

4 credits, Fall/Winter/Spring/Summer  
8 class hours/week

Oxy-acetylene welding, brazing, and cutting, stick welding, and wire feed. Includes: safety, electrical fundamentals, routine maintenance, minor repair, and terms and definitions.

**WLD-200 Welders' Print Reading II**

3 credits, Spring  
3 class hours/week

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, basic weld joints are covered. Recommended: WLD-100

**WLD-211 Advanced SMAW Welding**

4 credits, Fall  
8 class hours/week

Provides knowledge and skills to perform welds in all positions with a variety of different electrodes using the SMAW process. Groove welds on plate and pipe, industrial cutting processes, welding theory and procedures are included. Recommended: WLD-111

**WLD-213 Advanced GMAW/FCAW Welding**

4 credits, Winter  
8 class hours/week

Provides knowledge and skills to perform welds in all positions on plain carbon steel, stainless steel and aluminum using the GMAW and FCAW processes. Groove welds on plate and pipe, industrial-cutting processes, shop print reading are included. Recommended: WLD-113

**WLD-215 Advanced GTAW Welding**

4 credits, Spring  
8 class hours/week

Provides knowledge and skills to perform welds in all positions on plain carbon steel, stainless steel and aluminum using the GTAW process. Groove welds on plate and pipe, and shop print reading also covered. Recommended: WLD-115

**WLD-250 Welding Fabrication I**

**Beginning Project**  
4 credits, Fall  
8 class hours/week

Instruction in fabrication techniques in blueprint reading, layout, sketching, bills of material, job cost calculations, measuring, fitting, cutting and welding. A project will be assigned to each student.

**WLD-251 Welding Fabrication II**

**Intermediate Project**  
4 credits, Winter  
8 class hours/week

Students will be assigned an intermediate fabrication project based on skills learned in WLD-250.

**WLD-252 Welding Fabrication III**

**Advanced Project**  
4 credits, Spring  
8 class hours/week

Students will use techniques from Fabrication I and II to build an advanced project. Student will be responsible for all aspects of managing the project to completion.

**WLD-260A AWS Welder Certification, 1 Plate**

0 credit, Fall/Winter/Spring/Summer  
Approx. 4 class hours/1 session

Welder certification in accordance with AWS D1.1 in flat, horizontal, vertical, or overhead positions for students enrolled in any CCC welding course. A city card is available for an additional fee.

**WLD-260B AWS Welder Certification, 2 Plates or Pipe**  
0 credit, Fall/Winter/Spring/Summer  
Approx. 4 class hours/1 session

Welder certification in any two positions, (flat, horizontal, vertical, 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-261 Welding Special Projects**  
1-11 credits

Fall/Winter/Spring/Summer

25 class hours per week cumulative

Allows students to improve their welding skills while working on instructor-approved projects or in preparation for taking their AWS certification test and is a requirement in the welding technology AAS degree. May be repeated. Required: prior welding experience.

**WLD-280 Welding Technology/CWE**  
2-6 credits

Fall/Winter/Spring/Summer

6-18 job site hours/week

Cooperative work experience. Practical experience in the welding trades. Coordination of instruction will occur with industry and the welding and cooperative work departments. Required: Instructor consent & a CWE seminar.

## WQT

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

## Water & Environmental Technology

**WQT-010 Wastewater Operations I**  
3 credits, Fall

3 class hours/week

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

3 class hours/week

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

3 class hours/week

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

3 class hours/week

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

3 class hours/week

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 sludge handling. No lab requirement for this course. Prerequisite: Pass WQT-020.

**WQT-031 Water Treatment**

3 credits, Spring

3 class hours/week

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

3 class hours/week

Introduction to the fundamentals of wastewater operations. Includes collections systems, preliminary and primary treatment, waste characteristics including organic removals, and solids profiles. Corequisite: MTH-082. Prerequisite: Pass MTH-065

**WQT-111 Waterworks Operations I**

3 credits, Fall

3 class hours/week

Introduction to municipal drinking water treatment and distribution systems. Basic waterworks hydraulics, drinking water regulations, waterworks math, waterworks bacteriology, and introduction to water disinfection. Also offered as an online course. Corequisite: MTH-082. Prerequisite: Pass MTH-065.

**WQT-120 Wastewater Operations II**

3 credits, Winter

3 class hours/week

Secondary wastewater treatment alternatives with municipal application. Fixed and suspended film systems and clarification process. Corequisite: MTH-082. Prerequisite: Pass WQT-110.

**WQT-121 Waterworks Operations II**

3 credits, Winter

3 class hours/week

Basic hydrology, ground water and surface water sources, well construction and operation, introduction to water chemistry, waterworks hydraulics, and fundamentals of pumps and pumping. Also offered as an online course. Corequisite: MTH-082. Prerequisite: Pass WQT-111.

**WQT-122 Water Distribution/Wastewater Collection Systems**

3 credits, Winter

3 class hours/week

Elementary engineering aspects of water distribution and wastewater collection systems. System components, construction materials, pump station design, and related topics.

**WQT-123 Environmental Chemistry I**

3 credits, Winter

2 class, 4 lab hours/week

Theory and applied laboratory techniques for testing water and wastewater. Students will test wastewater for NPDES required tests. Prerequisite: Pass CH-104.

**WQT-125 Ultrapure Water Production I**

3 credits, Winter  
3 class hours/week

Introduction to the production of high purity water for the semiconductor, pharmaceutical, and electric power generating industries. Fundamentals of ultrapure water chemistry, reverse osmosis treatment, ion exchange treatment, electrodeionization treatment, UV, ozonation, degassification, and microfiltration. Corequisite: MTH-082. Prerequisite: Pass CH-104.

**WQT-130 Wastewater Operations III**

4 credits, Spring  
3 class, 3 lab hours/week

Design, operation, process control, and maintenance of treatment facilities. Current treatment processes discussed in detail with particular attention to sludge handling and processing. Lab includes field trips to local wastewater facilities. Prerequisite: Pass WQT-120. Corequisite: WQT-180.

**WQT-131 Water Treatment**

4 credits, Spring  
3 class, 3 lab hours/week

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  
3 lab hours/week

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  
1 class, 3 lab hour/week

Provides experience in test procedures required for wastewater treatment NPDES discharge permits and the drinking water industry. Prerequisite: Pass WQT-123.

**WQT-135 Ultrapure Water Production II**

4 credits, Spring  
3 class, 3 lab hours/week

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  
2 class, 12 field hours/week

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.

**WQT-241 Aquatic Microbiology**

4 credits, Fall  
3 class, 3 lab hours/week

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  
3 class hours/week

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.

**WQT-245 Instrumentation and Control**

4 credits, Fall  
3 class, 3 lab hours/week

Methods used to monitor and control treatment processes in wastewater, water and ultrapure water facilities. Advanced water analysis to include typical monitoring of UPW treatment. Fundamentals of control loops, control systems and data management. Prerequisite: Pass WQT-135.

**WQT-280 Water & Environmental Projects II**

5 credits, Fall  
2 class, 12 field hours/week

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 discussions will be addressed.

**WR****Writing****WR-080 Basic Writing Skills**

1-3 credits, Fall/Winter/Spring  
3 class hours/week

Utilizes an individualized and group approach that includes three individual credits: Capitalization/Punctuation, Sentence Construction, and Sentence to Paragraph. Prerequisite: Placement in WR-080.

**WR-090 Fundamentals of English**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Diagnostic and remedial approach to eliminating deficiencies in grammar, punctuation, and usage. Prerequisite: Placement in WR-090 or pass WR-080.

**WR-095 Paragraph to Essay**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Preparatory study for transfer writing courses, with emphasis on paragraph construction and short papers. Recommended: Placement in RD-115. Prerequisite: Placement in WR-095 or pass WR-090.

**WR-101 Communication Skills:****Occupational Writing**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Develops basic modes of technical writing, including summaries, process analysis, instructions, and reports. Recommended: Placement in RD-115. Prerequisite: Placement in WR-121 or pass WR-095.

**WR-121 English Composition**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Methods of structure, content, and expository writing. WR-121, WR-122 & WR-123 or WR-227 meets the writing sequence requirement for the AAOT degree. Note: Certain sections of WR-121 meet the computer literacy requirement. Recommended: Placement in RD-115. Prerequisite: Placement in WR-121 or pass WR-095.

**WR-122 English Composition**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Style, logic, and argumentation. WR-121, WR-122, & WR-123 or WR-227 meets the writing sequence requirement for the AAOT degree. Certain sections of WR-122 meet the computer literacy requirement. Recommended: Placement in RD-115. Prerequisite: Pass WR-121.

**WR-123 English Composition**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

The research paper. WR-121, WR-122 & WR-123 or WR-227 meet the writing sequence requirement for the AAOT degree. Recommended: Placement in RD-115. Prerequisite: Pass WR-121 & pass WR-122.

**WR-165 Writing on the Worldwide Web [C]**

3 credits, not offered every term  
3 class hours/week

Theoretical background and practical skills necessary to write effectively on the World Wide Web in situations ranging from composing E-mail to creating Web site content. It is strictly a writing class. Prerequisites: Pass WR-121 & pass CS-125H or instructor consent.

**WR-185 Practical Grammar**

3 credits, not offered every year  
3 class hours/week

Nature of English grammar: sentence, parts of speech, phrases, clauses, verbals, sentence patterns, syntax, levels of usage, spelling, punctuation. NOT a remedial course. Recommended: Placement in RD-115 & placement in WR-121.

**WR-227 Technical Report Writing [C]**

3 credits, Fall/Winter/Spring/Summer  
3 class hours/week

Introduction to report writing, with emphasis on materials gathered from the fields of medicine, government, criminal justice, business, engineering, technology, science, and public relations. Stresses organization, form, and style. Meets computer literacy requirement. WR-121, WR-122 & WR-123 or WR-227 meets the writing sequence requirement for the AAOT degree. Recommended: Placement in RD-115. Prerequisite: Pass WR-121 & pass WR-122.

**WR-240 Creative Writing: Nonfiction**

3 credits, Spring  
3 class hours/week

Techniques of creative nonfiction writing and the development of critical appreciation of the art of writing personal essays, memoirs, nature or science writing, and literary journalism. Recommended: Placement in RD-115. Prerequisite: Placement in WR-121 or instructor consent.

**WR-241 Creative Writing: Fiction**

3 credits, Fall/Winter  
3 class hours/week

Techniques of creative writing and the development of critical appreciation of the art of writing fiction. Recommended: Placement in RD-115. Prerequisite: Placement in WR-121 or instructor consent.

**WR-242 Creative Writing: Poetry**

3 credits, Fall/Winter  
3 class hours/week

Techniques of creative writing and the development of critical appreciation of the art of writing poetry. Recommended: Placement in RD-115. Prerequisite: Placement in WR-121 or instructor consent.

**WR-243 Creative Writing: Playwriting**

3 credits, Fall/Winter  
3 class hours/week

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: Placement in RD-115. Prerequisite: Placement in WR-121 or instructor consent.

**WR-244 Advanced Fiction Writing**

3 credits, Spring  
3 class hours/week

Skill and knowledge development for fiction writers with previous experience. Recommended: Placement in RD-115. Prerequisite: Pass WR-241 or instructor consent.

**WR-245 Advanced Poetry Writing**

3 credits, Spring  
3 class hours/week

Technique and knowledge development for poetry writers with previous experience. Recommended: Placement in RD-115. Prerequisite: Pass WR-242 or instructor consent.

**WR-246 Editing & Publishing [C]**

3 credits, Spring  
3 class hours/week

Develops editing and publishing skills of students with an interest in creative writing and/or literary journal design, layout, and publication. Includes the production of the campus literary magazine. Desktop publishing experience recommended but not required. Meets computer literacy requirement. Recommended: Placement in RD-115. Prerequisites: Pass WR-241 or pass WR-242 or pass WR-243 or pass WR-262 or instructor consent.

**WR-247 Advanced Playwriting**

3 credits, Spring  
3 class hours/week

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: Placement in RD-115. Prerequisite: Pass WR-243 or instructor consent.

**WR-262 Introduction to Screenwriting**

3 credits, Winter  
3 class hours/week

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: Placement in RD-115. Prerequisite: Placement in WR-121 or instructor consent.

**WR 263 Advanced Screenwriting**

3 credits, Spring  
3 class hours/week

Continuation in the development of students' competency in the fundamentals of screenplay composition through the use of various writing exercises and workshop techniques. Recommended: Placement in RD-115. Prerequisite: Pass WR-262 or instructor consent.

**WR-280 Writing/CWE**

2-6 credits, Fall/Winter/Spring  
1.5 class, 6-18 job site hours/week

Cooperative work experience. Provides students with on-the-job work experience in the field of writing. Required: Instructor consent & a CWE seminar.

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**WS*****Women's Studies*****WS-101 Introduction to Women's Studies****3 credits, Fall/Spring****3 class hours/week**

Course will examine and analyze the position of women in society and critically explore social issues relevant to women's lives and feminism historically and in the future. Topics: family, education, work, health care, sexuality, and political/economic status. Recommended: Placement in RD-115.

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**Z*****Zoology*****Z-201 General Zoology****4 credits, not offered every year****3 class, 3 lab hours/week**

Covers cellular and molecular basis of animal life including genetics, evolution, systematics, and protist diversity. Z-201/202/203 meets the science sequence requirement for the AAOT degree. Recommended: Placement in MTH-105 or MTH-111; placement in RD-115 & placement in WR-121.

**Z-202 General Zoology****4 credits, not offered every year****3 class, 3 lab hours/week**

Covers the maintenance of the cellular environment in animal systems, behavior, and diversity of the less complex invertebrate animal phyla to acoelomates. Z-201/202/203 meets the science sequence requirement for the AAOT degree. Recommended: Placement in MTH-105 or MTH-111; placement in RD-115 & placement in WR-121.

**Z-203 General Zoology****4 credits, not offered every year****3 class, 3 lab hours/week**

Covers diversity of the more complex invertebrates and vertebrates ecology. Z-201/202/203 meets the science sequence requirement for the AAOT degree. Recommended: Pass MTH-105 or pass MTH-111; placement in RD-115 & placement in WR-121.

# *Academic Regulations*

## Attendance

You must be officially registered to attend class and you are expected to attend the classes in which you're enrolled. You are responsible for all class work assigned. 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.

### Absences

Make sure you attend your first day of class! If you can't make it to your first class session, contact your instructor in advance. If you don't, you may be administratively withdrawn from any class with a wait list at the instructor's option. If you're withdrawn from a class under this procedure, you'll be notified by the Registrar's Office. If you used financial aid or Veteran's benefits, you may owe a repayment. Absences during religious holidays when the college is open will be accepted if notification is received before class begins.

Absences due to participation in college-sponsored field trips, intercollegiate functions and other trips may be excused through prior arrangement with your instructors. *Financial aid programs have specific attendance requirements. Contact the Student Financial Services Office for more information, ext. 2422.*

### Adding & Dropping Classes Official Withdrawal

- To register for a course after the class has started, you must get the instructor's approval and signature on a registration form.
- No registration or schedule changes are accepted after the 8th week of the term.
- To officially drop a course or withdraw from college, you must file a registration form request with the Registrar's Office or drop via the Web or by telephone. (Ceasing to attend class does not constitute official withdrawal.)
- Drops or withdrawals after the sixth week of the term require the signature of the instructor. These courses will appear on your transcript with a "w" in the grade column. In order to drop a course without responsibility for a grade, your registration request must be filed before the end of the sixth week of the term.

## 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 Veteran's benefits, you may owe a repayment. Please check with these offices for additional information regarding your enrollment status and entitlement to benefits.

### Wait List

You may be able to request a position on a class wait list if the class you want is full at the time of registration. Requests can be made via the Web, Telephone Registration or in person at the Help Center in the Community Center building at our Oregon City campus. You will be enrolled should an opening become available in the course you have requested. Students are enrolled from the wait list on a first come, first served and eligibility basis. Certain conditions may affect the eligibility of those requesting a wait list placement. These conditions are as follows:

1. Wait list seat load capacity has been met.
2. There is a "hold" on your student record that restricts registration.
3. There are course restrictions in place such as "instructor consent."
4. You are already enrolled in another section of the same course.
5. There is a time conflict with the course you have selected.
6. You have reached the maximum number of credits allowed (20) without additional authorization.
7. Class has already begun.

### Frequently-asked question:

*How do I know which courses transfer?*

It is your responsibility to know the requirements of the college or university to which you intend to transfer and to meet those requirements. For assistance, see your faculty advisor or a staff member in the Advising & Counseling Center to help you create an educational plan to fit your program of study and the transfer requirements for the four-year institution where you plan to compete a bachelor's degree.

## College Credits

The standard unit of measurement for college work is called a credit.

A full-time student is defined as someone enrolled in 12 or more credits in any one term. No student may enroll in more than 20 credits per term without approval from a counselor.

### COURSES NUMBERED:

100 and above	Community college courses resulting in transcribed academic credit which may be applied toward a degree and/or certificate. May also transfer to other institutions.
10 through 99	Community college courses resulting in transcribed academic credit which may be applied toward a degree and/or certificate and transferable to other community colleges.
1 through 8	Community education courses, workshops or seminars that carry no credit or application toward a degree and/or certificate.
9	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.

### 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 lets you 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. A grade of incomplete is not available in variable credit courses.

### Credit by Examination (Challenge exam)

You can challenge a course for credit by taking an oral, written, performance examination, or a combination for course eligibility. Challenge exams are subject to the following limitations:

- Certain courses have been approved for challenge (see the Advising & Counseling Center).
- You must be enrolled at CCC and complete a minimum of three credits during the term in which you challenge a course.

- You may not challenge more than 12 credits per term.
- 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 Help Center or the Advising & Counseling Center and contacting the college department responsible for instruction of the course. The exam is comprehensive, covering all the basic information and skills required of a student completing the course in the regular manner. The examination may be written, oral, performance or a combination. For more information call the Advising & Counseling Center, ext. 2213.

## 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	0
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, not grade points earned	N/A

### *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 qualify for Veterans or Social Security benefits, Financial Aid and athletic eligibility. Registration, tuition, fees and attendance standards for audited courses are the same as for credit courses. To change your status from audit to credit, or from credit to audit, please talk with your instructor and make these changes through the registration process before the end of the eighth week of the term.

### *Calendar*

Clackamas Community College operates on the quarter system. Fall, winter and spring terms are 11 weeks in length and summer term classes are eight or 11 weeks in length. Credits as noted on transcripts are measured in quarter hours.

### *Final Exams*

Final examinations take place the last week of each term (see the *Schedule of Classes* for exact dates and times). You must take finals at the scheduled time; exceptions will be made only for illness or other circumstances beyond your control, and must be approved by your instructor prior to scheduled exam time.

### *Honors*

Students achieving a term GPA of 3.5 or better based on nine or more credits graded (A-F) will be placed on the CCC honor roll for fall, winter, or spring terms.

### *Incomplete*

A grade of Incomplete indicates that the quality of work is satisfactory but that 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 a letter grade and some courses may be taken for a letter grade only. If you'd like to be graded Pass/No Pass, and the course qualifies, you must tell your instructor by the end of the eighth week of the course.

### *Repeating Courses*

You may repeat a course as many times as you choose. You must fill out a Repeated Course form in the Registrar's Office to request a recalculation of your GPA. A repeated course will reflect an "R" on your transcript. The grade (A, B, C, D, F) of your last attempt will be used in computing your cumulative GPA. Other attempts will be shown on your transcript, but will not be included in calculating your GPA.

### *Satisfactory Academic Progress*

If you intend to register for six or more credits in a degree or certificate program you are subject to standards of satisfactory academic progress.

