CATALOG

Fall 1994 through Summer 1995
Portland Community College can help you take charge of your future.

For more than 30 years, PCC has provided exceptional educational opportunities for men and women. Here are some of the many reasons you'll want to make PCC part of your future:

• Quality, affordable instruction in more than 80 professional/technical programs, hundreds of college transfer courses, solid basic education programs and a wide variety of non-credit hobby and personal enrichment courses.

• Custom-designed training to meet the job upgrading needs of business, industry, labor and government.

• Three full-service campuses and a number of educational centers within easy driving distance of district residents.

• Convenient enrolling, with phone registration for many courses — plus Discover, VISA and MasterCard for tuition and fee payment.

• Flexible day and evening class scheduling to meet the needs of both part-time and full-time students.

• A full range of student support services, including comprehensive academic advising, counseling, job placement services, child care, financial aid, testing for career decisions, and tutoring on a drop-in basis.

• Approved for veterans training. Financial aid available.

For more information, call 503-244-6111.
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USING THIS CATALOG

This catalog is arranged in six sections. See the Table of Contents or Index to locate specific programs and courses.

The General Information section introduces Portland Community College and its programs, then covers topics such as admissions, registration, academic regulations, degree requirements, special programs and services and student services and activities.

The Basic Skills section has information on counseling, handicapped student services, developmental education, English as a Second Language (ESL), and General Education Development (GED). In addition, this section includes physical education, mathematics and writing courses that have been developed for professional/technical programs and Associate of General Studies students.

The Professional/Technical Programs section details PCC's two-year Associate of Applied Science degree programs, certificate programs and many subject areas of interest to career students. Transfer programs that are closely related to these professional/technical programs are also covered.

The Associate of General Studies section highlights this degree, which allows the student to develop an individualized course of study.

The Transfer Courses and Programs section lists programs that are designed to transfer to a four-year college or university, plus individual courses that are transferable to four-year institutions. These courses are also avenues for personal and professional enrichment. Since the transfer programs are often closely related to their two-year professional/technical program counterparts, there are frequent references to the Professional/Technical Programs section.

The final major section, Course Descriptions, contains details on more than 1,800 PCC credit classes that are referenced in the courses and programs information.

A list of professional staff, an index, and a district map complete this catalog.

Calendar of Instruction

<table>
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<th>Final Exams</th>
<th>End of Term</th>
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<td>June 10</td>
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<tr>
<td>Summer 1995</td>
<td>Varies¹</td>
<td>Sept. 2</td>
</tr>
</tbody>
</table>

¹Summer final exam schedules vary. Consult instructor.

211-week classes

For registration calendar details (phone and in-person registration dates, adds/drops, late registration, etc.), see the appropriate term's Schedule of Classes.

Accreditation

Portland Community College is accredited by the Northwest Association of Schools and Colleges Commission on Colleges, the accrediting agency for this region. Many programs within the college have accreditation from professional associations. Documents describing Portland Community College's accreditation and licensing are available for review in the college library. Information regarding accreditation from professional associations can be obtained by contacting the department chairperson of the individual program in question.

Equal Opportunity

It is against the college's policy for any manager, supervisor, faculty, staff, or student to engage in harassment or discrimination of any member of the college community based on his/her race, color, religion, ethnicity, use of native language, national origin, age, sex, marital status, height/weight ratio, disability, or sexual orientation. Inquiries regarding these matters may be directed to Jorge Espinosa, director, Affirmative Action, 244-6111, ext. 4785, TDD 452-4975, P.O. Box 19000, Portland, OR 97280-0990. Questions specific to the Americans with Disabilities Act (ADA) may be directed to Randy Boone, 244-6111, ext. 2468, TDD 273-2908.
PORTLAND COMMUNITY COLLEGE

Portland Community College is the largest institution of higher learning in the state, serving more than 815,000 residents in a five-county, 1,500 square mile area in northwest Oregon. The district includes the state's largest city, Portland, and the most rapidly growing population areas in the state. PCC enrolls more than 81,000 students annually, or one in every 10 residents.

The college is governed by a seven-member board of directors, elected by zones for four-year terms. The board selects the president and approves the hiring of other staff and faculty, approves the college budget, and establishes policies which govern the operation of the college.

They meet twice monthly, usually on the first and third Thursdays. For meeting information, Call 244-6111, ext. 4363.

President: Daniel F. Moriarty

1994-95 Board of Directors
Norma Jean Germond
Harold C. Williams
Keith D. Skelton
Dana Anderson
Dan Saltzman
Marcia Atkinson
Karen McKinney

Mission

Portland Community College provides quality education in an atmosphere that encourages the full realization of each individual's potential. The college offers students of all ages, races, cultures, economic levels, and previous educational experience opportunities for personal growth and attainment of their goals.

To achieve its mission Portland Community College offers accessible and affordable education to the residents of its 1,500 square mile district and to the residents of its service districts. As a public, comprehensive, post-secondary institution, this multi-campus college offers lower division college transfer programs, occupational and technical programs, basic skills education, and community education programs. Partnerships with business, industry, labor, educational institutions, and public sector agencies provide training opportunities for the local work force and promote economic development. Through effective teaching and supportive student services, Portland Community College prepares students for success as individuals, members of a democratic society, and citizens of a rapidly changing world.

Values

Portland Community College recognizes the dignity and worth of each individual, effective teaching, educational and personal growth of the individual, open and honest communication, teamwork and cooperation, an environment that encourages the expression of original ideas and creative solutions, and effective and ethical use of public funds.

College History

Portland Community College began as the adult education program of the Portland Public Schools. On May 15, 1961, the school district established the college as a separately operating entity. Because the college included students from many areas outside the Portland school district, in 1965 the school board appointed an advisory council to supervise the college and to give representation to areas beyond the school district boundaries.

As the advisory council and the school board developed programs and plans for the rapidly growing college, it became evident that the college needed to be a separate governmental unit with its own elected board to represent the areas from which students came.

In 1968, voters of the five-county area approved the formation of a new college district named the "Metropolitan Area Education District." It included the school districts of Portland, Sauvie Island and Riverdale in Multnomah County; Lake Oswego in Clackamas County; St. Helens, Scappoose and Vernonia school districts in Columbia County; Newberg school district in Yamhill County and all of Washington County. At this time the voters also elected the first college board of directors and approved a tax base, providing the college with funds for the local share of operation and building construction. In 1971, the name of the district was changed to "Portland Community College District."

District residents showed continuing support for their college in 1980, and again in 1986 as they voted to increase the PCC tax base. Enrollment growth of 25 percent since 1986 led voters to approve a $61.4 million bond measure in 1992 to expand facilities at all campuses, and repair and upgrade existing buildings.
PCC Campuses

The college has three comprehensive campuses which provide lower division college transfer courses, two-year associate degree programs, and professional/technical career training programs. The Open Campus provides adult basic education, job training and retraining, small business development, and life enrichment courses for residents in over 200 locations throughout the district. Campuses and centers are strategically located throughout the district to be within easy access of residents.

Cascade Campus
The Cascade Campus is located in an urban setting with easy access to public transportation. It serves almost 6,500 students each year. The campus has become a focal point for rebirth in the neighborhood, and many area residents have turned to the Cascade Campus for job training, college transfer courses and self-improvement. Many community services—child care, legal aid, neighborhood associations and job referral services—are located either on the campus or within easy reach.

Executive Dean: Don McInnis
705 N. Kilingsworth
Portland, Oregon

Open Campus
Operating in locations throughout the district, PCC’s Open Campus provides job training, adult and continuing education, literacy, life enrichment courses, and contracted short-term training for business and industry. Annually, more than 55,000 people participate in Open Campus programs seven days a week at about 200 locations throughout the five-county district.

The Open Campus operates facilities at the following locations:

Ross Island Center
049 S.W. Porter
Portland, Oregon
The Ross Island Center was PCC’s first home. It now houses administrative offices and classrooms.

Southeast Center
2850 S.E. 82nd
Portland, Oregon
Located in a heavily populated area of southeast Portland, the Center provides college transfer, adult basic education and job training programs. It offers extensive evening and weekend programs to accommodate those who work full-time.

Tektronix, Inc. On-site Office
Building 74, Millikan Way
Beaverton, Oregon
PCC’s Tektronix, Inc. “on-site” office offers scheduled program classes, contracted classes and support services to the over 10,000 employees who work at the Beaverton Industrial Park and other area Tektronix locations. Most on-site services and classes are also open to the public.

Hillsboro Center
346 S.E. 5th

Newberg Center
1505 Portland Road, #206

St. Helens Center
1510 St. Helens Street, Suite C
These offices serve their respective geographic areas with community education programs and selected credit courses.

Central Portland Workforce Training Center
Plans to construct a 31,000 square-foot facility in central eastside Portland are underway.

Washington County Workforce Training Center
Plans are underway to locate a center in Washington County, between Beaverton and Hillsboro.

Rock Creek Campus
While Rock Creek has a Portland address, it sits about 15 miles west of downtown in the rapidly-growing Beaverton-Hillsboro area of Washington County. The 256-acre campus provides a beautiful setting for both college transfer and professional/technical programs. PCC’s Rock Creek has won national awards for its pilot programs which train women and minorities to enter the construction trades. The campus provides a model for successful partnerships with area high schools.

Executive Dean: Pamela Transue
17705 N.W. Springville Road
Portland, Oregon

Sylvania Campus
Sylvania is located in suburban southwest Portland between Lake Oswego, Tigard and Portland. It is the largest campus, serving more than 23,000 students annually. Sylvania is home for numerous PCC programs, which have national reputations for excellence. Sylvania also provides college transfer, professional/technical, and adult and developmental education. The new library and forum facilities are a focal point of the campus.

Executive Dean: Alice Jacobson
12000 S.W. 49th Avenue
Portland, Oregon

PCC Contracted Educational Service Districts
Oregon Coast Community College
332 S.W. Coast Highway
Newport, Oregon 97365, 503-265-2283

Tillamook Bay Community College
2510 First Avenue
Tillamook, Oregon 97141, 503-842-8222

Columbia Gorge Community College
300 East 4th Street
The Dalles, Oregon 97058, 503-296-6182.
The PCC Foundation

The Portland Community College Foundation was established in 1982 as a non-profit corporation to solicit and administer private support for the educational programs of Portland Community College. The Foundation is governed by a board of trustees whose members are business, professional and civic leaders in the Portland area. The Foundation is linked to the college through the PCC Development Office, which provides staff support for the Foundation's fund raising.

The PCC Foundation provides an opportunity to invest in the future of the community and the college. Donors may designate their contributions to the program of their choice and all donations are tax deductible. Contributions may be in the form of cash gifts, securities, deferred gifts, gifts in trust with reservation of income to donors, and transfer of real property and equipment.

Executive Director: Stephen N. Guntli, 244-6111, ext. 4364

Board of Trustees:
Jill W. Eiland, president
Ken Wilson, vice president
Tim Steers, treasurer
Daniel F. Moriarty, secretary (ex-officio)

Dana Anderson (ex-officio)    Harold C. Williams (ex-officio)
Bruce Bishop                Sam Brooks
Fletcher C. Chamberlin       Robert R. French
Jim Harper                  David Kish
Doreen Margolin             Warren Rosenfeld
Ruth Scott                  Janice Wilson

Student Profile

Portland Community College serves more than 81,000 students annually. Over 72,000 reside within the five-county district and some 7,000 students come from other Oregon areas. Fewer than 2,300 students are not Oregon residents, with foreign students and Washingtonians representing the largest portion of this group.

Demographics
Average Age .................................................. 36
Female .......................................................... 56%
Male .......................................................... 44%
Caucasian ...................................................... 82%
African American ........................................... 4%
American Indian ............................................ 1%
Asian, Pacific Islander ................................. 8%
Hispanic ....................................................... 4%
International ............................................... 1%
Other .......................................................... 1%
Employed full- or part-time ............................ 69.4%

Enrollment
Lower division ................................................. 21%
Technical/Professional ..................................... 39%
Community Education ....................................... 20%
Adult Education ............................................. 10%
Other .......................................................... 9%
Enrolled part time (fewer than 12 credits) ........... 84%
26.9% of 1992 district high school graduates enrolled at PCC during 1992-93.

Staff

Over 3,100 full- and part-time staff members serve Portland Community College and its students. The teaching staff meets the standards of the Oregon State Board of Higher Education and those followed by community colleges nationally. PCC's outstanding faculty have studied at many of the leading institutions in the country and bring years of practical, "real-world" experience to the teaching profession. A detailed list of PCC's professional and academic staff with their credentials may be found in the back of this catalog.
ENROLLING AT PCC

New Students
Portland Community College has an open admissions policy, meaning that anyone can enroll at the college. Previous college experience or a high school diploma is not necessary for entry. However, certain programs or courses may require prerequisite course work or an instructor's signature for enrollment.