The standards of academic progress are: completion of at least 50% of your enrolled hours (not including hours dropped or changed to audit by the official refund date), and a term GPA of 2.0 or greater. Failure to meet either standard will place you on alert status.

If you are on academic alert, you will be sent written notification of your status at the end of the term, including information on resources, tutoring and other options available to you. You must attend an educational planning session before the end of the drop period of the next term of enrollment in order to draw up a plan for improving your academic work. This term will be called your academic alert term.

If you complete 50% of your courses and achieve a term GPA of 2.0 or greater during an academic alert term, but have a cumulative GPA less than 2.0, you may enroll for a second academic alert term. You must repeat the educational planning process.

If you do not complete 50% of your courses and/or do not achieve a term GPA of 2.0 or greater during an academic alert term, you will be prohibited from registering for college credit classes for one term (summer excluded). Upon re-enrollment, you must repeat the educational planning process.

If you enroll after a one-term restriction and still do not complete 50% of your courses and achieve a term GPA of 2.0 or greater during an alert term, you will be prohibited from registering for college credit classes. You may appeal your loss of registration privilege by writing to the Director of Counseling and Career Planning. An appeals committee will inform you of the outcome within 10 working days of the receipt of the appeal.

Please note: There may be higher standards required for students who receive financial aid; are admitted to Medical Assistant, Nursing; are international students; participate in college athletics; or who receive scholarships.

### Transcripts

Official transcripts of your course work at CCC may be ordered in person, by written request or FAX through the Registrar's Office. Official transcripts are \$5 each; unofficial transcripts are available by going to the Web at <http://www.clackamas.edu>

For more information call the Transcript Request Line, ext. 2480.

*Clackamas Community College reserves the right to withhold issuance of transcripts to students who have not met their obligations to the college.*

### Graduation

Students are encouraged to petition for graduation, preferably at least two terms prior to the term in which they expect to finish. Petitions for graduation may be obtained from the Help Center, Advising & Counseling Center, Registrar's Office, or by going to the Web at <http://www.clackamas.edu>

Formal graduation activities are held at the end of Spring term. Students who complete degree or certificate requirements during preceding terms are invited to participate in the Spring term commencement ceremony. Two ceremonies are planned, the first for High School Diploma and GED graduates, and a second for certificate and degree program graduates.

Honors status is granted to students achieving a cumulative GPA of 3.5 on total credits earned at Clackamas. The honors status of spring term graduates is determined by cumulative GPA through the preceding Winter term.

Students that have satisfied associate and/or certificate requirements must petition for graduation with the Registrar's Office to have the appropriate award noted on their transcript. Multiple degrees/certificates may be earned as follows:

- One AAOT
- One AGS
- One or more AAS with differing program areas
- One or more Certificates of Completion with differing occupational content areas

***(A separate petition for graduation must be filed for each degree or certificate desired.)***

*The degree requirements in this catalog are valid for five years following the summer term of 2003. When you are ready to graduate, you may choose to meet the program requirements of either the catalog which was current during the first term you attended CCC, or the requirements contained in the current catalog at the time you graduate.*

## Personal Rights & Privileges

### Family Educational Rights & Privacy Act (FERPA)

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 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. If the challenge is not resolved with the custodian of records, 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.*

### 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

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.

*Continued*

### *Release of Information*

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 colleges 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.

### *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 verbal request to anyone:

1. Your 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 Instructional Services or Registrar:
  - a. Student name, address, telephone number
  - b. Class location to Public Safety in case of health or safety emergencies.

Exceptions to the above may include but are not limited to:

1. Release of alumni names and addresses to our Foundation office for communication with CCC graduates;
2. The release and posting of names of students receiving academic honors/awards;
3. Student athletes may sign a release of information form through the Athletic Department for the release of information regarding registration activity, grades and access to records by their coach or the athletic director.

Students employed with the college that have access to student records receive FERPA training and are asked to read and sign an institutional confidentiality statement of understanding. Directory information for use within the college is permitted in accordance with FERPA guidelines. Disclosure within the college does not constitute institutional authorization to transmit, share or disclose any or all information received to a third party.

### *Requesting to Restrict the Release of Directory Information*

You may restrict the release of directory information as mentioned above by submitting a Student Directory Restriction request form with the Registrar's Office. This restriction will remain in place until you ask for removal. It will remain in place even after you graduate or have stopped attending.

### *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 I.D. Cards*

Photo student I.D. cards are available at the Help Center in the Bill Brod Community Center building. 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 I.D. card.

*Map, Services, Activities, Special Programs*

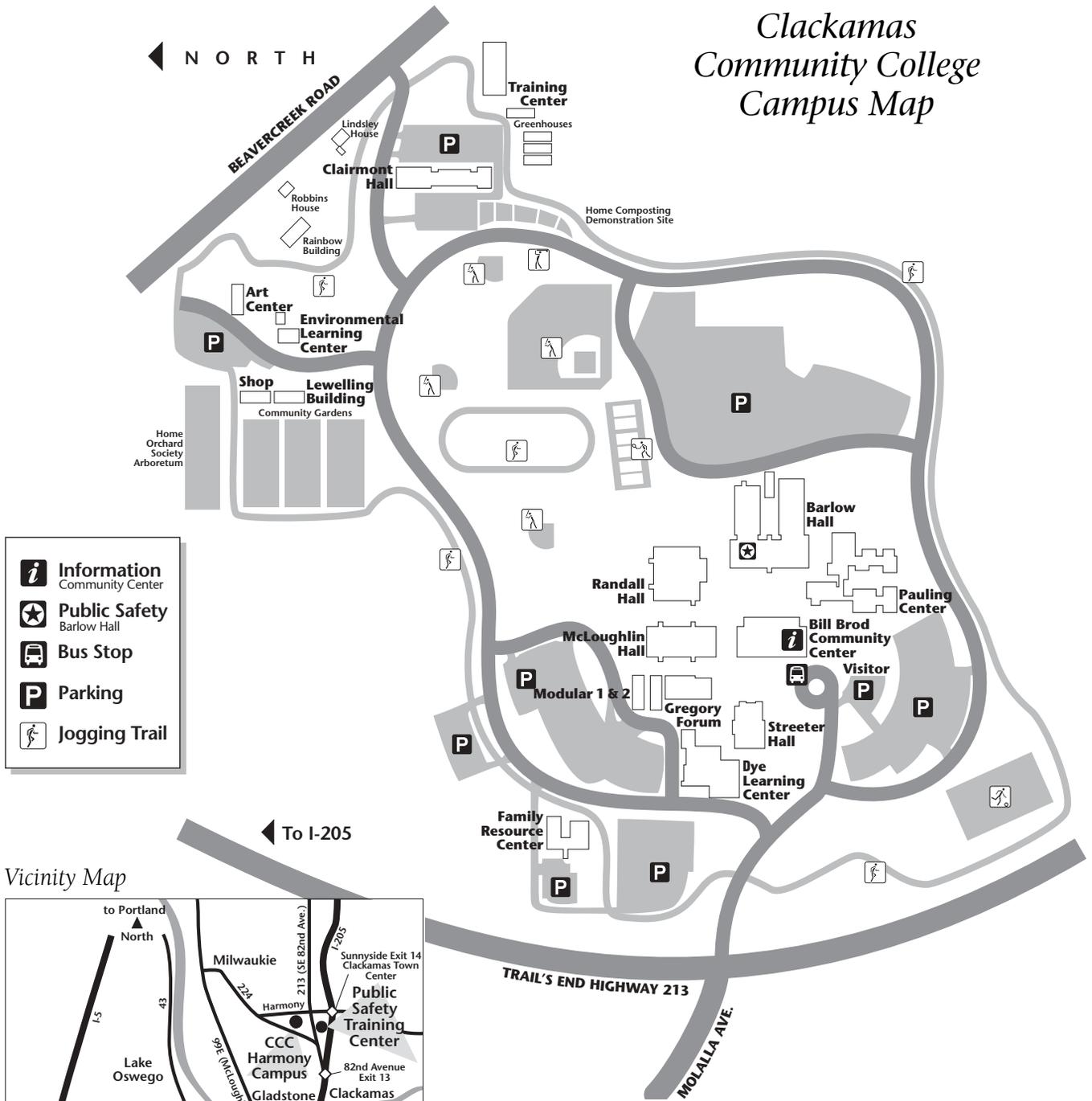
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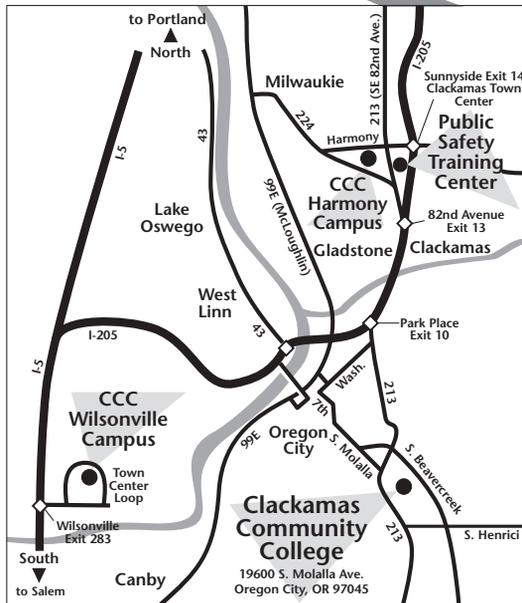
INSTRUCTIONAL DEPARTMENT	BUILDING	INSTRUCTIONAL DEPARTMENT	BUILDING
<i>Apprenticeship/Building Construction</i> . . . . .	Training Center	<i>Foreign Language</i> . . . . .	Barlow Hall, 2nd floor
<i>Art</i> . . . . .	Art Center	<i>Horticulture</i> . . . . .	Clairmont Hall
<i>Automotive</i> . . . . .	Barlow Hall 2nd floor	<i>Life Science</i> . . . . .	Pauling Center
<i>Business</i> . . . . .	McLoughlin Hall, 2nd floor	<i>Manufacturing</i> . . . . .	Barlow Hall, 2nd floor
<i>Communication/Theatre Arts</i> . . . . .	McLoughlin Hall, 1st floor	<i>Mathematics</i> . . . . .	Streeter Hall
<i>Computer Science</i> . . . . .	Streeter Hall	<i>Music</i> . . . . .	Randall Hall, 2nd floor
<i>Community Education</i> . . . . .	Harmony Campus*	<i>Nursing</i> . . . . .	Barlow Hall, 2nd floor
<i>Cooperative Work Experience</i> . . . . .	Barlow Hall, 2nd floor & Comm.Ctr.	<i>Physical Education/Health</i> . . . . .	Randall Hall, ground floor
<i>Criminal Justice</i> . . . . .	Clairmont Hall	<i>Physical Science</i> . . . . .	Pauling Center
<i>Drafting</i> . . . . .	Barlow Hall, 2nd floor	<i>Skills Development</i> . . . . .	Dye Learning Resource Center
<i>Education &amp; Human Services</i> . . . . .	Family Resource Center	<i>Small Business Center</i> . . . . .	Harmony Campus*
<i>Engineering/Water Quality</i> . . . . .	Pauling Center	<i>Social Science</i> . . . . .	McLoughlin Hall, 2nd floor
<i>English</i> . . . . .	Streeter Hall		
<i>English as a Second Language</i> . . . . .	Dye Learning Resource Center		

\* See vicinity map, page 177 .

# Clackamas Community College Campus Map



## Vicinity Map



### Addresses:

Clackamas Community College  
19600 South Molalla Avenue  
Oregon City, OR 97045-7998

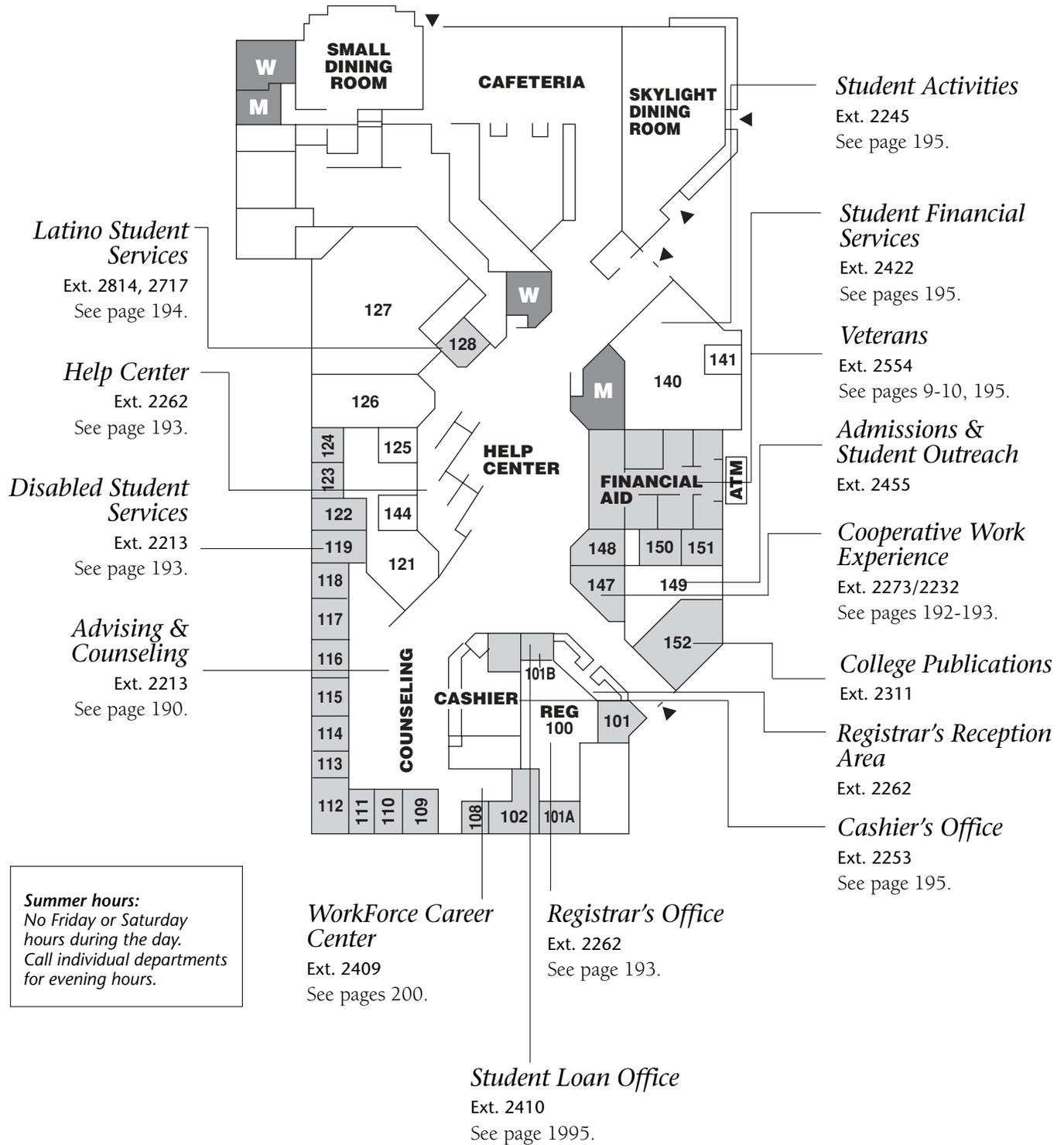
CCC Harmony Campus  
7616 S.E. Harmony Road  
Milwaukie, OR 97222

CCC Wilsonville Campus  
29353 Town Center Loop E  
Wilsonville, OR 97070

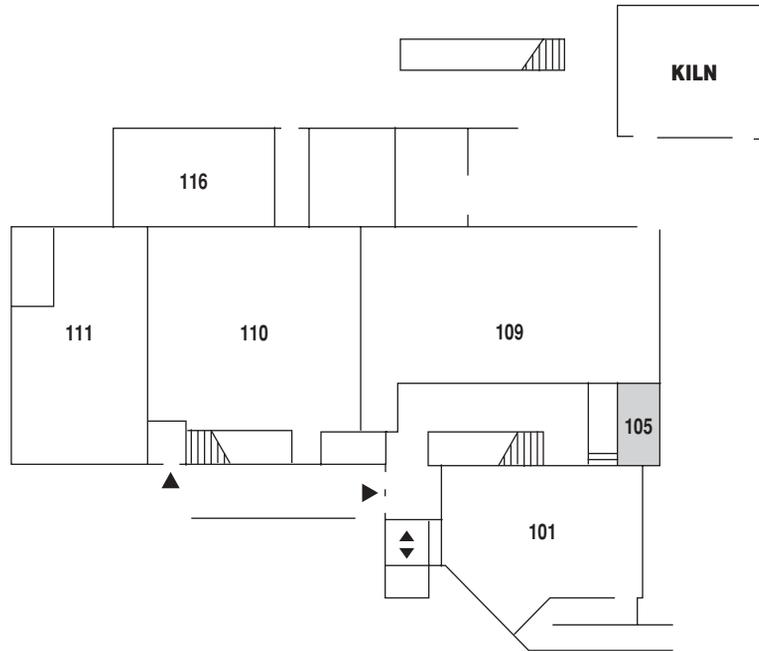
Public Safety Training Center  
12700 S.E. 82nd Avenue  
Clackamas, OR 97015-9793