Residency
A residence is a place in which a person resides - a dwelling place or abode - especially a house or apartment. Residence is not established by attendance at a college.

In-state student: an American citizen, immigrant or permanent resident who has established and maintained residency in Oregon at least 90 days prior to the first day of class.

Out-of-state student: an American citizen, immigrant or permanent resident who has not established residency in Oregon 90 days prior to the first day of class.

International student: a citizen of another country here on other than an immigrant visa.

Admissions
You are required to fill out an Admissions Form before registering. You may obtain the form in person by visiting one of the four campus Admissions offices listed below. This first step will help us determine the next steps you'll take to be admitted to PCC, which may include orientation, assessment testing, and advising. New students are encouraged to start the admissions process well in advance of registration.

Admissions Offices
Cascade Campus: Student Center B212, 244-6111, ext. 5282
Rock Creek Campus: Building 2 Room 120, 244-6111, ext. 7225
Southeast Center: Room D24, 244-6111, ext. 6256
Sylvania Campus: College Center Mall, 244-6111, ext. 4908; International Students: Sylvania Health Tech B5e, 244-6111, ext. 4952

Advising
Select the right classes to reach your goals with the help of an advisor. Before registering for classes, review your progress with an advisor at your campus advising center or your program department. They can answer questions about prerequisites, degree requirements, academic regulations and procedures, transfer credits and more.

Non-credit or non-degree students may also seek scheduling and advising help.

Advising Centers
Cascade Campus: Student Center A115, 244-6111, ext. 5271
Rock Creek Campus: Building 2 Room 120, 244-6111, ext. 7297
Southeast Center: Room D24, 244-6111, ext. 6252
Sylvania Campus: College Center B31, 244-6111, ext. 4351

Orientation
New student orientation introduces Portland Community College. There are orientation sessions geared specifically for professional/technical program students as well as for general transfer and undecided students. First time credit students are required to attend a session prior to registration if planning to enroll in a degree, certificate, or diploma programs, or accumulating a significant number of credits toward a transfer degree.

The orientation includes general advising as well as an overview of college resources and student support services available. Contact the Admissions Office at the campus you plan to attend for orientation dates and times.

Assessment
A wide variety of tests and inventories is available through the Counseling Services office, the Office of Students with Disabilities and the Central Assessment Offices. These services help students gain self-understanding and an increased ability to make decisions regarding career and educational plans.

ASSET, a basic skills placement test, is used to determine the appropriate classes for students in English and math, and program prerequisites. If you are enrolling for a certificate, degree or diploma, placement testing is required.

Testing Centers
Cascade Campus: Terrell Hall 201a, 244-6111, ext. 5234
Rock Creek Campus: Building 3 Room 123, 244-6111, ext. 7300
Southeast Center: Room D12, 244-6111, ext. 6256
Sylvania Campus: College Center B31, 244-6111, ext. 4533

Transfer Students
Credits from other institutions may be accepted toward degree requirements if they were completed at a fully accredited college or university. Send transcripts of previous course work to:

Student Records
Portland Community College
P.O. Box 19000
Portland, Oregon 97280-0990

Transfer students should plan to meet with a department chair or advisor to review credits transferred and program requirements.

High School Students
Students who are under the age of 16 and who wish to enroll in PCC classes during regular high school hours will need to meet with a counselor to provide the release form signed by the parent or guardian and by the principal or district school official. These forms are available in PCC counseling centers. A complete assessment of basic skills is also required for admittance under the age of 16.

Portland Community College also offers a High School Completion program. See the Basic Skills section of this Catalog.
Disabled Students

The Office of Students with Disabilities (OSD) offers a variety of supportive services that facilitate access to educational opportunities for students with disabilities at PCC. OSD exists to help students realize their personal and educational goals.

Supportive services can be provided, depending on the nature of the disability and availability of resources. Documentation of an existing disability may be required. Services offered include: sign language interpreting, note taking services, proctored testing, taping of printed materials, physical assistance for classroom activities, special tutorial support for students with learning disabilities or hearing impairments, counseling, advising, and career/technical program planning. A variety of adaptive equipment is available.

Accessible transportation is available to students who have mobility impairments and no other viable means of transportation. This service is limited and provided on a priority basis. There is a fee charged.

In addition to these services, several classes of special interest are offered in the regular college curriculum. These include specific courses on career exploration, study skills and language development. Special adaptive physical education classes for students with disabilities are offered through the Physical Education Department.

Interested students should contact the OSD to schedule an appointment with a counselor, who can assist in program planning and in making arrangements for necessary academic support services. Students are encouraged to contact OSD as early as possible to request services. For more information, see Disabled Student Services in the Basic Skills section of this Catalog or call 503-244-6111, ext. 4341 or TDD 246-4072.

International Students

Portland Community College currently enrolls more than 525 students from over 66 foreign countries. Questions about admissions should be directed to the Admissions Office at the Sylvania Campus, College Center Mall.

International student applicants must complete all correspondence and forms in English. To be considered for admission to PCC, the following must be submitted to the International Student Affairs Office.

1. International Student Application for Admission form.
2. Declaration of Finances form.
3. $25 application fee, which is non-refundable and non-transferable (Cashier's check, money order or cash). Personal checks will be accepted from local banks only.
4. Tuberculosis certification form.
5. Proof of government or private scholarship support (if applicable)
6. Proof of college-level English ability. (A minimum TOEFL score of 525 is required.)
7. Recent photograph (2" x 3")

8. For transfer students only:
   a. Official transcripts from high schools, other colleges or universities.
   b. Letter of consent from previous college's foreign student advisor.
   c. Copy of I-94 and I-20 ID.
   d. Copy of pages one through four of passport and U.S. Visa page.

When all of the above has been received, the applicant will be considered for admission. (An I-20 form will not be issued to any individual until all the required information has been received and approved.) All students must enroll by the last scheduled day of registration each term. International students must pursue a full course of study (12 credit hours or more per term) to be on the I-20 form.

International students must pay all tuition and fees at the time of registration. Payment of out-of-country drafts must clear the business office approval procedure before registration is final. Students requesting this billing service must file authorization forms with the Business Office prior to registration. Deferred tuition is not available for international students.

Tuition for Credit Classes

The Portland Community College Board of Directors evaluates tuition rates annually. The following rates are subject to change:

1994-95 Tuition

- In-State: $30 per credit hour
- Out-of-State or International: $95 per credit hour
- In-State Older Adult: $15 per credit hour
- Out-of-State Older Adult: $95 per credit hour

Student Activity Fee

Beginning summer term 1994, all credit students will be assessed a student activity fee according to this schedule:

<table>
<thead>
<tr>
<th>Number of Credits</th>
<th>Activity Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 5 credits</td>
<td>$2</td>
</tr>
<tr>
<td>6 or more credits</td>
<td>$7</td>
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</tbody>
</table>

Non-credit and CEU classes are priced individually. Tuition and fees for these classes are printed in the Schedule of Classes following the course description.

Students with past due debts payable to Portland Community College will not be allowed to register until the total indebtedness is paid in full. An unsatisfactory credit history at PCC will prevent students from eligibility for deferred note, emergency loans or other institutional financial assistance.
Caution: Students should be aware that registering for classes after instruction has begun is detrimental to their learning. Also, students registering late might not be admitted into class or granted make-up privileges.

Continuing Education Classes (CEUs)
Course numbers beginning with “CEU” are classes that award Continuing Education Units (CEUs) rather than college credits. CEUs are not equivalent to credit hours and therefore cannot be used toward PCC certificates or degrees. Some programs offering CEU classes offer certification or CEU certificates. One CEU is awarded for each 10 hours or their equivalent. PCC transcript records are available for CEU hours.
Tuition for CEU courses is charged regardless of the number of credit hours for which the student enrolls. CEU classes do not meet the federal requirements for financial aid.

Non-Credit Classes
Primarily designed for adults, these classes are planned to fit your needs at hours when you might want to take a class, usually during evenings and weekends. Courses range from special art workshops to karate, small business classes to professional development seminars and workshops. You'll find classes in your local schools, community centers and other convenient locations.
The tuition for non-credit classes is charged on a “per class” basis and is in addition to tuition for credit or CEU classes. Non-credit classes do not meet the federal requirements for financial aid, are not equivalent to credit hours and cannot be used toward PCC certificates and degrees.

Reciprocity Agreement
Portland Community College will grant in-district tuition to Washington residents of Clark, Columbia Basin, Lower Columbia, Walla Walla or Yakima Valley Community College districts if students meet the criteria and follow the procedures listed:

Criteria:
Enroll in a program at PCC that is not offered at one of the above institution where you reside.

Procedure:
1. Provide a letter of verification from the community college of residence which states the program you are enrolling for at PCC is not offered at that institution to the registration personnel at the time you are registering.
2. Complete and provide a formal petition for in-state tuition at the time you are registering. Petitions are available in registration areas at all PCC campuses.
Residents of other community college districts in Washington will be assessed out-of-state tuition. Washington residents not meeting the above criteria will be assessed out-of-state tuition.

Older adults (62 and over)
If you're at least 62 years of age, you may take classes according to the rates below. You must pay lab fees and other fees at the full rate. To qualify for the 50% rate for non-credit classes, you must apply for Older Adult Exemption Status. Forms are available at any business or registration office and must be submitted to registration before registering.

In-State older adults must pay:
$15 per credit hour
50% of scheduled tuition for non-credit
100% of scheduled tuition for CEUs

Out-of-State older adults must pay:
$95 per credit hour
50% of scheduled tuition for non-credit
100% of scheduled tuition for CEUs

Limited financial assistance is available to Oregon residents unable to afford the reduced tuition. Request forms are available from Neal Naigus at 244-6111, ext. 2485 and should be requested well in advance of registration. The forms must be filed and processed by the eighth week of classes. To be eligible for the older adult tuition grant, you must provide this written authorization with each registration. (Grants do not cover lab and other fees.) If you're enrolled in a degree or certificate program, you are not eligible for these grants, since other types of financial aid are available to you — contact Financial Aid, 244-6111, ext. 4934.

Special Fees
Some classes have special fees which must be paid directly to the instructor or to a sponsoring organization. These charges are listed in the Schedule of Classes and are paid in addition to PCC tuition.

Lab Fees
Classes with lab fees have the amount indicated in the course description in the Schedule of Classes. Lab fees are payable with tuition.

Paying for College
Tuition and fees must be paid by the due date on the Schedule/Invoice.

Approved payment options
Cash: U.S. funds only

Personal Checks: PCC accepts local bank-imprinted checks for the amount due only. Make checks payable to PCC. Two party checks and post-dated checks will not be accepted.
If you mail your check, write your Social Security number, valid Oregon or Washington driver's license number and check guarantee number on the face of the check. If you pay in person, you must show your PCC membership card, valid Oregon or Washington driver's license and bank guarantee card.
If the check is written by someone other than the student, it must be made payable to PCC. The signee's driver's license and check guarantee card numbers must be written on the face of the check.

Cashier's Checks, Money Orders, and Traveler's Checks:
For the amount due only made payable to PCC.
2. Students under 18 years of age will be held liable for the agreement as an educational loan under Oregon Revised Statute (ORS 348-105). Failure to withdraw within the refund period does not relieve you of your obligation to pay.

Late Payment Penalties
Penalties on delinquent accounts will include a $25 charge or 25% of the balance due, whichever is less, and may include, but are not limited to, cancellation or denial of registration, withholding of transcripts, diplomas, and grades, denial of further credit, impairment of credit history, as well as additional assessment for late payment fees, collection charges and attorney fees.

Registration Tips

Late Registration
A $10 late fee is charged after the end of the second week of classes for full term classes.

Late registration for classes may be allowed with department and instructor written permission. For classes less than a regular term, late registration may be allowed with appropriate written permission. Registration is not allowed for classes which have been completed.

Cancelled Classes
The college reserves the right to cancel a class that does not meet the minimum enrollment established by the college. To be eligible for a refund of cancelled classes, you must drop from the class by submitting a Registration Transaction form to the registration area.

Adding or Dropping a Class
Students wishing to change their schedule by adding or dropping classes must make a formal change by submitting the completed Registration Transaction form to the registration area in person at any campus. A non-refundable fee of $5 will be charged for 1-5 sections on an Add/Drop form; thereafter, an additional $1 for each section over five will be charged. This applies to each Add/Drop form processed.

Withdrawing from College
Formal withdrawal from PCC must be made through the registration area at each campus. Students who merely stop attending classes without formally withdrawing will receive the grades assigned by their instructors and will not receive a refund of tuition and fees. Students receiving financial aid or veterans benefits must notify the appropriate office of their intentions to withdraw.