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

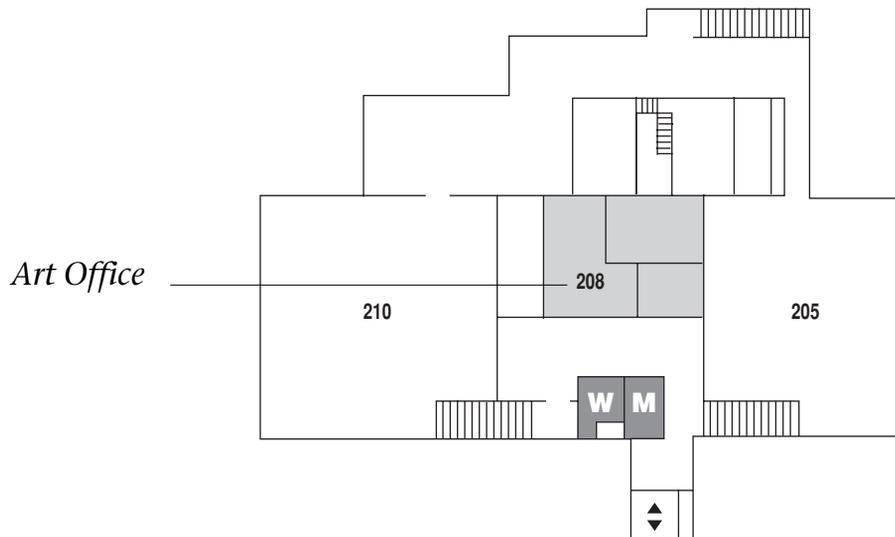
## Bill Brod Community Center



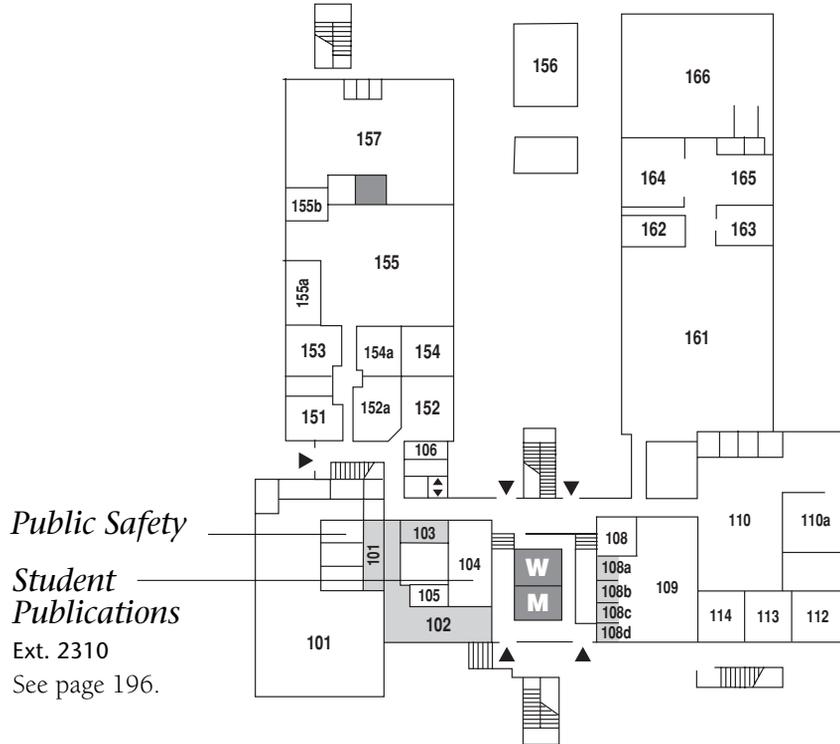
*Art Center (1st floor)*



*Art Center (2nd floor)*



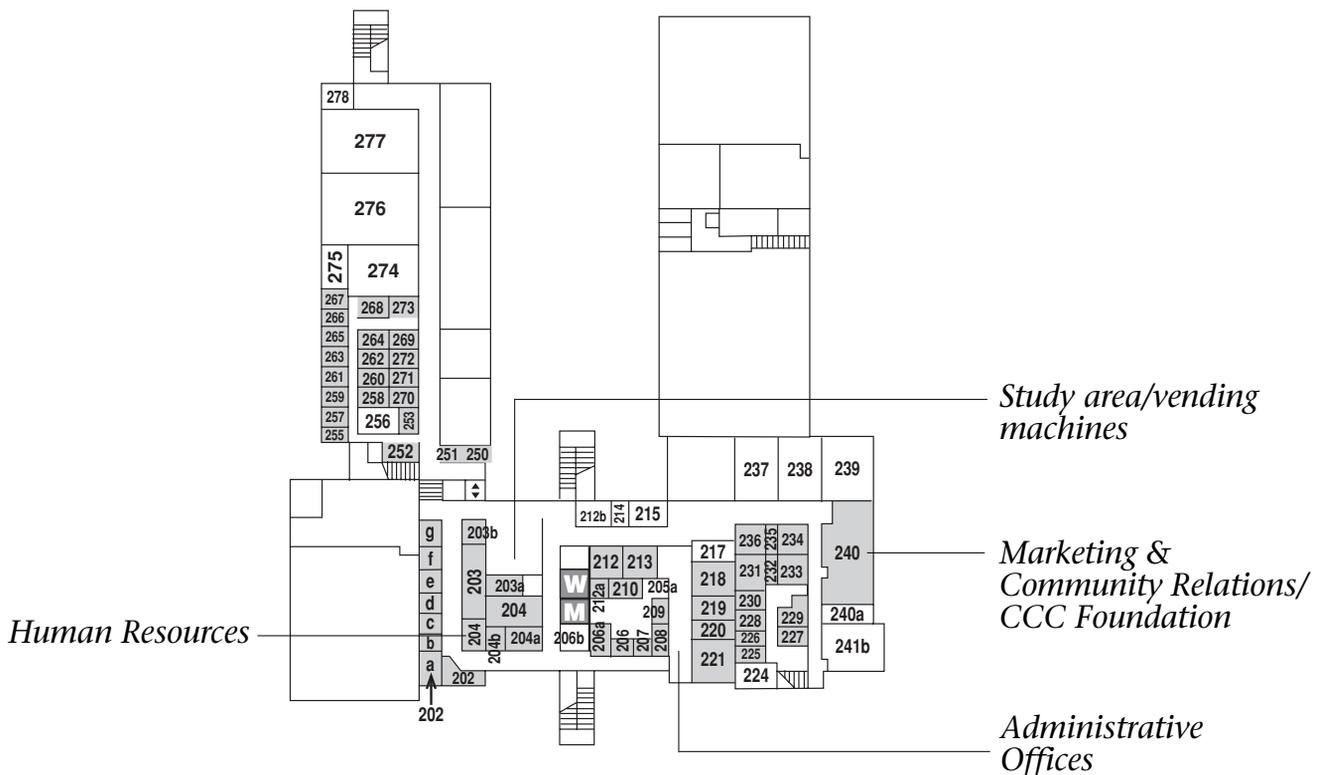
### Barlow Hall (1st floor)



*Public Safety*

*Student Publications*  
Ext. 2310  
See page 196.

### Barlow Hall (2nd floor)



*Human Resources*

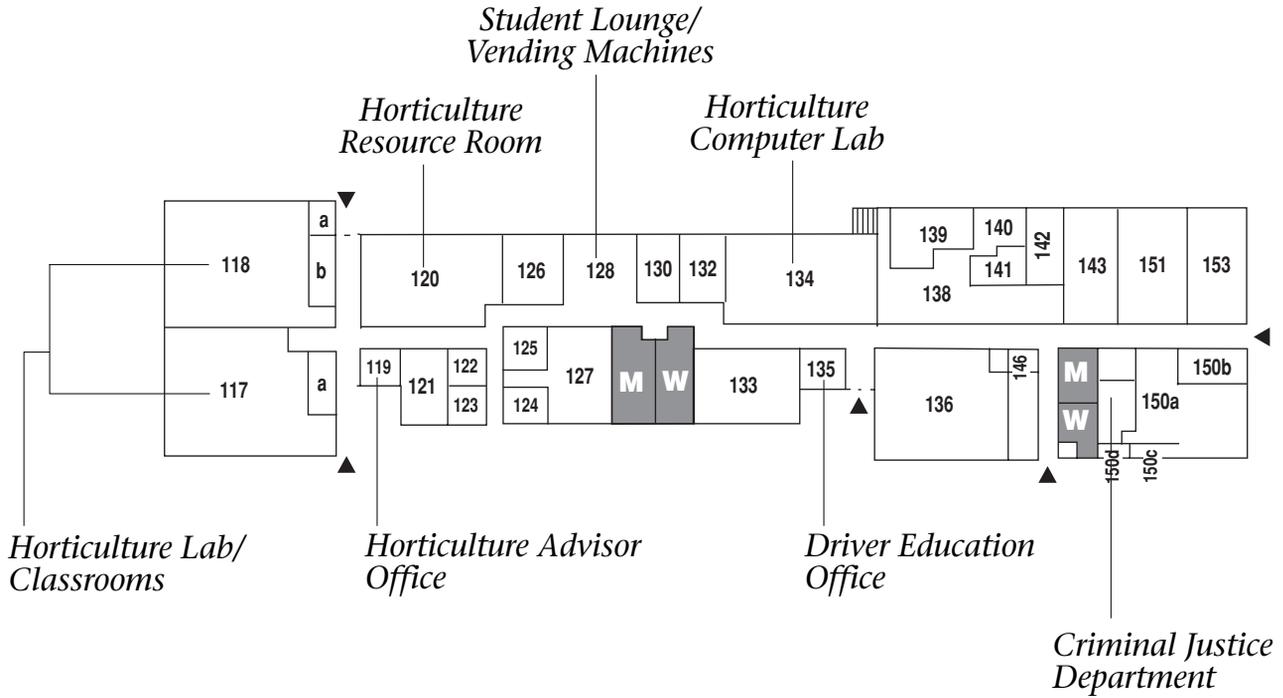
*Study area/vending machines*

*Marketing & Community Relations/CCC Foundation*

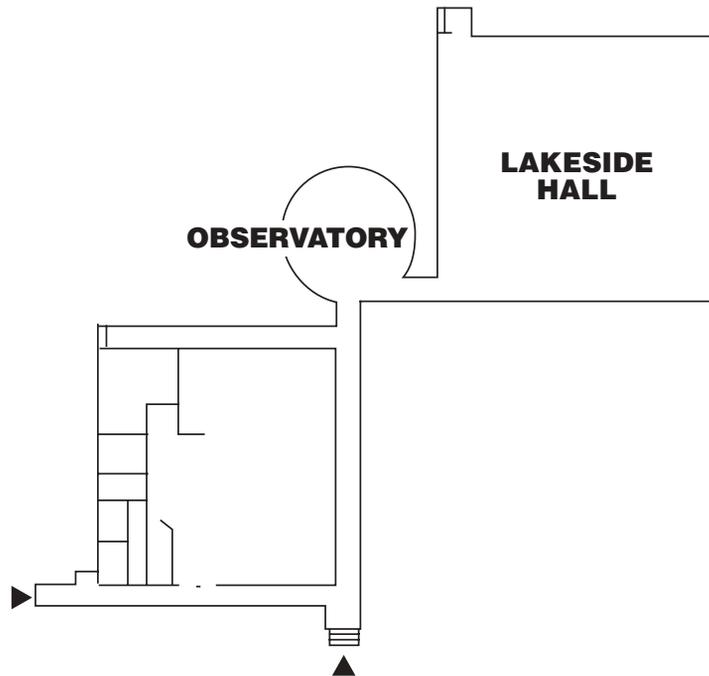
*Administrative Offices*

 restroom	 staff office	 classroom	 building entrance	 elevator
--	--	---	---	--

## Clairmont Hall



## John Inskeep Environmental Learning Center



## *Elizabeth McClung Brod Family Resource Center*

***Bridges Program***

Ext. 2133  
See page 199.

***Young Parent Opportunity Program***

Ext. 2592  
See page 198.

***FRC Programs Information***

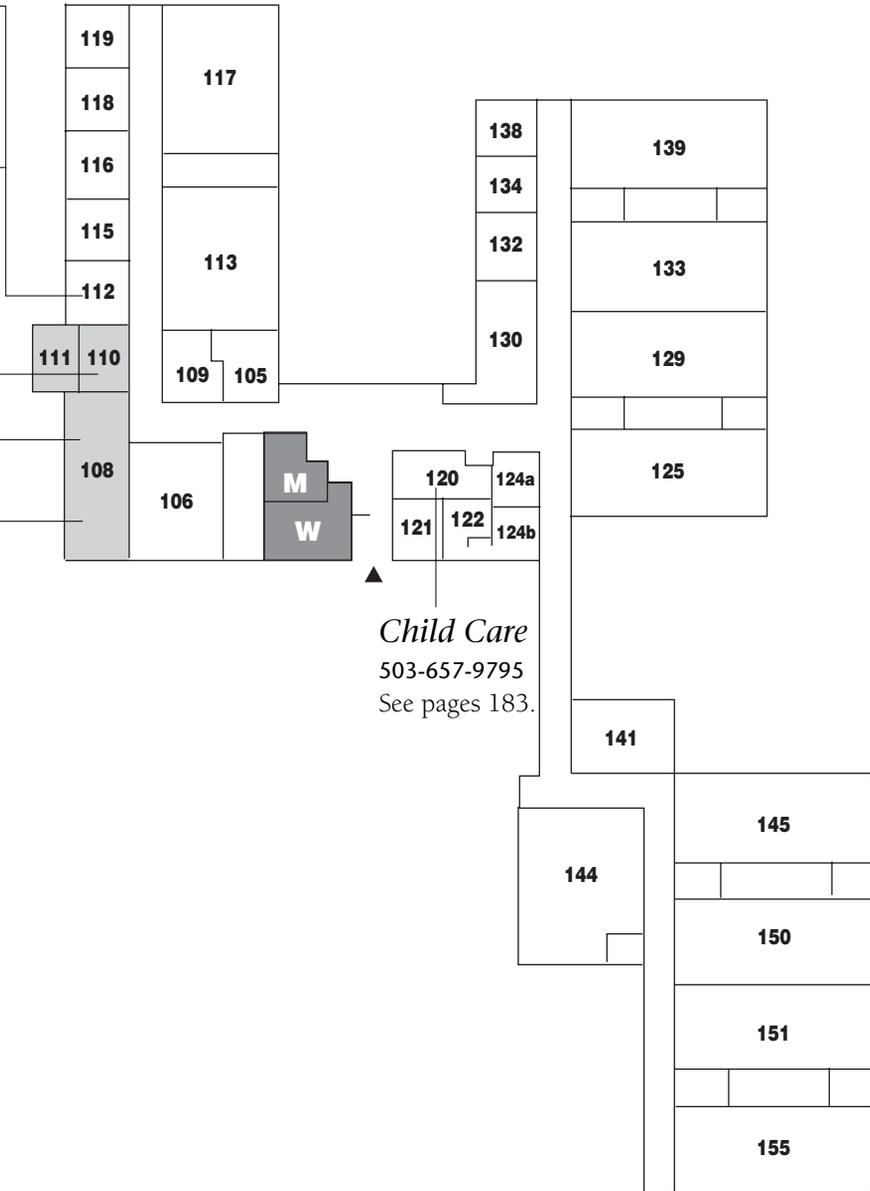
Ext. 2456  
See page 198-199.

***Life & Career Options Program***

Ext. 2526  
See page 199.

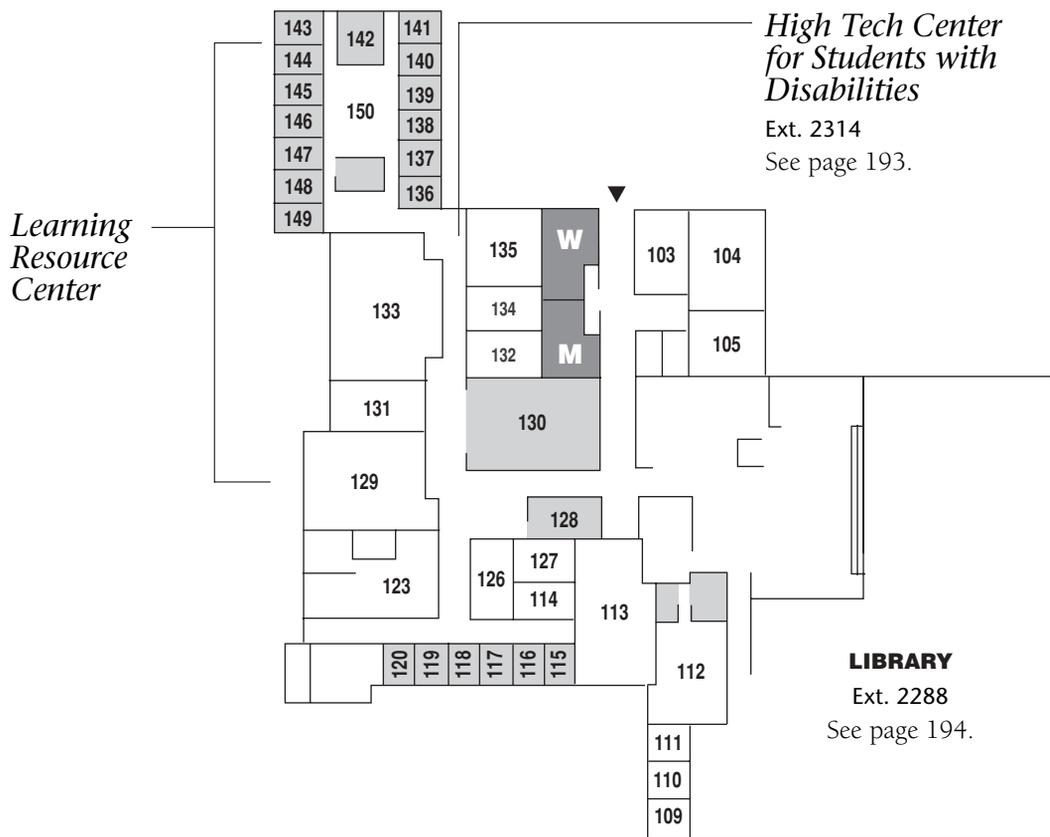
***Women's Resource Center***

Ext. 2526  
See page 196.

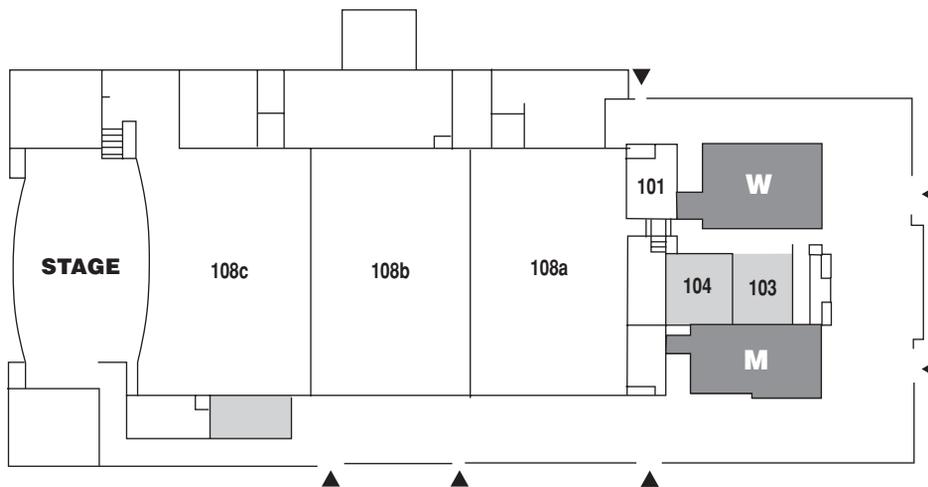


***Child Care***  
503-657-9795  
See pages 183.

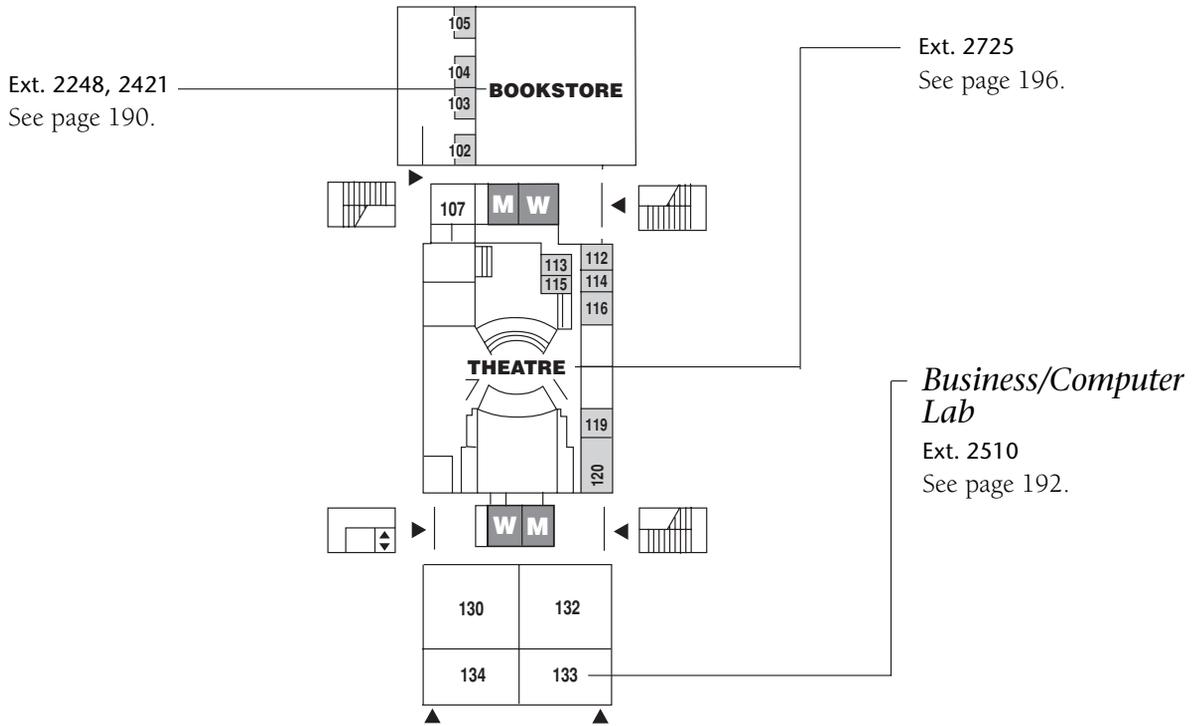
## *Eva Emery Dye Learning Resource Center*