A "W" will be granted if the student processes a formal withdrawal no later than the Friday prior to the last week of the class.
Tuition refunds
Refunds are not automatic. To be eligible for a refund you must withdraw from the course using the appropriate form during the refund period.
Your refund is calculated according to the date you file the form, not the date you stop attending classes.
Important: Failure to withdraw within the refund period does not relieve you of your obligation to pay.
To get your refund, you must file a Refund Request form at the business office. Requested refunds will be processed beginning the fourth week of the term. If you paid with a credit card, the refund will be applied to that credit card account.

Refund Policy
For 11 and 12 week classes:
By the second Friday of the term
100% refund
After that date
no refund
All others:
On or before the first day of class
100% refund
After the first day of class
no refund

FINANCING YOUR EDUCATION

Financial Aid
The Financial Aid Office administers a variety of aid programs in the form of scholarships, grants, loans and part-time employment to eligible students who need assistance to attend college. The amount of aid awarded is subject to availability of funding and date of application is completed.

Cascade Campus: Terrell Hall 102, 244-6111, ext. 5278
Rock Creek Campus: Building 2, Room 122, 244-6111, ext. 7216
Southeast Center: Room B18, 244-6111, ext. 6254
Sylvania Campus: College Center A1a, 244-6111, ext. 4934

Application
Complete the free application for Federal Student Aid (FAFSA) to have eligibility for assistance determined. Forms are available in any Financial Aid office. Additional information may be requested from the Financial Aid Office. Eligibility is determined when all requests for additional information have been met.

When to Apply
You may submit your application beginning January 1 for the following academic year beginning with summer term. Applications continue to be accepted during the year. Late applicants should be aware that adequate funding may not be available.
The prority funding date for financial aid is March 1 for all programs with the exception of Pell Grants, Oregon Need Grants, Stafford Loans and Parent Loans for Undergraduate Students (PLUS). Applications received after March 1 will be processed after those received by March 1. Financial aid is awarded as funding permits.

Who is Eligible
The federal government sets the eligibility requirements:
You must be a U.S. citizen or an eligible non-citizen.
You must have a high school diploma, GED or have the ability to benefit according to federal regulations.

You must be enrolled in a program leading to a degree, certificate or transfer program and be taking courses applicable to your program.
You must be enrolled at least half-time (6 credits).
You must not owe a refund or repayment on federal financial aid or be in default on a student loan.
Loan borrowers may be subject to credit checks or other credit worthiness requirements.

Getting Award Notification
Most applications are processed during the spring and summer for the following academic year. You will be notified of financial aid awards by mail. You have accepted when you return the signed financial aid award letter to the Financial Aid Office, and you must return it by the date indicated or the award may be reduced or withdrawn.

How you are paid
When you register, financial aid funds are credited to your account to pay your tuition, fees and other charges. To get any money not used for tuition and fees, submit a Refund Check Request form and a completed Attendance Verification form starting the first week of the term to the Business Office.

Keeping your Financial Aid
Federal regulations require that you maintain satisfactory 2.0 (C) progress and complete the minimum required courses according to your enrollment status toward a degree or certificate to keep receiving financial aid. The Financial Aid office reviews academic performance each term. If you do not meet the standards of progress, you may be placed on financial aid warning, probation or financial aid may be discontinued. You may appeal to be reinstated by completing an Appeal to Reinstatement form and document in writing why academic standards were not met. If you withdraw, drop out or stop attending classes, you may be subject to repayment of financial aid funds to PCC.
Scholarships

Portland Community College awards a number of scholarships each year through the PCC Foundation. Scholarships are generally awarded on the basis of academic progress and financial need. Scholarship criteria, deadlines and award amounts vary. Most scholarships have an April application period for awards for the following year. If you are interested in applying for scholarships, pick up a list at any Financial Aid Office, the PCC Development Office at Sylvania or check the Bridge student newspaper and department bulletin boards.

Veterans' Educational Benefits

Veterans, disabled veterans and the dependents of certain veterans may be eligible for educational benefits from the Veterans Administration. Portland Community College is approved for the training of veterans and most of the programs offered by PCC have been approved by the VA. You should verify your program status before registering. If you have eligibility questions call 800-827-1000.

The PCC Veterans’ Services Office is located at the Sylvania Campus, ST B-20, 244-6111, ext. 4502, and student files are maintained there. If you are using veterans benefits for the first time or are transferring to PCC, you must apply through this office and complete an intake interview. Call the office to verify which documents to bring for certification. A veterans advisor is available to help complete the process.

VA regulations require that students receiving educational benefits must maintain a 2.0 GPA in their declared major for satisfactory academic progress. Also, the VA will not pay for X, W or NP grades. Students receiving benefits should be aware of these conditions to avoid VA over-payments or possible termination of benefits.

Air Force ROTC Scholarships

Three-, two- and one-year scholarships are awarded on a competitive basis, primarily in technical areas of nursing and engineering, with a limited number of scholarships in non-technical areas, in cooperation with the University of Portland. These scholarships cover full tuition, fees, books and $100 per month allowance. For more information contact the Air Force ROTC Detachment 695 at the University of Portland, 283-7216.
ACADEMIC REGULATIONS

Catalog Editions, Enrollment Dates, and Graduating

Which Catalog?
Portland Community College operates on the quarter system. A new edition of the PCC Catalog is published and dated with each academic year, which begins fall term and ends with the next summer term.

To earn an associate degree or a certificate, students must meet the requirements in the Catalog that is current when they earn their first credit(s) at PCC, unless they choose to meet the requirements of a later Catalog.

However, students who do not earn at least one PCC credit applicable to their degree requirements each academic year lose the right to meet the requirements of their original Catalog. They must then meet requirements of the Catalog current at the time they resume work on their degree at PCC, or a later Catalog. To be considered full-time, you must be enrolled for at least 12 credit hours.

Students enrolled in programs that are accredited or licensed must meet the requirements most recently approved by the accrediting agency or licensing authority.

An edition of the Catalog is valid for 6 academic years. For example, a Catalog that takes effect fall term 1990 is only valid through summer term 1996. However, some programs may impose shorter time limits on accepting credits for degree or certificate requirements.

Occasionally the College may change courses and course numbers within a program. Students should regularly consult an advisor in their major department about their course of study. See page 248.

Petitioning for Graduation and Paying College Debts
Two terms before students expect to complete requirements for a degree or certificate, they should file with the graduation office a petition to graduate. This allows college staff to check students' plans to be sure they are meeting all requirements. In any event, students must file their petitions within one year after completing all requirements.

Students must clear all debts to the college before their degree or certificate will be awarded.

Certificate Programs
Most PCC professional/technical programs offer one- or two-year certificates to students who complete their course of study with a minimum 2.0 grade point average. Specific courses required for each certificate program, including any General Education requirements, are listed under their appropriate programs in this Catalog.