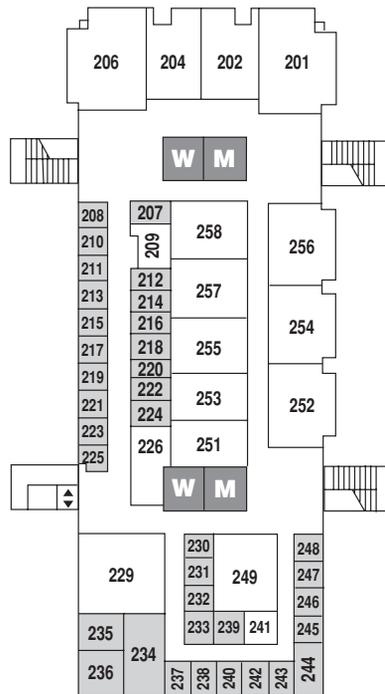
## *Gregory Forum*



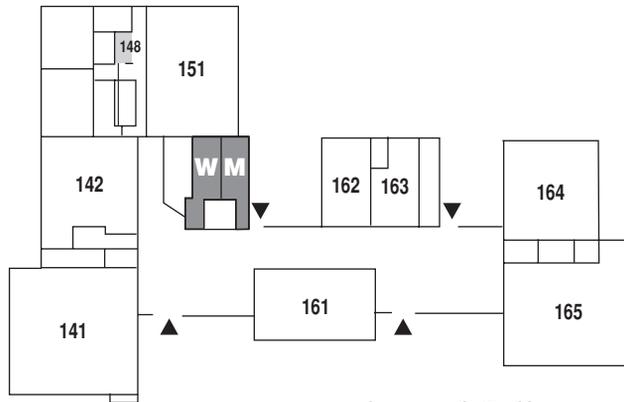
### McLoughlin Hall (1st floor)



### McLoughlin Hall (2nd floor)

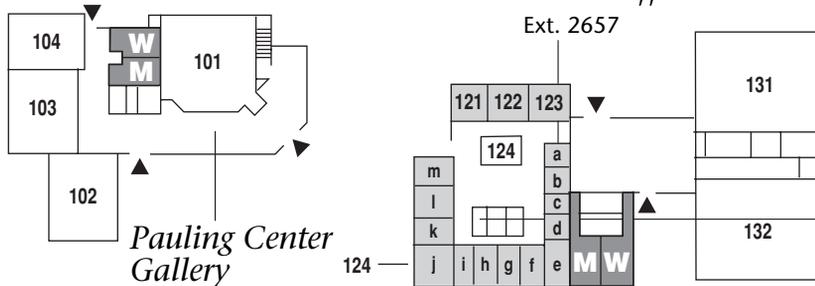


### Pauling Center



### Advanced College Credit Office

Ext. 2657



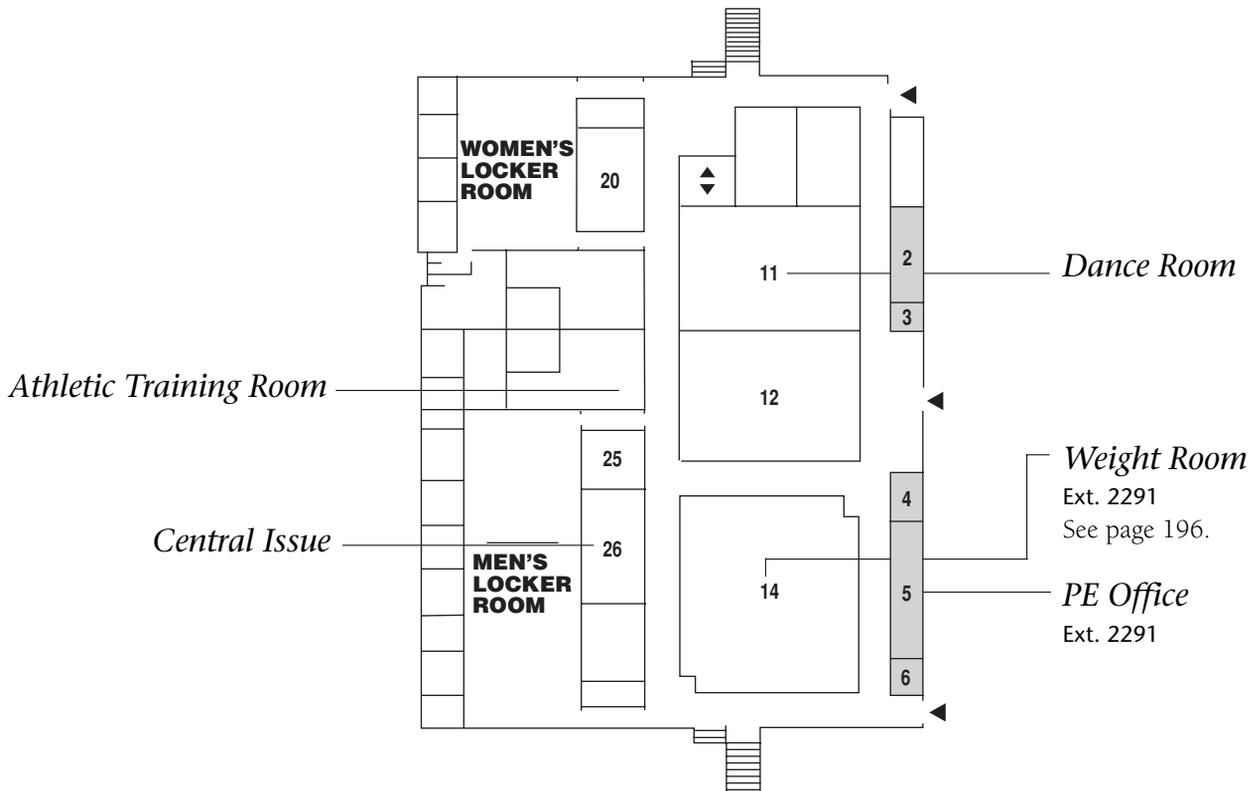
*Pauling Center Gallery*

Ext. 2386

See page 201.

*Science Department Faculty Offices*

### Randall Hall (ground floor)



*Dance Room*

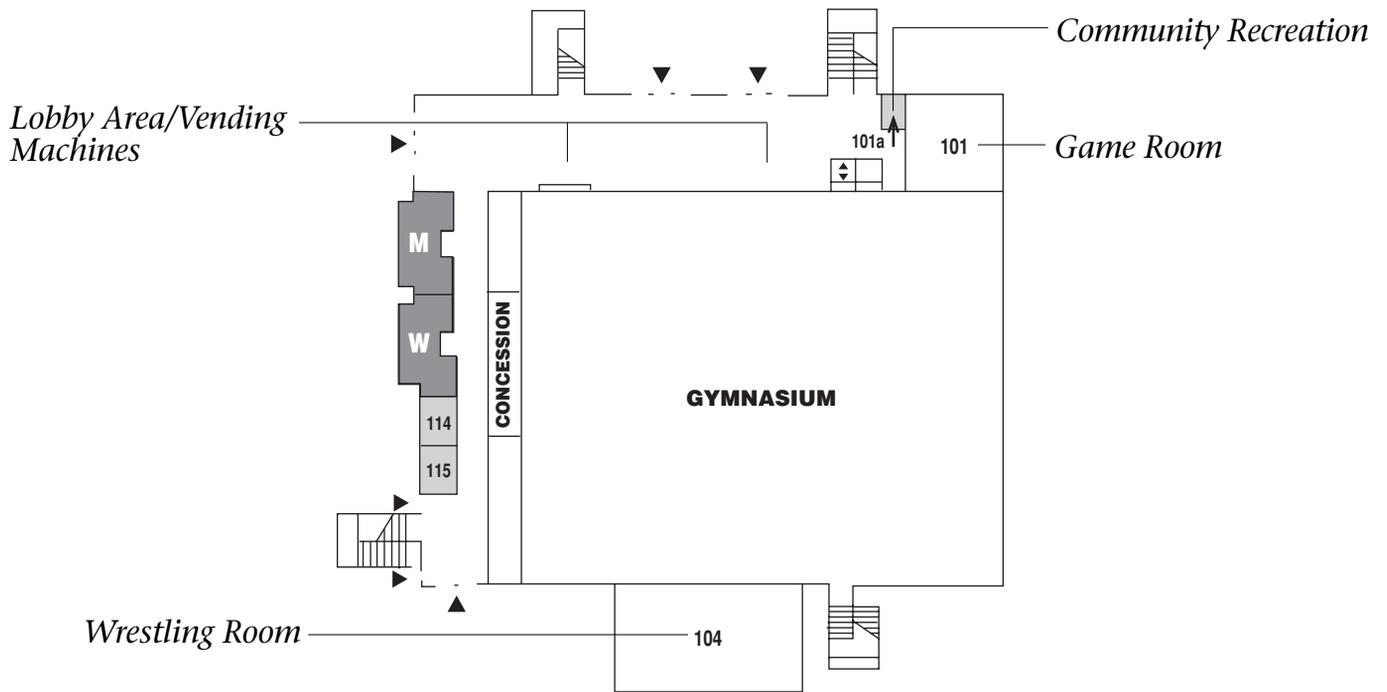
*Weight Room*

Ext. 2291  
See page 196.

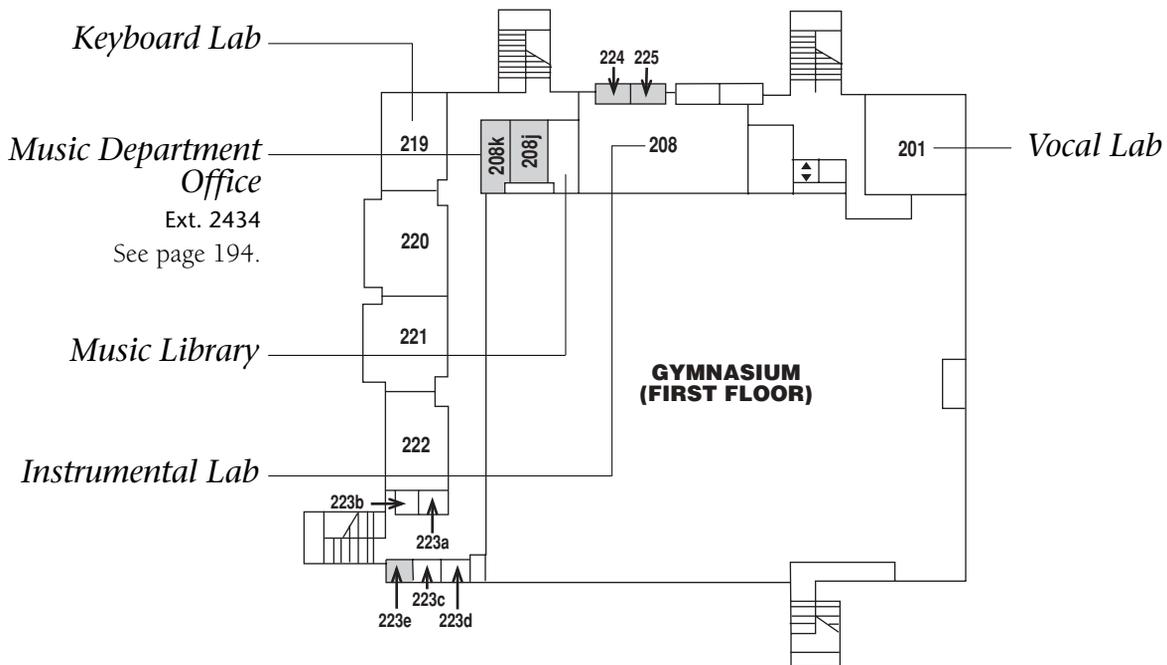
*PE Office*

Ext. 2291

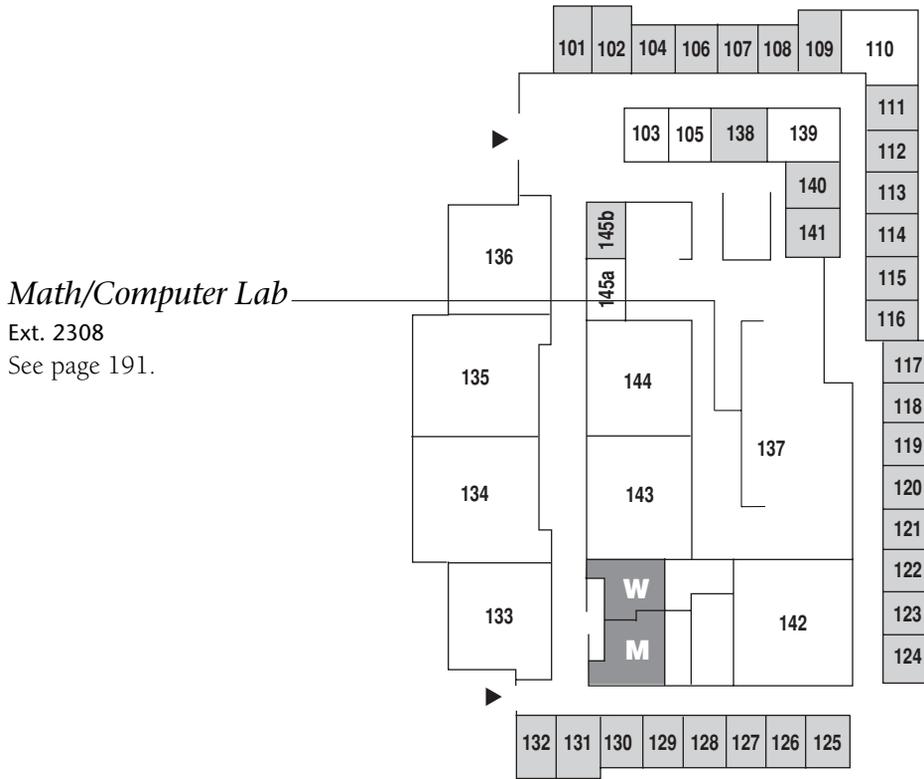
### Randall Hall (1st floor)



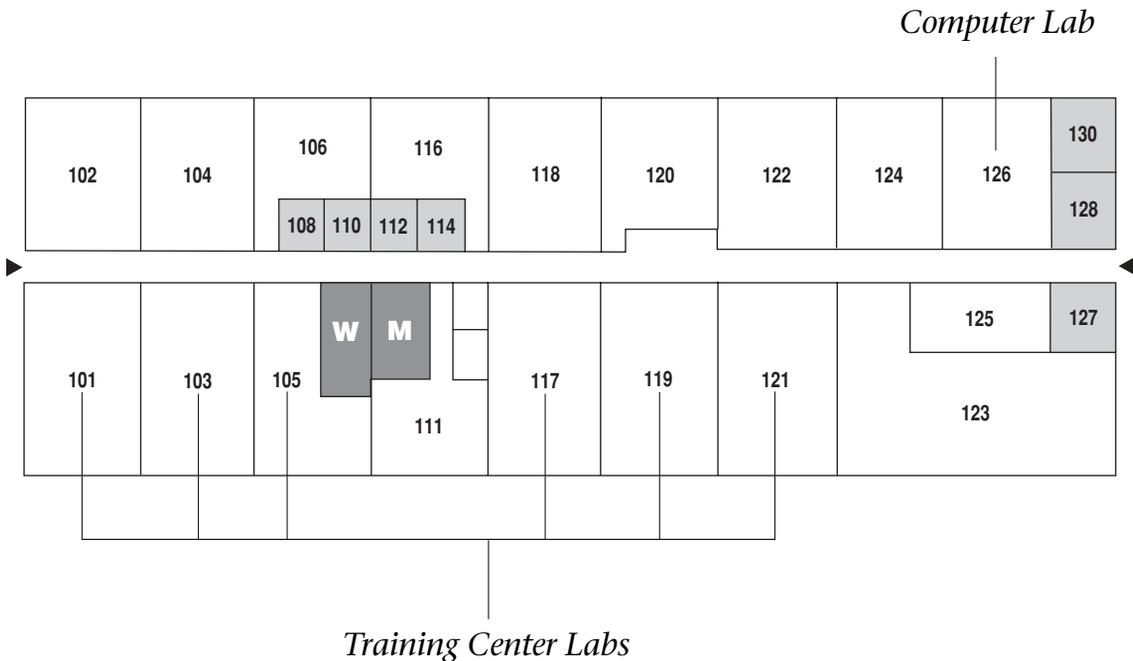
### Randall Hall (2nd floor)



### Streeter Hall

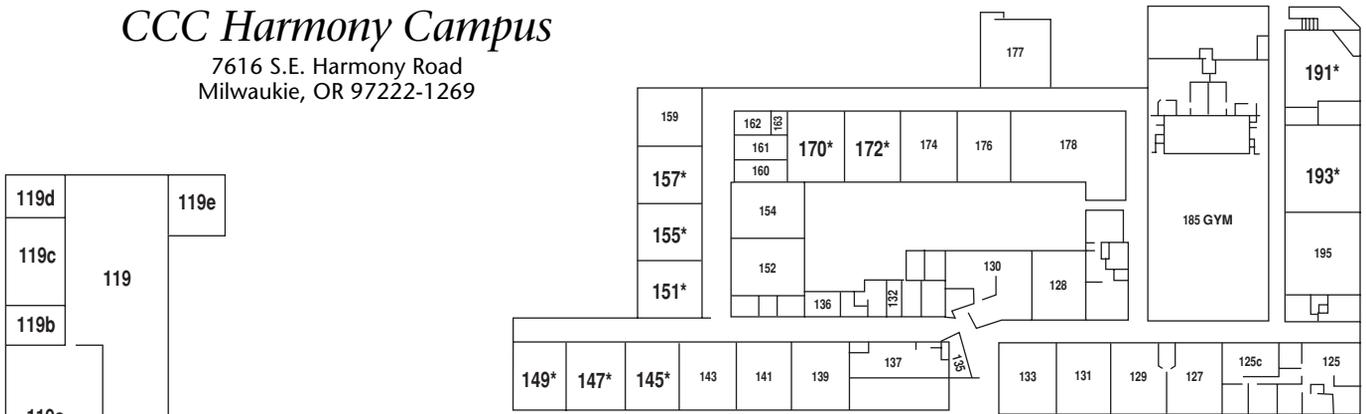


### Training Center



### CCC Harmony Campus

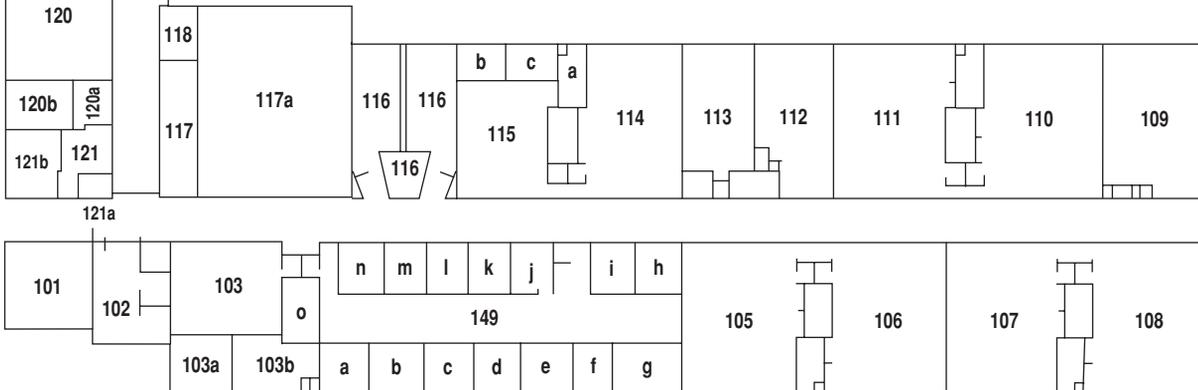
7616 S.E. Harmony Road  
Milwaukie, OR 97222-1269



### OIT Portland East (Metro Center)

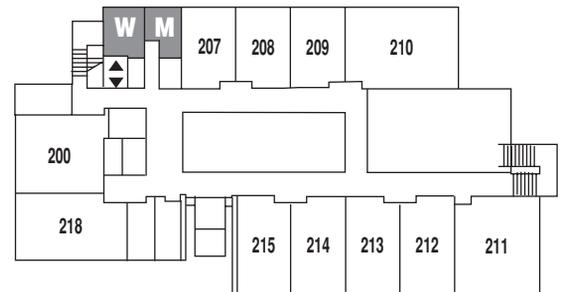
7736 S.E. Harmony Road  
Milwaukie, OR 97222-1269

Note: Rooms marked with an \* are used for CCC classes.

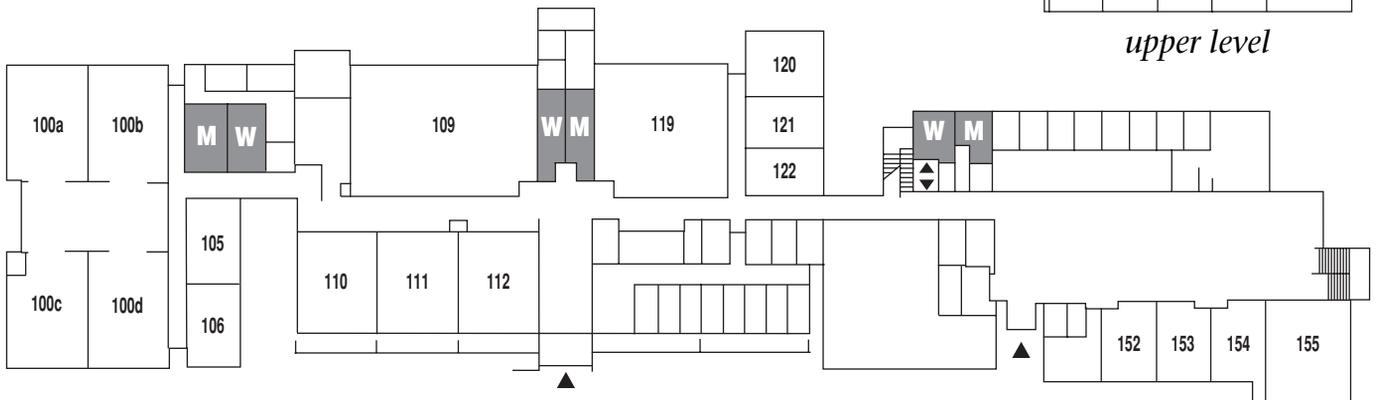


### CCC Wilsonville Campus

29353 Town Center Loop E  
Wilsonville, OR 97070



upper level



lower level



## *Services & Activities*

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	<b><i>Special Programs . . . . .</i></b>
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	<b><i>Community Services . . . . .</i></b>
	<ul style="list-style-type: none"> <li>Art on Campus . . . . . 201</li> <li>CCC Foundation . . . . . 201</li> <li>Child Care . . . . . 201</li> <li>Community Gardens . . . . . 201</li> <li>Community Recreation/Facilities . . . . . 201</li> <li>Connections: Women Creating Community . . . . . 202</li> <li>Driver Education . . . . . 202</li> <li>Facility Use . . . . . 202</li> <li>John Inskeep Environmental Learning Center . . . . . 202</li> <li>WorkForce Career Center . . . . . 203</li> <li>Pauling Center Gallery . . . . . 203</li> </ul>
	<b><i>Business Services . . . . .</i></b>
	<ul style="list-style-type: none"> <li>Business Development Center . . . . . 203</li> <li>Customized Training &amp; Development Services . . . . . 204</li> <li>Public Safety Training Center . . . . . 204</li> </ul>

# Student Services & Activities

## Academic Advisors

COMMUNITY CENTER  
Ext. 2213

Academic Advisors are available on a walk-in basis to help students by providing a wide range of academic information and assisting students with many academic processes including course selection, degree requirements, educational planning, and transfer information.

## Advising & Counseling Center

COMMUNITY CENTER  
Ext. 2213

The Advising & Counseling Center provides many services to assist students. Residing in the Advising & Counseling Center are:

- Academic Advisors
- Latino Services
- Tutorial Services
- Disabled Student Services
- Home School Option Program
- International Students Program
- College Counselors

## Associated Student Government

COMMUNITY CENTER  
Ext. 2247

The Associated Student Government (ASG) of Clackamas Community College is the governing body of CCC students. The president and vice-president are elected by the student body; senators and other officers are determined by a selection process. ASG operates under a constitution designed to promote student activities which stimulate social, physical, moral, and intellectual life on campus.

## Athletics

RANDALL HALL  
Ext. 2291

### Intercollegiate

Clackamas is a member of the Northwest Athletic Association of Community Colleges (NWAACC) and competes in intercollegiate sports with other colleges throughout the Northwest. Intercollegiate athletics for men include cross-country, track, wrestling, basketball, and baseball. Women's intercollegiate sports include basketball, softball, volleyball, track, cross-country, and soccer.

### Intramural

In addition to a comprehensive physical education program, Clackamas offers opportunities for students to participate in a variety of intramural sports activities, including tennis, racquetball, fun runs, softball, volleyball, basketball, flag football, and badminton.

## Bookstore

M'CLOUGHLIN HALL  
Ext. 2248

The Bookstore is the place to shop for almost everything a student needs for college. Items in stock include new and used textbooks, study aides, calculators, computer accessories and software, art, drafting and office supplies, sundries, stamps, school supplies, greeting cards, general books, CCC clothing, snacks, candy, cold drinks and ice cream. The Bookstore offers a special order service the items not normally stocked.

The Bookstore offers textbooks online at <http://www.cccbooks.com>

Limited bookstore services are offered at CCC Harmony Campus during the first two weeks of fall, winter and spring terms.

A textbook buy-back service is provided at the end of each term.

Personal checks are accepted. A government issued picture ID and CCC Student ID number are required to write a check at the Bookstore.

## Campus Tours

COMMUNITY CENTER  
Ext. 2481

CCC tours are provided for prospective students and community members to view campus life. Student Ambassador tour guides are available by appointment. Call to schedule an individual or group tour.

## Career Guidance

### Advising & Counseling Center

Ext. 2213

### One-Stop Career Center

Ext. 2409

The Advising & Counseling Center in partnership with the One-Stop Center offers career exploration and job search support to students and potential students. The Center is staffed by six professional Career counselors and services are available in individual or small group formats. Other resources include:

- materials on the latest careers
- occupational information
- interest inventories
- personality assessments
- job search planning
- employment listings
- interviewing workshops
- resumé writing workshops.

Many of these services are available in an online format. Career Exploration courses are taught both on campus and online through the Counseling Department and the Life and Career Options Program. Cooperative Work Experience also offers an opportunity for students to earn credits while having workplace experiences that enhance their knowledge and employability.

## Cashier's

See Student Financial Services page 195.

## Child Care

### 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 five years. During the summer, care is also available for six- to 10-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.

Child care is also available Monday through Thursday evenings for children of students taking evening classes or CCC evening staff *only*. Care is available for two- to 10-year-olds for a minimum of two hours. Call for cost information.

Preregistration is required. Scholarships are available on a limited basis. For referral to local family day care homes, call 503-253-5000.

## Clubs

### COMMUNITY CENTER

Ext. 2245

Some of the clubs active on campus include Rally, Racquetball, Baptist Student Ministries, Cat Club, Chrysalis, Computer, Deutschen Veren (German), Fellowship of Christian Athletes, Rainbow, Horticulture, International, Latter Day Saints Student Association (LDSSA), Native American Students, Phi Theta Kappa, Spanish, Speech, Unidos, and Writers. New interest groups are free to organize under the student constitution and the regulations of the college.

## College Counselors

### COMMUNITY CENTER

Ext. 2213

College counselors are available on a walk in basis or by appointment and can help with a wide array of personal and academic and/or professional concerns. These include academic, personal and/or relationship issues, drug or alcohol issues, job and career counseling, as well as dealing with any issues or concerns with college staff or policies.

## Computer Labs

### OREGON CITY CAMPUS

The college has computers available for student use, with lab assistance, in several major lab areas. The Streeter Hall lab is the only general access lab open to all students.

Many academic departments manage their own computer labs. Specialized software for these programs is usually available in these labs only. Check with specific departments to see if they provide lab hours for their students.

### Streeter Hall Lab

#### STREETER HALL

Ext. 2308

Computers in the Streeter Hall Lab are available to any Clackamas student upon presentation of a current CCC student I.D. card. Students who are not computer-literate need to enroll in a computer literacy class before using the lab. Students can take advantage of Windows-based computers, word processing and spreadsheet programs, and lab tutors. Computers in the Streeter lab have e-mail capability and internet access. Other network access such as Telnet, FTP, and World Wide Web is also available.

*Business Lab*

**MCLOUGHLIN HALL, M133**  
Ext. 2510

The Business Lab is available for business students taking classes that use computer software and/or various business machines such as ten key, typewriters, and transcription. Instructor assistants are available days and evenings.

*Drafting Technology Lab*

**BARLOW HALL, B274, B276 & B277**  
Ext. 2379

Open lab schedules are posted outside each lab.

The Drafting Technology labs are available for current CAD or CDT students only. Lab assistants are available.

*Music Technology and Audio Recording Labs*

**RANDALL HALL, R219**  
Ext. 2434

The Music MIDI and Audio Recording Labs enable students to compose, record, print, and produce music. These Labs are available to CCC students enrolled in Music classes which use related Music Technology hardware and software. The CCC MIDI lab houses 17 state-of-the-art MIDI work stations. The Audio Recording Lab features both analog and digital recording formats.

Software includes Finale, Digital Performer, Pro Tools, CUBASE, Vision, Music Shop, Practica Musica, and Band in a Box.

*Cooperative Work Experience*

**COMMUNITY CENTER**  
Ext. 2273/2232

The Cooperative Work Experience (Co-op) program offers students the opportunity to earn college credit by working in a job directly related to their program of study. Co-op offers expanded learning experiences through exposure to actual work situations, organizational relationships, equipment, and techniques that cannot be duplicated in the classroom.

Cooperative Work Experience is a requirement for all professional/technical programs and is available for credit to qualified students enrolled in any CCC program of study. Since 1977, more than 10,000 students and 1,000 employers have participated in CCC's Co-op program, creating a vital bridge between college studies and workplace success.

**Student Benefits**

- Improved job skills
- Increased professional confidence
- Clearer sense of career direction

- Valuable employer contacts
- College credit for on-the-job experience
- Work experience suitable for a résumé
- Possible source of income to cover college expenses

**Eligibility**

Students must have:

- Completed nine credits at CCC
  - Declared a program of study
  - Secured a job related to the declared program of study
- Program instructors or the Co-op Office staff can help locate jobs for students.

**Requirements & Registration for Co-op:**

- Contact program instructor or the Co-op Office three weeks prior to the beginning of the term;
- Complete the Co-op application form, and determine number of work hours and appropriate credits;
- Register for 1) the appropriate Co-op course for program of study and 2) the classroom or online Co-op seminar;
- Successfully complete 60-180 hours of work experience for 2-6 variable credits;
- Participate in a Co-op seminar on workplace success skills and complete seminar assignments;
- Set and accomplish (with the help of a Co-op instructor and worksite supervisor) 3-5 measurable learning objectives designed to improve job performance ().

**Credit & Grading**

Cooperative Work Experience is a variable credit course; the number of credits earned depends on the number of hours worked and the program requirements. Students may earn a maximum of six co-op credits per term and a maximum of 12 co-op credits per year.

Transfer credit is available in certain programs. Please contact the Co-op Office for more information on transferring your co-op credits to a four-year institution.

Co-op students are graded on the normal grading scale (A, B, C, etc.) based on job performance, accomplishment of measurable learning objectives, and seminar assignments.

<b>Work/Credit Chart</b>			
<i># of Credits</i>	<i>Hours Worked Per Week</i>	<i>Total Hours Per Term</i>	<i>Seminar Hours Per Week</i>
6 credits	18-20 hours	180 + hours	1.5 hours
5 credits	15-17 hours	150-179 hours	1.5 hours
4 credits	12-14 hours	120-149 hours	1.5 hours
3 credits	9-11 hours	90-119 hours	1.5 hours
2 credits	6-8 hours	60-89 hours	1.5 hours

**For More Information**

Drop by the Co-op Office in Community Center, CC147, or call 503-657-6958, ext. 2273/2232.

**Other Co-op Opportunities**

CWE-010 Pre-Cooperative Work Experience

*Co-op Student Tutors***COMMUNITY CENTER**

Ext. 2324

Students working as tutors are linked with the CCC Cooperative Work Experience program which provides them with credits earned for on-the-job experience.

Student tutors are encouraged to become certified. Certification sets a base standard for the skills, training, and attitudes a tutor needs to be successful.

Eligibility for tutoring is determined by the Coordinator of Tutorial Services, and may require the recommendation of the instructor or the Advising & Counseling Center.

*Disabled Student Services***COMMUNITY CENTER**

Ext. 2213

Disabled Student Services (DSS) offers a wide range of services to provide students with disabilities access to college programs and activities, and auxiliary support. Services may include: interpreters and communication devices for deaf and hearing impaired students, note taking options, proctored testing, taping of printed materials, test readers/writers, campus-based adaptive equipment and training, enrollment assistance, orientations, campus tours by special arrangement, referral assistance, program and career guidance, and counseling. DSS also provides faculty/staff consultations. Students requesting services must:

- Arrange to meet with the DSS counselor.
- Provide DSS with documentation from a certifying professional that establishes the existence of a current disability and supports the need for accommodations requested. Documentation is required to be on file with DSS prior to receiving services.
- Personally request accommodations through the DSS counselor.

Accessible Parking (disabled parking) is available close to each campus building and disabled parking permits are obtained through the Oregon State Department of Motor Vehicles. Students needing temporary disabled parking (two weeks or less) may make arrangements through the campus safety department. A letter from 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 non-discrimination applies to curricular activity and all aspects of operation of the college.

Clackamas Community College is specifically dedicated to providing a harassment free environment for all people with disabilities, as well as a timely and effective provision of services for students with disabilities.

Any disabled student who feels that they have been discriminated against or harassed due to their disability should contact the Coordinator of Disabled Student Services and report the event.

*High Tech Center for Students with Disabilities***DYE LEARNING CENTER**

Ext. 2314

The TACT (Training in Adaptive Computer Technology) Center offers special testing and adaptive computer assistance for disabled students. Emphasis is placed on the use of prescriptive, adaptive computer hardware and software for academic coursework and/or vocational training.

*Enrollment Services***COMMUNITY CENTER***Help Center*

Ext. 2262

This area provides information and assistance with admissions, registration, transcript requests, enrollment verification, and student I.D. cards.

*Registrar's Office*

Ext. 2262

The Registrar's Office is responsible for student records and admission. Additional services include registration, special admission procedures, academic regulations, grading, degree/graduation evaluations, transcripts, and instructional standards/policies.

*Food Service***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.

## Home School Option Program

### COMMUNITY CENTER

Ext. 2213

The Home School Option Program enhances the home school experience of high school students under 19 years of age by providing the opportunity to take appropriate college level courses. The program has its own requirements for admission and retention beyond those required by the college. Contact the Home School Coordinator at ext. 2213 for more information.

## Instructional Media Services

### MODULAR 1A

Ext. 2270

Media equipment is provided in all classrooms on campus to assist in the delivery of instructional material. An extensive library of educational video tapes is available for instructional support via the closed-circuit TV system, in the 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. Videotaped courses are broadcast on local cable television systems and campus video viewing carrels.

### Video Viewing Carrels

#### DYE LEARNING CENTER

These viewing stations may be used to watch telecourses, class video assignments, and other educational video presentations. Stations are not available for recreational use.

## International Students

### COMMUNITY CENTER, REGISTRAR'S OFFICE

Ext. 2263

The Office of International Student Admissions welcomes students from around the world. Call for an application to the Program for Intensive English (PIE) or to the college as an International Student.

## Latino Student Services

### COMMUNITY CENTER, COUNSELING & ADVISING

Ext. 2717

The Latino Student Services office assists Latino students with registration, academic advising, and personal counseling.

## Library

### DYE LEARNING CENTER

Ext. 2288

The library has a collection of over 52,000 books and offers electronic access to the complete text of more than 1200 journals, to newspapers, to hundreds of websites and to collections at other public, college and university libraries. Librarians assist students in the use of the internet and a variety of other electronic and print resources. Electronic reference assistance, inter-library loan, reserve material, periodicals and newspapers are also available. Many databases may be accessed from home through the library's webpage [www.clackamas.cc.or.us/library/library.htm](http://www.clackamas.cc.or.us/library/library.htm). The library is available for use by students, faculty, staff, and the general public. College users are issued college I.D./Library cards at the Help Center or the library. Public users may obtain a library card free of charge at the CCC library circulation desk.

## Loans

See Student Financial Services pages 7-9, 195.

## Music

### RANDALL HALL

Ext. 2434

The Music Department sponsors a number of vocal and instrumental performing groups which are open to the community. Scholarship funds may be available for students who participate in music groups (need not be a music major). Groups include Concert Band, Jazz Ensemble, Chamber Singers, Vocal Jazz Ensemble, Clackamas Chorale (evening), Jazz Combo/Improvisation, and Pep Band (pop/blues/rock/R&B). Some ensembles require an audition.

Music MIDI and Audio Recording Studio Labs are available for students to compose, record, print, and produce music. Students may also study live sound engineering. The CCC MIDI lab houses 17 state-of-the-art MIDI work stations. The Audio Recording Lab features both analog and digital recording formats. Software includes Finale, Reason, Digital Performer, Pro Tools, CUBASE, 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.

## *Registrar's Office*

See Enrollment Services page 193.

## *Service Learning Volunteers*

### **COMMUNITY CENTER**

Ext. 2625

The Service Learning program provides volunteer/community service opportunities for CCC students. Service Learning is a two-term program which combines classroom learning with volunteer field experience. College credit is earned for participation in the program and tuition is free.

## *Special Events*

Ext. 2688 (recording)

The college sponsors and hosts special events and activities throughout the school year to promote cultural enrichment on campus. Programming includes films, lectures, literary readings, performing artists, music, art exhibits, noon mini-programs, dances, and craft fairs. For recorded events information, call the "What's Happening" events hotline, ext. 2688. Events information is also available on the college website: [www.clackamas.cc.or.us](http://www.clackamas.cc.or.us)

## *Speech & Debate: Forensics*

### **MCCLOUGHLIN HALL**

Ext. 2726

The forensics program—speech and debate—is open to all students and offers opportunities to get involved in local and regional speech activities. The forensics team is traditionally a strong contender among Northwest colleges in both junior and novice competition, and Clackamas offers coaching in all speech events. Talent/Participation Awards and work-study positions are available for qualifying forensics team members.