One-Year Certificate Restrictions
1. At least 12 credits must be earned at PCC, and 9 of them must apply to the certificate requirements. The final 9 credits that apply to the certificate must be earned at PCC.

Two-Year Certificate Restrictions
1. At least 24 credits must be earned at PCC, and 18 of them must apply to the certificate requirements. The final 9 credits that apply to the certificate must be earned at PCC.
2. Only 9 credits of 199 and 299 Special Topics courses will apply.

Associate of Applied Science Degree
The Associate of Applied Science degree is awarded to students in professional/technical programs who meet the following requirements:

All candidates must complete a program of approved course work in the major field. The program descriptions in this catalog contain these course work requirements.

General Education
All candidates must earn 18 credits of General Education. These credits must come from courses taken in the following distribution areas:
1. Arts and Humanities
2. Social Sciences
3. Mathematics, Life and Physical Sciences

The 18 credits must include at least one course from each category and no more than 9 credits from any one category. No more than 2 courses may come from program prerequisites or from courses required by specific programs.

Because of these restrictions, it is possible that a course is acceptable as General Education for some students while it is not acceptable for others. Students should consult an administrator or faculty member in an Associate of Applied Science degree program for advice on General Education courses appropriate to their goals and interests.

Other Requirements
All candidates must earn at least 90 total credits. The program descriptions in this catalog contain the specific number of credits required.

All candidates for a degree must attend PCC for at least two terms and earn at least 30 credits at PCC.

The final 18 credits for the degree must include at least 9 credits earned at PCC.

Twenty-four of the credits earned at PCC must apply to degree requirements other than General Education requirements.

All candidates for a degree must have a 2.0 grade point average (C average) or higher for courses applied to the degree.

No more than 9 credits of 199 or 299 Special Topics courses may be applied to the degree.

A maximum of 3 credits of physical education courses may be used as electives.

No more than 24 credits of English as a Non-Native Language (ENL) courses may be applied to the degree.

Courses taken to meet minimum skills may not be applied to the degree.
All candidates for a degree must have a 2.0 grade point average (C average) or higher for courses applied to the degree. No more than 9 credits of 199 or 299 Special Topics courses, 6 credits of one-credit workshops, and 6 credits of physical education classes may be applied to the degree. No more than 24 credits of English as a Non-Native Language (ENL) courses may be applied to the degree. Courses taken to meet minimum skills may not be applied to the degree.

Basic Competencies
Degree candidates must demonstrate competency in basic mathematics and writing skills within 5 years before receiving their degree.

Competency in writing must be demonstrated by either:
1. Completing WR 121 with a grade of C or higher, or
2. Passing a course for which WR 121 is listed as a prerequisite.

Competency in mathematics must be demonstrated by either:
1. Completing MTH 65, MTH 63 or MTH 56 with a grade of C or higher, or
2. Passing the PCC competency exam for MTH 65, or
3. Passing MTH 95 or higher.

*Contact any campus testing center for more information.

Associate of General Studies Degree
The Associate of General Studies degree is designed for students wishing to acquire a broad education, rather than pursuing a specific college major or professional/technical program. College work may include courses selected from a variety of professional/technical and college transfer courses. Because of the flexibility of this degree, it may not fulfill requirements for transfer to a four-year institution. Students are responsible for checking with the college of their choice if transferability is desired.

Candidates for the Associate of General Studies degree must earn 90 credits that include the following:

**Writing**
All candidates must complete WR 121, and WR 122.

**General Education**
All candidates must complete 18 credits of General Education. These credits must come from courses taken in the following distribution areas:
1. Arts and Humanities
2. Social Sciences
3. Mathematics, Life and Physical Sciences

The 18 credits must include at least one course from each category and no more than 9 credits from any one category.

**Other Requirements**
All candidates for a degree must attend PCC for at least two terms and earn at least 30 credits at PCC.

The final 18 credits for the degree must include at least 9 credits earned at PCC.

Twenty-four of the credits earned at PCC must apply to the degree requirements.

All candidates for a degree must have a 2.0 grade point average (C average) or higher for courses applied to the degree. No more than 9 credits of 199 or 299 Special Topics courses, 6 credits of one-credit workshops, and 6 credits of physical education classes may be applied to the degree. No more than 24 credits of English as a Non-Native Language (ENL) courses may be applied to the degree. Courses taken to meet minimum skills may not be applied to the degree.

Basic Competencies
Degree candidates must demonstrate competency in basic mathematics and writing skills within 5 years before receiving their degree.

Competency in writing must be demonstrated by either:
1. Completing WR 121 with a grade of C or higher, or
2. Passing a course for which WR 121 is listed as a prerequisite.

Competency in mathematics must be demonstrated by either:
1. Completing MTH 65, MTH 63 or MTH 56 with a grade of C or higher, or
2. Passing the PCC competency exam for MTH 65, or
3. Passing MTH 95 or higher.

*Contact any campus testing center for more information.

Associate of Science Transfer Degree
The Associate of Science degree is designed for students planning to transfer credits to a baccalaureate degree program at four-year institutions of the Oregon State System of Higher Education. It allows more freedom in course selection than the Oregon Transfer Degree, but does not guarantee that students will be accepted as having completed all lower division comprehensive and General Education requirements for a baccalaureate degree.

The Associate of Science degree is awarded to students who meet the following requirements:

**Writing, Health and P.E.**
All candidates must complete 6 credits of writing composition. All candidates must complete 3 credits of personal health and 1 credit of physical education or HPE 295. A maximum of 3 credits in physical education will apply.

**General Education**
All candidates must complete 9 credits in each of the following General Education distribution areas:*  
**Arts and Letters:** art, foreign languages, journalism, literature, music, philosophy, speech, theater arts, writing, (excluding WR 121 and WR 122, the English Composition requirement).  
**Social Science:** anthropology, economics, geography, history, political science, psychology, and sociology.  
**Science/Mathematics:** biology, chemistry, computer science, general science, geology, math, physical science, and physics.*  

*One-credit workshops may not be used.
Other Requirements

In addition to the requirements in writing, personal health, PE, and General Education, candidates must earn additional credits to bring their total to at least 90 credits. In selecting these courses, students should see advisors at PCC and the institution to which they will transfer about the requirements of their baccalaureate major.

All candidates for a degree must attend PCC for at least two terms and earn at least 30 credits at PCC.

The final 18 credits for the degree must include at least 9 credits earned at PCC.

Twenty-four of the credits earned at PCC must apply to the degree requirements.