## *Student Ambassadors*

### **COMMUNITY CENTER**

Ext. 2481

Student Ambassadors are chosen each year through an application/interview process. Ambassadors conduct campus tours, represent CCC at college and career fairs, participate in high school visits, host special events, help with new student orientation, 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 Activities Office*

### **COMMUNITY CENTER**

Ext. 2245

The Student Activities Office serves as a resource and information center and coordinates student activities on campus. The office provides information on housing, transportation, insurance, student government, special events, clubs, and other programs of interest to students. The office is also the location of the campus Lost & Found.

## *Student Financial Services*

### **COMMUNITY CENTER**

#### *Cashier's Office*

Ext. 2253

The Cashier's Office handles all student payments, payment arrangements, accounts receivable billings and collection. Students may cash a personal check for up to \$10.

#### *Financial Aid*

Ext. 2745

The Student Financial Services Office provides information on current aid programs, applications and forms (including the Free Application for Federal Student Aid), scholarships and waivers, as well as help filling them out. Copies of expense budgets for determining eligibility, sample loan repayment schedules, and requirements for satisfactory academic progress are available. Also see pages 7-10.

#### *Loans*

Ext. 2410

The Student Loan office handles Entrance and Exit counseling and collection of Perkins loan accounts at Clackamas Community College.

#### *Scholarships*

Ext. 2373

The Scholarship Coordinator helps students with information regarding scholarships and provides assistance throughout the application process. Contact the Student Financial Services Office for additional information. Also see page 9.

#### *Veterans*

Ext. 2554

The Veterans Coordinator provides assistance to veterans, spouses, and children eligible for veterans educational benefits. See page 9 for details about educational benefits.

*Continued*

## Work Study

Ext. 2745

The Work Study program is a federal financial aid program providing part-time employment not to exceed 19 hours per week. The program is based on financial need and available to eligible students who apply early and are enrolled in at least six credits of course work in a degree or certificate program. Applicants should use the Free Application for Federal Student Aid (FAFSA) to apply for financial aid.

## Student Publications

**BARLOW HALL, B104**

Ext. 2310

Student publications include *The Clackamas Print*, the award-winning student newspaper published weekly during the school year, and *Synesthesia*, a literary magazine publishing student creative writing, photography, and art. Student contributions are welcome and provide good opportunities for practical experience in writing, photography, illustration, layout, desktop publishing, and graphic arts. Tuition waivers are available for student editors and the advertising manager of *The Clackamas Print*. For more information and applications, see the Journalism advisor.

## Testing/Assessment

**MODULAR 2**

Ext. 2269

The Testing/Assessment Center offers a variety of testing and assessment services including:

- CLEP (College Level Exam Program)
- Computer Literacy Exam
- Computer Science Placement
- Distance Learning proctored testing
- GED (General Educational Development)
- Make-up exams (by instructor arrangement)
- Nurse Entrance Test (NET)
- Oregon Department of Agriculture Exams
- Oregon State Board of Tax Service Exams
- Placement assessment

## Theatre

**MCCLOUGHLIN HALL**

Ext. 2725

The Theatre Department produces one full-length play and several student-directed theatre projects each term. Workshop courses focus on the production of theatre for public performance, and everyone in the community is welcome to participate. The department also offers lecture courses which encompass technique, theory, and philosophy of Theatre Arts. College credit is available for each production, and students in need of financial assistance may qualify for tuition waivers or work-study.

## Tutorial Services

**COMMUNITY CENTER**

Ext. 2324

Tutorial Services provides free individual and small group tutoring to eligible students in most subject areas. Tutors are available by appointment during regular college hours on the Oregon City, Harmony and Wilsonville campuses. Online tutors are also available for Distance Learning classes.

## Computer Science & Math

**STREETER HALL**

Ext. 2736

Computer Science tutors are available in the Streeter Hall lab for all computer science classes offered at CCC.

For every level of math skill, one or more of the following is available in the lab: math tutors, computers with course-related software, and video tapes.

## Literacy

**DYE LEARNING CENTER**

Ext. 2823

Volunteer tutors are available to teach adults basic skills.

## Weight Room

**RANDALL HALL**

Ext. 2291

The CCC weight room facilities are open to students and the public when classes are not scheduled in the room. Equipment includes pyramid weight machines, free weights, exercise bicycles, steppers, and rowing machines.

## Women's Resource Center

**FAMILY RESOURCE CENTER**

Ext. 2526

Students have access to the collection of books, tapes, and other information related to family needs and development, life and career planning, and health and nutrition. Students can make use of computerized information and referral services related to social and economic assistance, family needs, and crisis intervention. Information is also available about *Connections*—the CCC Chapter of the American Association of Women in Community Colleges.

## 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 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.

### Distance Learning

#### Correspondence

Ext. 2379

The Drafting Department offers a variety of AutoCAD and drafting technology courses in a correspondence format. The courses require that students have a computer and a current version of AutoCAD software.

#### Online

Ext. 2462

Online classes are delivered via computer. They may include lectures, labs, projects, and testing. Students interact with the instructor and other students via e-mail. 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, Dye Learning Center, as well as many public libraries. For more information see: [dl.clackamas.cc.or.us](http://dl.clackamas.cc.or.us) or for statewide courses: <http://www.oregoncollegesonline.org> or <http://OregonONE.org>

### Telecourses

Ext. 2270

Individual telecourses may be broadcast on campus, rented for use at home, or viewed via cable television. In addition to televised lessons, telecourse instruction may include textbooks, classroom discussion, and assignments and exams. For more information see: [dl.clackamas.cc.or.us](http://dl.clackamas.cc.or.us) or <http://www.oregoncollegesonline.org> Call for broadcast information.

## Special Programs

### Basic Skills Development

#### DYE LEARNING CENTER

Ext. 2595

The Dye Learning Center offers academic assistance to students in all college programs. Emphasis is placed on mastering the basic skills needed to reach educational goals. Programs are available to help students earn a GED, complete a high school diploma, learn English as a Second Language, and improve basic academic skills.

### Adult High School Diploma

#### DYE LEARNING CENTER

Ext. 2595

Clackamas Community College is authorized by the State Board of Education to award the Adult High School Diploma (AHSD). Students who enter the college's high school diploma program may transfer credits from accredited high schools. AHSD students may also enroll in college credit classes and receive high school and college credit for the same class.

Students must be at least 16 years old. Those under 18 are admitted with a referral or a release from compulsory attendance from their local high school. See the current *Schedule of Classes* for information.

#### REQUIREMENTS FOR ADULT HIGH SCHOOL DIPLOMA

Complete a minimum of 22 high school units:

#### Subject Units

Language Arts	2
Written Composition	1
Math	2
Science	2
US History	1
Global Studies	1
Government	.5
Health Education	1
Physical Education	1
Career Development	.5
Personal Finance & Economics	1
Applied Arts, Fine Arts, or Foreign Language	1
Electives	8
<b>Total:</b>	<b>22</b>

All AHSD candidates must have a ninth grade reading level or better and demonstrate minimum competency in reading, writing and math.

*Continued*

In addition to the credit and competency requirements, students must maintain a 2.0 G.P.A. at the college and successfully complete at least 12 college credits or two high school units through CCC.

### *Basic Skills for College Success*

#### **DYE LEARNING CENTER**

Ext. 2595

The Campus Learning Center offers instruction in all basic skills including credit classes in reading, spelling, vocabulary and study skills, GED preparation, and high school credit classes. Additional study skills assistance is available through individualized discussion/counseling, and self-instructional materials and media. Both day and evening classes are held for students age 16 through adult.

### *General Educational Development*

#### **DYE LEARNING CENTER**

Ext. 2595

Students may earn high school equivalency certificates by passing General Educational Development (GED) tests. Students must be at least 16 years old; those under 18 are admitted only with a referral or a letter of release from compulsory attendance obtained from the high school principal or counselor. A fee is charged each term. Spanish GED is also available. Refer to the current *Schedule of Classes* for local GED options.

Registration for GED preparation classes takes place in the Campus Learning Center. Department placement tests are required.

GED preparation is also available by telecourse. Thirty minute sections of GED preparation are broadcast on PBS and three local cable channels. Individual guidance is available as needed and a workbook is provided for home use.

### *Targeted Learning Center*

#### **CCC HARMONY CAMPUS 7616 S.E. HARMONY ROAD, MILWAUKIE**

Ext. 3470

The Targeted Learning Center (TLC) serves students age 16 through adult who want to improve their basic skills, prepare for a GED, and earn high school credits. Participation is by self referral and referral through public service agencies.

### *Tri-City Alternative Program*

#### **CCC CAMPUS, CLAIRMONT HALL**

Ext. 2414

#### **CCC HARMONY CAMPUS 7616 S.E. HARMONY ROAD, MILWAUKIE**

EXT. 3128

The Tri-City Alternative Program (TCAP) is a college program serving 15- to 18-year-olds who want to complete a GED or earn credits toward their high school diploma.

### *Young Parent Opportunity Program*

#### **FAMILY RESOURCE CENTER**

Ext. 2592

The Young Parent Opportunity Program (YPOP) is a comprehensive educational program which provides an opportunity for pregnant or parenting teens to continue their education, increase parenting skills, and prepare for employment.

### *College Credit Alternatives*

Ext. 2213

There are several alternative ways you can earn college credit from Clackamas Community College. The Advising & Counseling Center can answer your questions about the following options:

#### *Advanced College Credit*

Ext. 2657

CCC has agreements with high schools in the college district to grant credit for certain college-equivalent classes. You will register, pay for, and earn these credits while you are in high school.

CCC has agreements with the following high schools: Canby, Clackamas, Colton, Estacada, Gladstone, La Salle, Milwaukie, Molalla, North Clackamas Christian, Oregon City, Rex Putnam, Sabin Skills Center, West Linn, and Wilsonville.

For more information contact your high school counselor or the CCC Advanced College Credit coordinator.

#### *Advanced Placement (AP)*

Ext. 2264

If you took college-level courses in high school, you may be eligible for college credit and placement into college classes. You will need to take the AP Program Examination at your high school and have your test results sent to the CCC Registrar's Office. If you qualify for advanced placement, an evaluation specialist in the Registrar's Office will work with the appropriate college department for assigning credit.

### *Credit for Prior Learning (CPL)*

Ext. 2213

Clackamas Community College's CPL program can award college credit for knowledge and skills acquired outside the classroom. For more information contact the CCC Advising & Counseling Center.

### *College Level Examination Program (CLEP)*

Ext. 2269

You may also receive college credit through CLEP tests. Contact the Testing/Assessment Center about taking these exams.

## *Community Education*

**CCC HARMONY CAMPUS, H103**

Ext. 3230

Clackamas Community College offers a variety of adult and continuing education programs at more than 100 locations throughout the college district. These programs are designed to respond to community needs and interests and are scheduled at convenient times and locations. Classes, times, locations, and fees are listed in the *Schedule of Classes* mailed quarterly to district residences and businesses. Both credit and noncredit classes are available, including a senior study group and international travel opportunities.

Clackamas works closely with local school districts to sponsor community school offerings. Community schools offer local residents of all ages a variety of community-based programs.

For more information, contact the CCC Community Education Office or one of the following local Community Education/School offices:

Canby Community School	503-266-2086
Estacada Community School	503-630-8523
Gladstone Community School	503-650-2570
Molalla Community School	503-829-1837
N. Clackamas Community Ed./Milwaukie	503-653-3834
Oregon City Community School	503-657-2521
West Linn Community Education	503-673-7190

Clackamas also offers learning opportunities at local senior centers, care centers, and retirement homes. For more information contact 503-657-6958, ext. 3109.

## *English as a Second Language/ Program for Intensive English*

**DYE LEARNING CENTER**

Ext. 2503

Clackamas Community College offers English as a Second Language (ESL) and Program for Intensive English (PIE) instruction for residents of the community and international students. Both credit and noncredit classes are offered.

## *Education & Human Services*

**FAMILY RESOURCE CENTER**

Ext. 2456

The Education & Human Services department offers the Life and Career Options Program, Bridges, and classes in education, nutrition, women's studies, family studies, early childhood education, gerontology, human services, and parent education.

### *Bridges*

**FAMILY RESOURCE CENTER**

Ext. 2526

The Bridges program provides assistance to students, ages 16-21 in making the transition from alternative high school programs to further education, training, or the workforce. Emphasis is placed on overcoming barriers, becoming self-directed, increasing self-awareness and self-esteem, and setting career and educational goals.

### *Life & Career Options Program*

**FAMILY RESOURCE CENTER**

Ext. 2526

The Life and Career Options Program (LCOP) prepares people to enter or re-enter the job market. Day and evening classes offered each term help people overcome barriers to self-sufficiency. This program helps participants explore career options, develop job-search skills, establish career and educational goals, and access community resources. Free workshops are also offered.

## Evening/Weekend Transfer Degree Offerings

**HARMONY CAMPUS**  
Ext. 3108

Classes held at the CCC Harmony Campus provide students the opportunity to obtain a transfer degree by attending evenings and weekends. These classes are listed each term in the Schedule of Classes in the Harmony Campus section. Additionally, a one-year cohort program offered in an accelerated format is available for adults with five years working experience. This program begins Fall term and enables students to complete the first year (45 credits) of the transfer degree. One year cohort programs require a special admission process.

## Honors

### ΦΘΚ: Phi Theta Kappa Honor Society

Ext. 2743

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 credits in an associate degree program and have a 3.7 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. Members may request gold seals on their diplomas, and official stamps on their transcripts. They also have the opportunity to wear a gold stole and tassel at graduation, and automatic eligibility to be included on the National Deans' List. Chapter activities are centered around the society's four hallmarks: scholarship, leadership, service, and fellowship. Joining Phi Theta Kappa is a mark of distinction. Applications are available in the Student Activities office.

### Honors Courses

Ext. 2214

Honors courses provide students with an enriched intellectual experience through active participation in the learning process. Participants have opportunities to pursue topics of special interest and to work closely with instructors who assist them in making the most of their college experience.

Students are admitted to honors courses on the basis of high school or college grades. Students need a 3.25 GPA to qualify or instructor approval. Honors courses are offered in a wide range of disciplines. Current honors courses include writing, speech, history, and religion.

## WORKfirst Training Programs

WORKfirst programs provide extra training to learn a new job or increase your skills in the field you're in.

The following WORKfirst programs may be included:

- Auto Body Specialist
- Construction Specialist
- Manufacturing Specialist  
*CNC Operator*  
*Welding Technologist*
- Office Specialist
- Production/Warehouse Specialist

### Construction Specialist

Construction Specialists are in great demand. Every business within the construction industry uses entry level individuals to order, prepare, install and deliver construction products. The course will include introduction to computers, basic construction math, identification and use of hand and power tools, basic construction components, standard materials, electrical devices, and plumbing and mechanical components, material production, health and fitness for industry, and work readiness skills.

### Manufacturing Specialist

#### CNC Operator

Computer Numerical Control (CNC) operators enjoy challenging jobs producing close-tolerance parts for aerospace, high-tech, medical and the sporting goods industries. This program will teach you how to run and understand a CNC machine tool. Most companies train new employees on their particular brands of equipment, utilizing the foundation of skills gained through WORKfirst. Literally every machine shop has at least one CNC machine tool on their shop floor.

#### Welding Technologist

(area of concentration)

Enroll now in a WORKfirst Training program designed to provide entry-level skills that will help you secure work with a minimum of training. In the welding technologist program, students will learn the basic skills necessary to function in a fabrication environment as an apprentice welder. Coursework includes theory and practical instruction covering shop process safety, oxyfuel cutting, stick and wirefeed welding processes. Measurement, basic maintenance and job exploration are also covered. No prior welding experience is necessary.

### *Office Specialist*

Intensive, business job-training program which meets 6.5 hours per day, four days per week for two terms. Provides skill development required for administrative support positions in business. Class size is small and there is heavy emphasis on hands-on learning.

### *Production/Warehousing Specialist*

The Production/Warehousing Specialist program includes introduction to computers, their software applications relating to inventory control systems, cataloging, stocking and order points, warranties, returns, and customer service files. The course will also cover purchasing, tracking and shipping procedures. Wholesale distribution is the network that keeps goods flowing throughout our economy. Inventory control specialists are key factors in that process. Training will include forklift and 10-key. No prior experience is necessary.

For more information and how to get started call Clackamas Community College at 503-657-6958 ext. 2163 or ext. 2409.

*Financial assistance is available for WORKfirst Programs.*

## *Community Services*

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### *Art on Campus*

**CCC CAMPUS**  
Ext. 2333

The college has assembled a permanent collection of original art by contemporary Northwest artists. Acquisition is ongoing and directed by the Cultural Arts Committee. Displays may be viewed at the Art Center, Barlow Hall, Community Center, Dye Learning Center, Gregory Forum, Family Resource Center, McLoughlin Hall, Oregon Advanced Technology Center, Randall Hall, Streeter Hall, as well as outdoor pedestrian spaces.

### *CCC Foundation*

**BARLOW HALL, B240**  
Ext. 2402

The Clackamas Community College Foundation is a charitable, non-profit corporation dedicated to raising friends and funds for the college. The 26-member Foundation board 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.

### *Child Care*

See Student Services & Activities, page 191.

### *Community Gardens*

**CCC CAMPUS**  
Ext. 2298

Garden space is available to community residents at a nominal charge through the Greenfingers Community Garden project sponsored by the CCC Community Recreation department. Approximately 100 garden spaces are available. The gardens usually open the first weekend of May, weather permitting.

### *Community Recreation/Facilities*

**RANDALL HALL**  
Ext. 2291

The college hosts several annual events including the Halloween 8K Run/Walk, CCC Takedown Wrestling Tournament, winter adult basketball league, Polar Bear 5K Run/Walk, youth baseball and softball camps, spring and summer tennis tournaments.

Outdoor facilities at CCC include a jogging/walking trail, six tennis courts, a track, softball/baseball fields, and soccer fields. All are available for rent when not scheduled for instructional purposes or college athletics. The weight room is open year-round when classes are not scheduled (excluding holidays). Call the Physical Education/Health office for specific facility use arrangements, hours, and reservation rates.

## *Connections: Women Creating Community*

*American Association of Women in Community Colleges, Local Chapter*

### **FAMILY RESOURCE CENTER**

Ext. 2456

The mission of the AAWCC local chapter—*Connections*—is to provide opportunities for women to come together for activities and events that celebrate their common experiences. These programs provide a safe, supportive environment and encourage women to grow emotionally, mentally, and physically.

Ongoing activities include a women writers' group, workshops, and Lunch and Learn events each quarter. In addition, the *Connections* program offers credit classes and cultural and outdoor events. Activities are open to all students and staff at Clackamas, as well as the community.

## *Driver Education*

### **CCC HARMONY CAMPUS/OIT METRO CENTER**

Ext. 3413

The Driver Education program offers 30 hours of classroom instruction and 12 hours of in-car instruction/observation in a dual controlled vehicle. In addition to the program offered on campus, Clackamas Community College offers driver education to high school students throughout Clackamas and Washington counties. Contact your local community school for information about the Driver Education program offered in your area.

## *Facility Use*

### **GREGORY FORUM**

Ext. 2494

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 Facilities Reservations for further information.

## *John Inskeep Environmental Learning Center*

### **CCC CAMPUS**

Ext. 2351

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 and technical training for K-12 teachers and administrators, and an Urban Watershed Institute with workshops for a professional audience.

Students from CCC departments may develop study programs on the site as part of their curriculum. The ELC can help develop cooperative work experience programs both on and off our site. Site tours for schools, daycare centers, garden clubs, home school, and scout groups are offered.

Many interesting volunteer opportunities are available, including teaching in fields from astronomy to zoology, nature interpretation, and site maintenance.

## *Haggart Astronomical Observatory*

Ext. 5665 (LOOK)

The Haggart Astronomical Observatory is the largest public telescope in western Oregon. Astronomy courses are offered through the Physical Science department. Public viewing for groups and individuals is also offered by trained volunteer amateur astronomers.

## *Urban Watershed Institute*

Ext. 2633

The Urban Watershed Institute is a program of the Environmental Learning Center that provides professional development courses, and workshops that emphasize a multi-disciplinary approach to urban watershed management. Topics include the regulatory environment, emerging philosophies and practices in: stormwater management, erosion prevention, sediment control, stream restoration, habitat protection, watershed policy development, and principles of wetlands and stream ecology.

## WorkForce Career Center

### COMMUNITY CENTER

Ext. 2409

The Center offers:

- Information on career and employment opportunities
- Career assessments
- Computer resource, Oregon Career Information System, to explore career fields, colleges, and scholarship information
- Employment listings
- Resumé writing workshops
- Job search workshops
- Interviewing workshops
- Information and referral to supportive services including child care and transportation
- Professional qualified staff to assist you

For more information call 503-657-6958:

Career Specialist, ext. 2396

Employment Specialist, ext. 2409

## Pauling Center Gallery

### LINUS PAULING SCIENCE CENTER

Ext. 2386

The Pauling Center Gallery features continuously changing art exhibits. The gallery displays the work of local and regional artists, students, and faculty. Opening receptions and lecture presentations are open to the public and provide an opportunity to meet the artists. A workshop is offered in conjunction with at least one gallery exhibit each year. Interested professional artists may contact the Art Department for a schedule of shows.

## Business Services

Anyone involved in business or industry in Clackamas County will find many valuable services at CCC. In addition to regular business courses offered on the main campus, the college offers customized training, seminars, workshops and other business services at CCC satellite locations.

## Business Development Center

### CCC HARMONY CAMPUS

7736 S.E. HARMONY ROAD, MILWAUKIE

503-656-4447

[bizcenter@clackamas.edu](mailto:bizcenter@clackamas.edu)

Clackamas Community College, in partnership with the U. S. Small Business Administration and the Oregon Department of Economic and Community Development, offers services to current and prospective small business owners and managers.

Contact the Business Development Center (*formerly SBDC*) for:

**GREENHOUSE:** A comprehensive 20-week program for new and startup businesses consisting of class lectures and discussions, guest speakers, peer networking and individual business counseling.

**SMALL BUSINESS MANAGEMENT I, II, III:** A three-year program for owners and managers of established businesses to strengthen management skills through individual counseling, practical application and monthly class meetings.

**WORKSHOPS/SEMINARS:** Practical, low-cost training in a variety of areas of interest to small business owners and managers.

**BUSINESS COUNSELING:** Free individual business counseling (including financial advising and loan application assistance) with professional staff. Call 503-656-4447 for an appointment.

**RESOURCE CENTER:** Books, periodicals, videos, and computers with business software and Internet access are available to assist with market research, feasibility studies or business skills development.

**WEBSITE:** [www.bizcenter.org](http://www.bizcenter.org)

Online links, statewide training schedules and other valuable small business resources available 24/7.

## *Customized Training & Development Services*

**CCC HARMONY CAMPUS**  
**7616 S.E. HARMONY ROAD, MILWAUKIE**  
Ext. 3676

Customized Training & Development Services offers training customized to meet the specific needs of local businesses and public agencies.

### **Our training specialists can provide the following:**

- A partnership focused on the client's business success
- Customized training programs, degrees and certificates to meet business and industry needs
- Flexible scheduling
- Instruction by facilitators experienced in teaching working adults
- Permanent records with college credit and continuing education units (CEUs)
- Training needs assessment

### **Customized Training & Development Services delivers training programs in:**

- Communication skills and customer service
- Computer software applications
- Diversity and English as a Second Language
- Human resource development and consulting
- Leadership
- Manufacturing, CAD/CAM and technical training
- Quality and productivity improvement
- Workplace basics and assessment services
- *Train the Trainer*

## *Public Safety Training Center*

**12700 SE 82ND AVENUE, CLACKAMAS**  
503-650-6677

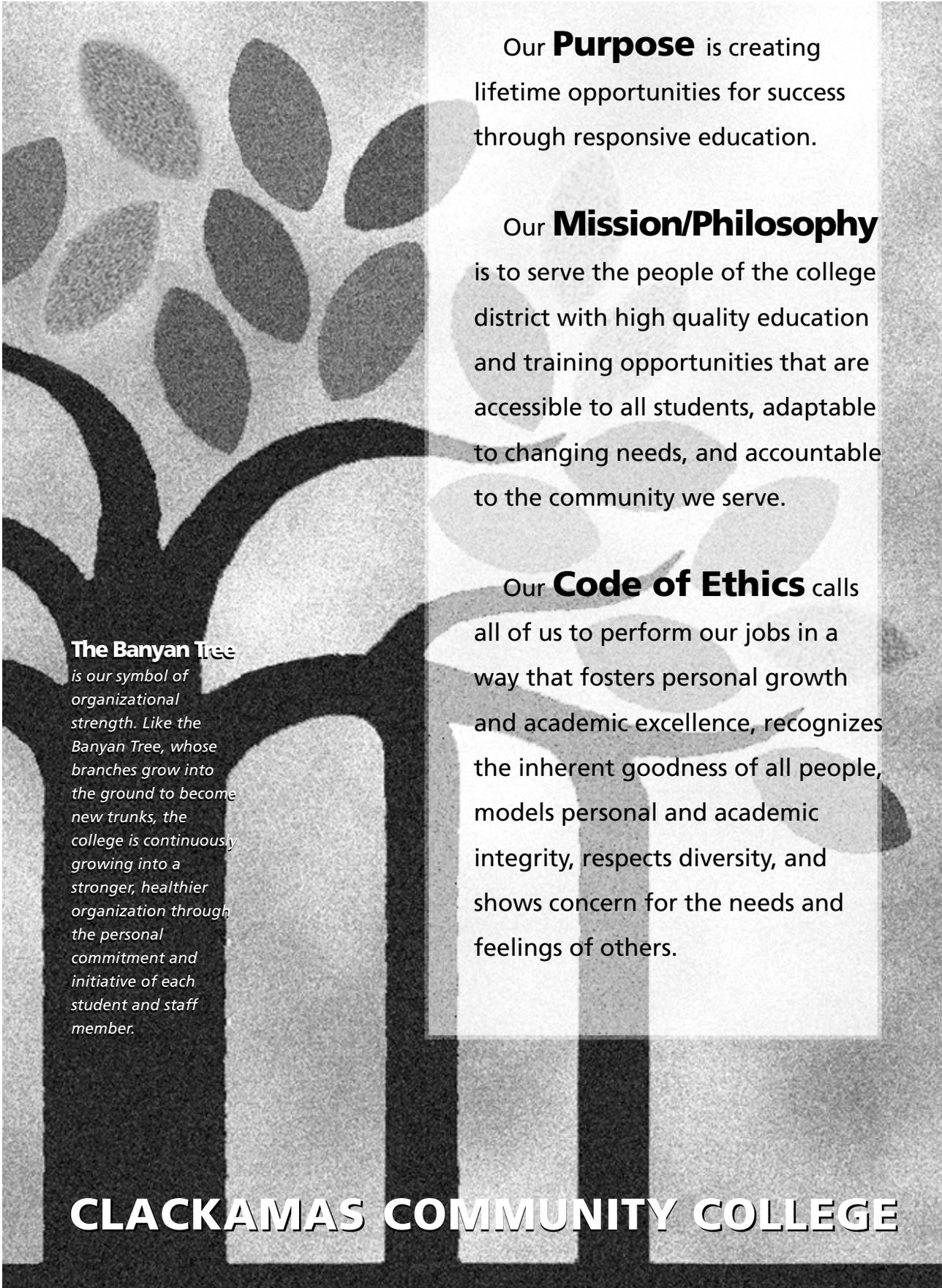
The Public Safety Training Center provides public classes in responsible firearms use through training.

The PSTC uses state-of-the-art filtration and electronic target systems that exceed state and federal mandates regarding environmental safety standards. All ammunition used on the PSTC ranges is sold through the armory and will be "clean-fire" in available calibers.

### **Features:**

- Instruction to the public for safety education and training. Contact the PSTC for the most up-to-date class schedule.
- State-of-the-art 20-spot indoor public shooting range
- Certified firearms training and qualification
- Concealed carry handgun license certification
- Certified one-on-one private instruction

## *Mission/CCC at a Glance*



**The Banyan Tree**

*is our symbol of organizational strength. Like the Banyan Tree, whose branches grow into the ground to become new trunks, the college is continuously growing into a stronger, healthier organization through the personal commitment and initiative of each student and staff member.*

Our **Purpose** is creating lifetime opportunities for success through responsive education.

Our **Mission/Philosophy** is to serve the people of the college district with high quality education and training opportunities that are accessible to all students, adaptable to changing needs, and accountable to the community we serve.

Our **Code of Ethics** calls all of us to perform our jobs in a way that fosters personal growth and academic excellence, recognizes the inherent goodness of all people, models personal and academic integrity, respects diversity, and shows concern for the needs and feelings of others.

## *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;

*Continued*

- 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**

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**Central Value:** The college accepts responsibility as a steward of the environment. In all areas of the college's operations, we will be proactive in protecting the environment. Our educational role is not only to teach environmental principles but also to model appropriate environmental behaviors. To implement our role, we will:

- encourage students and staff to practice behaviors which are consistent with the preservation of a clean and safe environment;
- minimize the creation of waste, and repair, reuse, and recycle materials whenever possible;
- provide facilities that are safe and free from environmental hazards;
- use the most energy efficient systems available in the physical operation of the college and make energy conservation a priority when planning new facilities and retrofitting existing facilities;
- purchase earth-friendly products whenever feasible, and consider environmental effects when we plan investments in buildings, equipment, maintenance, and repairs;
- maintain a landscape that provides opportunities for environmental awareness, learning, and enjoyment by using the most environmentally compatible methods available for upkeep;
- evaluate our own performance through formal audits and by listening carefully to the observations of employees and others on ways we can improve.

**VALUES PERTAINING TO DECISION-MAKING**

**Central Value:** The college maintains an open and inclusive organizational structure which enables all members of staff to participate in the decision-making process. We believe that:

- institutional direction is driven by information received from the staff, the students, and the community;
- all employees should have a clear understanding of how they are connected to the decision-making process;
- we achieve a balance of decentralized and centralized decision-making;
- we maintain a dynamic and continuous organizational audit with the goal of continuous improvement.
- we are flexible and able to develop contingency plans to adjust to a changing environment;
- we are constantly in the process of defining and dispelling ambiguity but are able to accept a certain amount of uncertainty;
- we are constantly seeking direction from the community in policy and curriculum development.

**VALUES PERTAINING TO INSTRUCTION**

**Central Value:** Instruction is central to the mission of the college. We must foster a climate that is supportive of students and instructors as key components of the learning process. We seek to develop and maintain opportunities, resources, and strategies that support flexible, responsive instruction to meet diverse and changing student needs in a rapidly evolving educational environment. To accomplish an effective strategic plan for instruction, we recognize the core values that guide our choice of opportunities, and we outline our current priorities as future guides for action. We value:

- local departmental autonomy and academic freedom as indicative of a supportive environment for teaching;
- response to a changing student profile that emphasizes learner-centered teaching, personalized instruction, and a variety of teaching and learning styles;

- diversity in instructional programs and offerings that educate the whole student;
- leadership of faculty, together with staff and students, in instructional planning;
- interdisciplinary and college-wide sharing, communication, and teamwork;
- challenging students and encouraging lifetime learning and responsible citizenry;
- improved student access and success through annual planning and sound student placement;
- appropriate use of technology in support of instructors and instruction;
- innovation, risk-taking, and dissent in the pursuit of quality instruction;
- a focus on quality rather than growth;
- balancing productivity with the need for faculty and curricular development time;
- continued development of connections between Clackamas Community College and our educational and business partners;
- maintaining a climate that supports “us” rather than “us/them.”

*Purpose, Mission, Philosophy, Code of Ethics, and Values updated and adopted by the CCC Board of Education, December 1994.*

*Instructional Values adopted by the VISIONS Group, May 1996.*

## *The Clackamas Guarantee*

### COLLEGE TRANSFER

Clackamas Community College will refund the tuition of any CCC graduate for any transfer course work passed at CCC with a “C” grade or better, if that earned course credit does not qualify for transfer to an Oregon public college or university within two years of graduation from Clackamas.

### PROFESSIONAL/TECHNICAL EDUCATION

Clackamas Community College will provide tuition-free skill training of up to 16 credits to any graduate of an Associate of Applied Science degree program in professional technical studies judged by the employer as lacking in technical job skills normally expected of an entry-level employee.

#### SPECIAL CONDITIONS:

##### *Professional/Technical Studies*

###### *Degree*

- The graduate must have earned an Associate of Applied Science degree in a college-recognized professional technical program as indicated on the student transcript.

###### *Employment*

- The employment must be full-time and the job must be certified by the college Career Planning & Employment Center as directly related to the graduate’s program of study.
- Initial date of employment of the graduate must be within one year after graduation.
- The employer must certify in writing that the employee is lacking specific job entry-level skills, and must specify the area(s) of skills deficiency within six months of the graduate’s initial employment.

###### *Retraining*

- Skill retraining will be limited to 16 credits and to enrollment in courses regularly offered by CCC.
- The skill retraining must be completed within one academic year.
- The employer, graduate, college counselor and the appropriate department chairperson will develop an educational plan which specifies the courses constituting the credit hours of further retraining.
- Failure, withdrawal, or audit of a retraining course counts toward the 16 credit limit.
- The graduate or the employer will pay the cost of fees, books, supplies, uniforms, and other related costs. The college will waive tuition.

### TUITION REBATE

Clackamas Community College will freeze tuition rates for students who graduate from CCC within three years of their beginning term. Any tuition increase levied by the college during those three years will be refunded to the student upon graduation.

#### SPECIAL CONDITIONS:

##### *Qualifications*

A student must:

- complete all degree course work at CCC
- graduate within three successive years of initial enrollment
- apply for tuition rebate within one year after graduation

##### *General guidelines (no exceptions to the following)*

- A student must earn the degree within three successive years of initial enrollment at CCC.
- Any refund is determined solely on the amount of tuition increase imposed after the initial term of the three successive years. For students whose residency changes during their enrollment, the rebate will be based on the tuition paid for each term. No rebate will be made for tuition paid towards the residency differential.
- A tuition refund cannot be claimed for any term during which a student received financial aid or direct sponsorship for tuition, except loans.
- All course work for a degree must be completed at CCC. (Transfer students do not qualify.)
- The refund applies only to the first 93 credits needed to complete a degree program.
- Only one refund per student is allowed.
- Application for a refund must be made within one year of the student’s graduation date.

##### *For further information*

Call Clackamas Community College Registrar’s Office at 503-657-6958, ext. 2262.

**OUTCOMES:****STUDENT DIVERSITY**

- Average age, full-time students: 25 years
- Average age, all students: 33 years
- Females: 49%
- Males: 46.7%
- Racial/ethnic minorities in CCC district: 8.6%
- Racial/ethnic minorities in student body: 11.8%

**GRADUATES**

- Degrees/certificates awarded 578
- Associate of Arts Oregon Transfer 31.3%
- Associate of Science/Technical Certificate 53.3%
- Adult High School Diploma 15.4%
- Graduation Rate 1999 (Cohort) 18.6%

**BUSINESS & INDUSTRY**

- Businesses served by Small Business Development Center: 313
- Employees trained by Customized Training & Development Services: 6,440

**FINANCIAL AID**

- CCC students receiving financial aid: 2,309
- Average amount of aid per student: \$3,039
- Total amount of aid received: \$7,016,863

**COMPARATIVE TUITION COSTS**

Average annual tuition cost for a full-time student:

- Oregon private colleges & universities: \$16,160
- Oregon state colleges & universities: \$3,561
- Clackamas Community College: \$1,554

**CCC at a Glance**

Numbers reflect 2001-02 data unless otherwise noted.

**SERVICE AREA**

**CCC District:** All of Clackamas County except Lake Oswego, Sandy, Damascus, and Boring school districts.

**District Population:** estimated 288,577

**ENROLLMENT**

**2001-02 Headcount:** 28,093

**2001-02 Full-time Equivalence:** 7,933

**PROGRAMS**

**Professional/Technical:** CCC offers one-year Certificate of Completion and two-year Associate of Applied Science degree programs in 30 professional/technical career areas and General Studies.

**College Transfer:** CCC offers the two-year Associate of Arts Oregon Transfer degree, completion of which allows the student to meet the general education requirements of the baccalaureate degree program, and have junior standing for the purposes of admission and registration, at any Oregon University System (OUS) institution.

**Literacy/Basic Skills:** CCC offers individualized instruction in basic academic and study skills, including Adult High School Diploma, GED, ESL, Alternative Schools, Life & Career Options, and Young Parent Opportunity Program.

**Community Education:** CCC offers credit and non-credit personal interest and enrichment courses through district community schools at more than 100 locations.

**Business Training:** CCC offers contracted employee training through the Customized Training & Development Services program and assistance to small businesses through the Business Development Center.

For more information on these and other college statistics, contact the Research Office at 503-657-6958, ext. 2317.