All candidates for a degree must have a 2.0 grade point average (C average) or higher for courses applied to the degree.

No more than 9 credits of 199 or 299 Special Topics courses may be applied to the degree.

No more than 24 credits of English as a Non-Native Language (ENL) courses may be applied to the degree.

One-credit workshops may not be applied to this degree.

Basic Competencies

Degree candidates must demonstrate competency in basic mathematics and writing skills within 5 years before receiving their degree.

Competency in writing must be demonstrated by either:
1. Completing WR 121 with a grade of C or higher, or
2. Passing a course for which WR 121 is listed as a prerequisite.

Competency in mathematics must be demonstrated by either:
1. Completing MTH 65, MTH 63 or MTH 56 with a grade of C or higher, or
2. Passing the PCC competency exam for MTH 65,* or
3. Passing MTH 95 or higher.

*Contact any campus testing center for more information.

General Education Course List

Arts and Humanities

ART 101, 102, 103 Introduction to Art
ART 115, 116, 117 Basic Design
ART 204, 205, 206 History of Western Art
ART 207, 208, 209 History of Asian Art
ART 211, 212, 213 Modern Art History
ART 231 Drawing
ART 237 Life Drawing
ART 253 Ceramics I
ART 256 Ceramics II
ART 277 Life Painting
ART 281 Painting
ART 284 Watercolor I
ART 287 Watercolor II
ART 293 Sculpture
ART 141 Intro to Photography (Non-darkroom)
ART 142 Intro to Photography (Darkroom)
ART 143 Photography II
ENG 104, 105, 106 Introduction to Literature
ENG 107, 108, 109 World Literature: Western
ENG 195, 196, 197 Film as Literature
ENG 201, 202, 203 Shakespeare
ENG 204, 205, 206 Survey of English Literature
ENG 207, 208, 209 World Literature: Asian
ENG 211 Contemporary African Literature
ENG 212 Biography
ENG 214 Literature of the Northwest
ENG 222 Images of Women in Literature
ENG 240 Introduction to Native American Literature
ENG 250 Introduction to Folklore and Mythology
ENG 253, 254, 255 Survey of American Literature
ENG 256 African-American Literature
ENG 260 Introduction to Women Writers
ENG 261 Literature of Science Fiction
ENG 265 International Political Poetry
ENG 275 Bible as Literature
ENL 150, 151, 250, 251, 252 English as a Non-Native Language
FR 101, 102, 103, 150, 151 First-Year French
FR 201, 202, 203, 205, 251 Second-Year French
FR 255, 256, 257 Accelerated French
FR 260A, 261A, 262A French: Culture
FR 270A, 271A, 272A Readings in French Literature
FR 290A, 291A, 292A French: Composition
GER 101, 102, 103, 150, 151 First-Year German
GER 201, 202, 203, 251 Second-Year German
GER 255, 256, 257 Accelerated German
GER 260A, 261A, 262A German: Culture
GER 270A, 271A, 272A Readings in German Literature
GER 290A, 291A, 292A German: Composition
ITP 101, 102, 103, 201, 202 American Sign Language
JPN 101, 102, 103, 150, 151 First-Year Japanese
JPN 201, 202, 203, 251 Second-Year Japanese
JPN 260A, 261A, 262A Japanese: Culture
MUS 105 Music Appreciation
MUS 106 Opera Appreciation
MUS 110 Fundamentals of Music
MUS 201A, 202, 203 Introduction to Music and Its Literature
MUS 205 Introduction to Jazz History
MUS 206 Introduction to the History of Rock Music
MUS 207 Introduction to the History of Folk Music
MUS 208, 209, 210 African-American Music
PHL 191 Lang & the Layout of Argument
PHL 193 Eval of Practical Argument
PHL 195 Crt Think: Sci & the Occult
PHL 197 TV & the Present of Reality
PHL 201, 202 Intro to Philosophy
PHL 204 Philosophy of Religion
PHL 205 Biomedical Ethics
PHL 208 Political Philosophy
PHL 209 Business Ethics
PHL 221 Symbolic Logic
PHL 222 Elementary Aesthetics
RUS 101, 102, 103, 150, 151 First-Year Russian
RUS 201, 202, 203, 251 Second-Year Russian
RUS 270A, 271A, 272A Readings in Russian Literature
SP 100 Introduction to Speech Communication
SP 111, 112, 113 Fundamentals of Speech
SP 140 Introduction to Intercultural Communication
Mathematics, Natural and Physical Sciences

- **BI 101, 102, 103** Biology
- **BI 121, 122** Human Anatomy and Physiology I, II
- **BI 141** Habitats: Life of the Forest
- **BI 142** Habitats: Fresh Water Biology
- **BI 143** Habitats: Marine Biology
- **BI 211, 212, 213** Principles of Biology
- **BI 222** Human Genetics
- **BI 231, 232, 233** Anatomy and Physiology I, II, III
- **BI 234** Microbiology
- **BI 201, 202, 203** Botany
- **CH 100** Fundamentals of Chemistry
- **CH 101** Inorganic Chemistry Principles
- **CH 102** Organic Chemistry Principles
- **CH 104, 105, 106, 201, 202, 203, 221, 222, 223** Gen. Chemistry
- **CH 241, 242, 243** Organic Chemistry
- **CIS 120, 121, 122** Software Design
- **CIS 251** Logical Structures
- **CIS 252** Computational Structures
- **G 201, 202** Physical Geology
- **G 203** Historical Geology
- **G 207** Introduction to Geology of the Pacific Northwest
- **G 208** Volcanoes and Their Activity
- **G 209** Elements of Rocks and Minerals
- **G 101** Survey of Astronomy
- **G 106** Physical Science (Geology)
- **G 107** Physical Science (Astronomy)
- **G 108** Physical Science (Oceanography)
- **G 109** Physical Science (Meteorology)
- **G 171** Environmental Science: Bio Perspectives
- **G 172** Environmental Science: Chem Perspectives
- **G 173** Environmental Science: Geo Perspectives
- **MTH 105** Investigation of Modern Mathematics
- **MTH 111** College Algebra
- **MTH 112** Elementary Functions
- **MTH 116** Calculus Preparation
- **MTH 211, 212, 213** Foundations of Elementary Math I, II, III
- **MTH 231** Elements of Discrete Mathematics I
- **MTH 241** Calculus for Management, Life and Social Science
- **MTH 243, 244** Statistics I, II
- **MTH 245** Mathematics for Management, Life and Social Sciences
- **MTH 251** Calculus I (Differential Calculus)
- **MTH 252** Calculus II (Integral Calculus)
- **MTH 253** Calculus III (Infinite Series and Sequences)
- **MTH 254** Vector Calculus (Intro to Vectors/ Multidimensional Calculus)
- **MTH 256** Differential Equations
- **MTH 261** Applied Linear Algebra I
- **PHY 101** Fundamentals of Physics
- **PHY 121, 122, 123** Fundamentals of General Astronomy
- **PHY 201, 202, 203, 211, 212, 213** General Physics