**CCC President**

Earl "Joe" P. Johnson

**Board of Education**

Mimi Chitty

Chuck Clemans

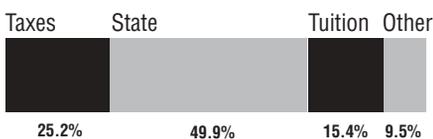
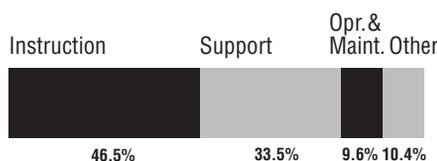
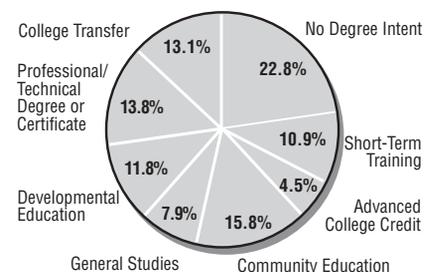
Estle Harlan

Linn Jones

Jean Lowry

Ross Smith

Larry Wright

**GENERAL FUND RESOURCES  
2001-02****GENERAL FUND EXPENDITURES****ENROLLMENT BREAKDOWN  
BY STUDENT INTENT**



*Faculty & Administration*

**CLACKAMAS COMMUNITY COLLEGE  
BOARD OF EDUCATION**

	Term ends
Larry Wright	2005
Jean Lowry	2005
Ross Smith	2005
Linn Jones	2005
Chuck Clemans	2003
Estle Harlan	2003
Mimi Chitty	2003

**CLACKAMAS COMMUNITY COLLEGE  
PRESIDENT**

Dr. Earl P. "Joe" Johnson

**FACULTY & ADMINISTRATION****Allen, William H. (1996)**

Computer Science  
B.A. Willamette University  
B.S. University of Utah  
M.B.A. Portland State University

**Andersen, David (1997)**

Art  
M.F.A. Brigham Young University

**Anderson, Janet (1990)**

English  
A.S., A.D.N., R.N. Clark College  
B.A. University of California  
M.A. Portland State University

**Anderson, Linda C. (1988)**

Computer Science  
B.S. Stanford University  
M.S. Walden University

**Andrews, Cynthia R. (1979)**

Director/Instructional Support Services  
B.A. Southern Oregon State College  
M.A. Southern Oregon State College

**Arter, David B. (1986)**

Physical Science  
B.A. University of California  
Ph.D. University of Illinois

**Ashbaugh, Richard (1990)**

Criminal Justice  
B.S. Parsons College  
M.A. Western Seminary

**Austen, Wayne (1987)**

Auto Body  
A.S. Portland Community College  
State of Oregon Vocational Certification

**Averill, Diane L. (1991)**

English  
B.A. University of Oregon  
M.F.A. University of Oregon

**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. Cuny-Brooklyn College  
M.S. University of Oregon

**Bergman, Barry F. (1989)**

Mathematics  
B.A. Reed College  
M.S. San Jose State University

**Bjerre, Irma C. (2000)**

International Education  
B.A. University of Nevada  
M.A. University of Nevada

**Blessman, David G. (1998)**

Counseling  
B.S. Portland State University  
M.S.Ed. Portland State University

**Bown, Jennifer P. (2003)**

Life Science  
B.S. University of Nevada, Reno  
M.S. University of Nevada, Reno

**Bradley, David A. (1999)**

Automotive Programs

**Brennan, Kelly J. (1996)**

Forensics, Speech/Social Science  
A.A./A.S. Clackamas Community College  
B.S. Portland State University  
M.A. Washington State University

**Briere, William V. (1996)**

Religion/Social Science  
B.S. University of Nevada  
M.A. Mt. Angel Seminary

**Brodnicki, Nora E. (1999)**

Art  
B.A. Hartwick College  
M.A. Syracuse University  
M.F.A. State University of New York

**Brown, Melinda Jo (1992)**

Student Activities  
A.A. Clackamas Community College  
B.S. Oregon State University  
M.S.T. Portland State University

**Brown, Stephen (1980)**

Physics  
B.S. U.S. Merchant Marine Academy  
M.S. Portland State University

**Bryant-Treise, James L. (1998)**

English  
B.A. University of California  
M.A. Claremont Graduate School

**Campbell, David (1981)**

Counseling  
B.A. Grove City College, Pennsylvania  
M.S. University of Buffalo, New York

**Carino, Debra A. (2001)**

Computer Science  
B.A. Boston University  
M.S. California State University

**Cate, Caroline L. (1990)**

English as a Second Language  
B.A. Portland State University  
M.Ed. Oregon State University

**Chase, Eileen S. (2000)**

Nursing  
B.S.N. University of Illinois at Chicago  
M.S.N. University of Utah

**Christophersen, Kristin A. (2000)**

Sociology  
B.S. Portland State University  
M.S. Portland State University

**Cline, Lonnie (1981)**

Music  
B.M.E. University of Oregon

**Coffey, Amanda L. (1998)**

English  
B.A. Virginia Commonwealth University  
M.F.A. Arizona State University

**Connett, Dian (1980)**

Dean of Instructional Services  
B.S. Ohio State University  
M.S. Ohio State University  
Ed.D. Portland State University

**Cook, C. LeRoy (2003)**

Drafting Technology  
B.S. University of Montana  
M.H.R.O.D. University of San Francisco

**Cornelius, Trista G. (2002)**

English  
B.A. Pacific University  
M.A. Portland State University

**Cross, Douglas B. (2001)**

Computer Science  
B.S. University of Oregon  
M.S. University of Oregon  
M.S. California State University,  
Hayward

**Curry, Merlin (2001)**

Emergency Medical Technology  
Oregon Certified Paramedic  
Certified AHA Advanced Cardiac Life  
Support Instructor  
Certified Pediatric Advanced Life  
Support Provider  
Certified Prehospital Trauma Life  
Support Provider

**Darris, M. Dean (1994)**

Political Science  
B.S. Portland State University  
M.S. Portland State University  
Ph.D. Berne University, West Indies

**Derkacht, Barbara (2001)**

Occupational Skills/VRD and  
Cooperative Work Experience  
B.A. University of Washington  
M.Ed. University of Washington

**DeVenney, Jean E. (1999)**

Counseling  
B.S. Southern Oregon State College  
M.S. Portland State University

**Dickinson, James (1994)**

Mathematics  
B.S. Oregon State University  
M.S. Portland State University

**Dickson, David K. (1980)**

Assistant to the President/College  
Advancement  
B.A. Stanford University  
M.S. University of Oregon

**Dodson, Carol D. (2001)**

Nursing  
B.S. Sonoma State University  
M.S. Oregon Health Sciences University

**Drebin, Diane (1998)**

Registrar  
A.A. Clackamas Community College  
A.S. Clackamas Community College  
B.A. Marylhurst University  
M.S. Portland State University

**Durham, Linda (1996)**

Skills Development  
B.A. Whittier College, California  
M.S. Oregon State University

**Eaton, Leonard G. (2001)**

Computer Science  
B.S. Oregon State University  
M.Ed. Portland State University

**Erdman, Al (2001)**

Dean of College Services  
B.A. Drury College  
M.B.A. University of Missouri

**Espino, Richard (1999)**

Life Science  
A.A. Clackamas Community College  
Doctor of Chiropractic, Western States  
Chiropractic College

**Falkenstein, Peggy (1996)**

Customized Training & Development  
B.A. Marylhurst College  
M.P.A. Portland State University

**Fallon, Kathleen S. (2001)**

English as a Second Language  
B.S. Oregon State University  
M.A. Oregon State University

**Faucher, Eric (1992)**

Youth Services  
B.A. California State  
M.A. Humbolt State University

**Fiskum, Paul K. (1976)**

Physical Education  
B.S. Oregon College of Education  
M.S. Portland State University

**Fithian, Lisa (1995)**

Nursing  
M.S. John Carroll University  
N.D. Case Western Reserve University  
M.S. University of California,  
San Francisco

**Flippo, Ida (1997)**

Criminal Justice  
B.S. Southern Oregon State College  
M.A.T. Willamette University

**Flowers, Jackie (1997)**

History  
B.A. Appalachian State University  
B.A. University of Tennessee  
M.A. University of South Carolina  
Ph.D. University of South Carolina

**Ford, Loren (1984)**

Psychology  
B.A. California State University,  
Long Beach  
M.A. California State University,  
Long Beach

**Francis, Eden A.R. (2003)**

Chemistry  
A.A.S. Cottey College  
B.S. Linfield College  
M.S. University of Oregon

**Frank, William W. (1998)**

Customized Training & Development  
B.A. University of California  
M.S. Eastern Washington University

**Giltz, R. Scott (1996)**

Associate Dean/Industrial Division  
State of Oregon Vocational Certification  
A.A.S. Clackamas Community College

**Godfrey, Jan A. (1992)**

Associate Dean/Counseling/Career  
Planning/Student Activities  
B.A. Fresno State College  
M.S.W. Portland State University

**Goldstein, Alice (2000)**

English as a Second Language  
A.B. Stanford University  
M.A. Portland State University  
J.D. University of California, Berkeley

**Grabill, Jr., James R. (2002)**

English  
B.F.A. Bowling Green State University  
M.A. Colorado State University  
M.F.A. Colorado State University

**Gray, Kate (1992)**

English  
B.A. Williams College  
M.F.A. University of Washington

**Grimaldi, Hugo (1997)**

Business  
B.S. Loyola University of Louisiana  
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

**Harlow, Franklin I. (1977)**

Speech  
B.S. Southern Oregon State College  
M.A. University of Northern Colorado

**Hartsock, Donald G. (1988)**

Social Science  
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
- Hayden, Alice (1980)**  
Mathematics  
B.A. Macalester College  
M.S.T. Portland State University
- Hearing, Sylvia J. (1998)**  
Customized Training & Development  
B.A. Portland State University  
M.B.A. City University
- Helbig, Ronald E. (1992)**  
A.S. Clackamas Community College  
Building Construction  
State of Oregon Vocational Certificate
- Herman, Brenda (1987)**  
Mathematics/Computer Science  
B.A. Lenoir Rhyne College, North Carolina  
M.A. University of North Carolina
- Hobart, Roxie E. (1975)**  
Associate Dean/Controller  
B.S. Oregon State University  
M.B.A. University of Portland
- Holcomb, David K. (2000)**  
Director of the Bookstore
- Howley, Elizabeth A.M. (1983)**  
Horticulture  
A.S. Stockbridge School of Agriculture  
B.S. University of Massachusetts
- Hutchison, Donald (1984)**  
Mathematics  
B.S. Portland State University  
M.S.T. Portland State University
- Jackson, Jr., James E. (1991)**  
Director/Health/Physical Education/  
Athletics/Community Recreation  
B.S. U.S. Naval Academy  
B.A. University of Iowa  
M.S.T. Portland State University
- Jackson, Mary Jo (1998)**  
Director/Financial Aid  
B.A. University of Oregon  
M.S. Portland State University
- Jefferis, Alan (1980)**  
Drafting Technology  
A.A. Southwestern Junior College  
A.B. San Diego State University
- Johnson, Earl "Joe" P. (2001)**  
President  
B.A. University of the Pacific  
M.L.I.R. Michigan State University  
Ph.D. University of California, Berkeley
- Jones, Michael L. (1988)**  
Drafting Technology  
A.S. Chemeketa Community College
- Jones, Thomas G. (1986)**  
Small Business Development Center  
A.A. Brookdale City College,  
New Jersey  
B.A. Thos. A. Edison College of  
New Jersey  
M.S. Marylhurst College  
Ph.D. Walden University
- Keeler, Robert (1997)**  
Anthropology  
B.A. University of North Carolina  
M.A. Idaho State University  
Ph.D. University of Oregon
- Kegg, Jack K. (1998)**  
Health/Physical Education  
A.A. Clackamas Community College  
B.S. Western Oregon University
- Ketchum, Ken R. (2000)**  
Automotive Technology  
A.G. Portland Community College  
A.A.S. Portland Community College  
Vocational Education Teaching Degree,  
Portland Community College
- Kyser, Carrie L. (2001)**  
Mathematics  
B.S. Eastern Michigan University  
M.S. Cleveland State University
- Landauer, Edwin G. (1988)**  
Engineering Sciences  
B.S. Portland State University  
M.S.T. Portland State University  
M.S. Montana State University  
M.S. University of Central Florida
- Laugle, Thomas N. (1990)**  
Manufacturing Technology  
A.A. Clackamas Community College  
A.A.S. Portland Community College  
B.A. Marylhurst University
- Levi, Larry (1985)**  
Director/Apprenticeship  
A.S. Clackamas Community College
- Lewandowski, Kurt L. (1990)**  
Mathematics  
B.S. Southern Utah State College  
M.S. Oregon 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)**  
Oregon Advanced Technology Center  
A.S. Clackamas Community College
- 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
- Maloney, Lynne H. Inglis (1990)**  
Life and Career Options  
B.S. University of Oregon  
M.A. Lewis & Clark
- Marks, Brenda A. (1995)**  
Skills Development  
B.S. Oregon State University  
M.S. University of North Texas
- Martineau, James B. (2001)**  
Health/Physical Education  
B.S. Southern Oregon University  
M.S. Western Oregon University
- Martinez, Guadalupe (2000)**  
Counseling  
B.A. Oregon State University  
M.A.I.S. Oregon State University
- Martini, Karen J. (1999)**  
Director of Development  
B.S. Portland State University
- Mattson, Michael W. (1996)**  
Manufacturing Technology  
B.S.I.T.E. Purdue University  
M.A. Oregon State University
- Mayer, Lillian M. (1992)**  
Life Science  
B.A. California State University  
M.A. California State University
- McDonough, Donna M. (1986)**  
Skills Development  
A.A. North Idaho College  
B.A. Eastern Washington University  
M.Ed. Oregon State University
- McFarland, Patricia G. (2000)**  
History  
B.A. University of Southern Mississippi  
M.A. University of Southern Mississippi  
Ph.D. Louisiana State University
- McIlveen, Patricia J. (1998)**  
Family/Human Services  
B.S. Western Michigan University  
M.Ed. Florida Atlantic University  
Ed.D. Portland State University
- Meiser, James R. (1977)**  
Cooperative Work Experience  
B.S. School of the Ozarks  
M.A.T. Lewis & Clark College

- Middendorff, Carol A. (1983)**  
Business  
A.A. Southwestern Oregon Community College  
B.A. Oregon State University  
M.S.T. Portland State University
- Mikleton, Nancy (1976)**  
Physical Education  
B.S. Illinois State University  
M.S. University of Oregon
- Miller, David W. (1998)**  
International Education  
B.A. University of Montana  
B.A. Portland State University  
M.A. Portland State University
- Miller, Nick (2003)**  
Automotive Technology  
A.A.S. Clackamas Community College
- Mills, David J. (2001)**  
Music  
A.A. Mt. Hood Community College  
B.S. Westminster College  
M.M.E. Lewis & Clark College
- Misley, Robert R. (1986)**  
Biology  
A.A. Clackamas Community College  
B.S. Eastern Oregon State College  
M.A.T. Lewis & Clark College
- Mitchell, Maureen G. (2002)**  
Medical Assistant/Nursing  
R.N. Algonquin College  
R.N. Ottawa Civic Hospital  
B.S.C.N. Brandon University
- Molatore, Dominic (1985)**  
Computer Science  
B.S. Oregon State University  
B.S.C.S. Portland State University
- Molatore, Jeffrey Lee (1977)**  
Oregon Advanced Technology Center  
A.S. Oregon Institute of Technology  
B.S. University of Oregon
- Moller, Steffen A. (1998)**  
Computer Science  
B.A. Union College  
M.A. Andrews University
- 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
- Munson, Doris (1995)**  
Library  
B.S. Oregon State University  
M.L.S. University of Washington
- Nedelcu, Sanda (2000)**  
Manufacturing  
B.S. University of Craiova, Romania  
M.S. University of Craiova, Romania
- Nelson, Bruce A. (1998)**  
Horticulture  
B.A. University of Pennsylvania  
M.S. Washington State University
- Nelson, Robert J. (1990)**  
Horticulture  
B.S. University of Idaho  
M.S. University of Idaho
- Neufeld, James (1995)**  
Parts Merchandising  
A.A.S. Portland Community College
- 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
- Olds, John P. (1986)**  
Business  
B.S. Whitworth College  
M.B.A. University of Oregon  
Mstr/Tax Portland State University  
Juris/Dctr University of Washington Law School
- Orlando, Emily (1980)**  
English  
B.S. State University College, New York  
M.S. St. Johns University
- O'Toole, Gayle (1983)**  
Customized Training & Development  
B.S. Arizona State University  
M.A. Antioch University
- Patterson, Carol A. (1975)**  
Associate Dean/Campus Services
- Patrick, Tanya (1994)**  
Business  
B.A. California State University  
M.S.T. Portland State University
- Pearson, Kirk (1986)**  
Director/Bond Project
- Reilly, Nicole L. (2002)**  
Nursing  
B.S.N. Clemson University  
M.N. University of Washington
- Robinson, Robin A. (1989)**  
Physical Education  
B.S. Willamette University  
M.A.T. Lewis and Clark College
- Rothi, Paul A. (1992)**  
Associate Dean/Chief Information Officer  
B.S. Pacific Lutheran University  
M.S. Pacific Lutheran University
- 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
- Sabin, Gregory L. (2003)**  
Health Sciences  
B.S.N. Seattle Pacific College  
P.N.P. Fitzsimmons Army Medical Center  
M.S.N. Oregon Health Sciences University
- Schneider, Karen T. (2001)**  
Nursing  
Nursing Diploma, St. Vincent School of Nursing  
B.S.N. Oregon Health Sciences University  
M.S.N. University of Portland
- Scrivener, Jack (1980)**  
Mathematics  
B.S. University of Kansas  
M.S. Southern Oregon State College
- Seaman, Lynn (1988)**  
Business  
B.S. Oregon State University  
Ed.M. Oregon State University
- Shackelford, Alan M. (2002)**  
Social Sciences  
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
- Slusarenko, E. Kay (1998)**  
Associate Dean/Art, Humanities, Social Science  
B.S. University of Idaho  
M.F.A. Portland State University
- Smith, Michelle J. (2002)**  
Health Sciences  
B.S.N. University of Portland  
M.S.N. University of Portland

**Smith-English, David (1995)**

Theatre  
B.A. Lewis & Clark College  
M.A.T. Lewis & Clark College

**Sprehe, Tara L. (2001)**

Student Outreach and Service Learning  
B.A. University of Oregon  
M.S. Miami University

**Stiles, Bradley J. (1998)**

English  
B.A. Wichita State University  
M.A. University of Illinois  
Ph.D. University of Illinois

**Stone, Karen A. (1983)**

Director/Customized Training  
& Development Services  
B.A. Stanford University  
M.S. Marylhurst

**Stones, Richard (1994)**

International Education  
B.A. Portland State University  
M.A. Portland State University  
Ph.D. Brigham Young University

**Strickland, Christina (1983)**

Life Science  
A.S. Umpqua Community College  
B.S. Oregon State University  
M.S. Texas Women's University

**Stubblefield, Karen (1998)**

Director/Human Resources

**Symes, William J. (1980)**

Business  
B.S. University of Southern California

**Taylor, Kathleen A. (1991)**

Mathematics  
B.S. University of Portland  
M.A.T. University of Portland

**Tepper, Glenda M. (1999)**

Associate Dean of Student Services  
A.A.S. Oregon Institute of Technology  
B.S. Oregon Institute of Technology  
M.B.A. Southern Oregon University

**Thorn, Carol A. (2002)**

Health Sciences  
B.S.N. Oregon Health Sciences  
University  
M.S.N. University of Portland

**Topping, Robert P. (1993)**

Building Construction  
A.A. Portland Community College  
B.S. Portland State University  
M.Ed. Oregon State University

**True, J. Rick (1995)**

Art  
B.A. University of New Mexico  
M.F.A. Portland State University

**Tuffli, Theresa A. (1982)**

Director/Community Education and  
Accelerated Degree Program  
A.S. Clackamas Community College  
B.A. George Fox College  
M.B.A. George Fox College

**van der Bijl, Baldwin (1978)**

Associate Dean/Science, Math & Allied  
Health  
B.A. University of California  
M.S. California State University

**Vogt, Linda M. (1986)**

Student Publications/Journalism  
B.S. University of Oregon  
M.A.T. Lewis & Clark College

**Wakeling, Thomas W. (1999)**

Music  
B.S. Portland State University  
M.S.E. University of Portland

**Wanner, Paul J. (1992)**

Manufacturing  
Oregon Advanced Technology Center  
A.A. Clackamas Community College  
State of Oregon Vocational Certificate

**Ward, David W. (2001)**

Drafting Technology  
A.S. Clackamas Community College  
A.A. Clackamas Community College  
Oregon Department of Education  
Certificate

**Widerburg, Allen (1987)**

English  
B.A. University of Utah  
M.A. Portland State University

**Williams, Molly (1980)**

English as a Second Language  
B.A. Lewis & Clark College  
M.A. Portland State University

**Wolfson, Ellen (1985)**

Counseling  
B.S. Portland State University  
M.S.W. Portland State University

**Woods, Kathleen M. (1983)**

Physical Education  
B.S. Oregon State University  
M.Ed. Oregon State University

**Wynia, Marilyn A. (1979)**

Physical Education  
B.S. Oklahoma State University  
M.A. Oklahoma State University

**Yannotta, Mark A. (1998)**

Mathematics  
B.S.E. Southeast Missouri State  
M.A. University of Missouri

**Zuelke, William (1997)**

Counseling  
B.A. Gonzaga University  
M.Div. Weston School,  
Cambridge, MA  
M.S. Loyola College

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