Social Science

- **ATH 101, 102, 103** General Anthropology
- **ATH 207, 208, 209** Cultural Anthropology
- **ATH 210** Selected Topics in Ethnography
- **ATH 211, 212, 213** Introduction to Field Archeology
- **ATH 214, 215, 216** Human Environments
- **ATH 230** Native Americans of Oregon
- **ATH 231** Native Americans of the Northwest
- **ATH 232** Native North Americans
- **EC 107** Outlines of Economics
- **EC 200, 201, 202, 203** Principles of Economics
- **EC 216** Introduction to Labor Economics
- **EC 226** Child Development
- **HST 101, 102, 103** Western Civilization
- **HST 104, 105, 106** History of Eastern Civilization
- **HST 201, 202, 203** History of the United States
- **HST 204, 205** History of Women in the US
- **HST 218** Native American History
- **HST 220** Labor History
- **HST 225** History of Women, Sex and the Family
- **HST 240** Oregon's Social History
- **HST 245, 247** Religion in the United States
- **HST 274, 275, 276** Afro-American History
- **HST 277** Oregon Trail
- **HST 240** Oregon's Social History
- **PS 201, 202** American Governments
- **PS 203** State and Local Government
- **PS 205** International Relations
- **PS 211** Peace and Conflict
- **PS 220** American Foreign Policy and World Order
- **PS 225** Political Ideology
- **PSY 101** Psychology of Human Relations
- **PSY 201, 202, 203** General Psychology
- **PSY 212** Human Sexuality
- **PSY 213** Brain, Mind and Behavior
- **PSY 214** Introduction to Personality
- **PSY 215** Human Development
- **PSY 216** Social Psychology
- **PSY 220** Psychology: Applied
- **PSY 231, 232** Human Sexuality
- **PSY 239** Introduction to Abnormal Psychology
- **PSY 240** Interpersonal Awareness and Growth Techniques
- **SOC 204, 205, 206** General Sociology
- **SOC 218** Sociology of Gender
- **SOC 232** Death and Dying
- **SOC 240** Sociology of Work and Leisure
## Associate of Arts, Oregon Transfer Degree Worksheet

The Oregon Transfer Degree is an opportunity for students to complete lower division (freshman and sophomore) degree requirements at PCC. Students who complete this degree and are accepted at Oregon public universities and colleges will be admitted as having completed all lower division comprehensive and General Education requirements for a baccalaureate degree.

In addition to satisfying the General and Basic Competency Requirements on page 18, candidates for an Associate of Arts, Oregon Transfer Degree must complete the following:

Distribution courses must total 17 courses, with a maximum of 6 courses in any single distribution area. See lists starting on page 15.

### ARTS AND LETTERS Distribution Area
Complete one 3-course sequence from the Arts and Letters Distribution Area, List A courses.

<table>
<thead>
<tr>
<th>Course Sequence</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st course in sequence</td>
<td></td>
</tr>
<tr>
<td>2nd course in same sequence</td>
<td></td>
</tr>
<tr>
<td>3rd course in same sequence</td>
<td></td>
</tr>
</tbody>
</table>

Complete additional Arts and Letters courses from either List A or List B (those courses with a prefix different from the Arts and Letters Sequence selected).

<table>
<thead>
<tr>
<th>Course Sequence</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Arts and Letters Courses**

### SOCIAL SCIENCE Distribution Area
Complete one 3-course sequence from the Social Science Distribution Area, List A courses.

<table>
<thead>
<tr>
<th>Course Sequence</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st course in sequence</td>
<td></td>
</tr>
<tr>
<td>2nd course in same sequence</td>
<td></td>
</tr>
<tr>
<td>3rd course in same sequence</td>
<td></td>
</tr>
</tbody>
</table>

Complete additional Social Science courses from either List A or List B (those courses with a prefix different from the Social Science Sequence selected).

<table>
<thead>
<tr>
<th>Course Sequence</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Social Science Courses**

### SCIENCE AND MATH Distribution Area
Complete one 3-course sequence from the Science and Math Distribution Area, List A courses.

<table>
<thead>
<tr>
<th>Course Sequence</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st course in sequence</td>
<td></td>
</tr>
<tr>
<td>2nd course in same sequence</td>
<td></td>
</tr>
<tr>
<td>3rd course in same sequence</td>
<td></td>
</tr>
</tbody>
</table>

Complete additional Science and Math courses from either List A or List B (those courses with a prefix different from the Science and Math Sequence selected).

<table>
<thead>
<tr>
<th>Course Sequence</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

**Total Science and Math Courses**

In addition to the distribution area requirements, students must complete the following courses with a grade of "C" or higher:

### Writing (9 credits total)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR 121</td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other (Liberal Arts Majors: WR 122, WR 123 or WR 216) (Business-Related Majors: WR 122, WR 214) (Math/Science/Technical Majors: WR 122 or WR 214 and WR 227)

**Total Writing Credits**

### HPE 295 (3 credits total)

**Total HPE Credits**

### MTH 105, or MTH 111, or above (4 credits total or 6 credits of MTH 211, 212, or 213. Apply to List B for the Science and Math area.)

### Speech 111, or 112, or 113 (3 credits total. Apply to List B for the Arts and Letters distribution requirement.)

### Cultural Diversity—any class marked with * (3 credits total. Apply to List A or B distribution requirements for the Arts and Letters or Social Science areas.)

### Electives to bring total credits to 90:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Elective Credits**

**90 TOTAL CREDITS**
Associate of Arts, Oregon Transfer Degree

The Oregon Transfer Degree is an opportunity for students to complete lower division (freshman and sophomore) degree requirements at PCC. Students who complete this degree and are accepted at Oregon public universities and colleges will be admitted as having completed all lower division comprehensive and General Education requirements for a baccalaureate degree. Students should see advisors at PCC and the institution to which they will transfer about the requirements of their major.

In addition to satisfying the following requirements, candidates for an Associate of Arts, Oregon Transfer Degree must complete the requirements listed on the Associate of Arts, Oregon Transfer Degree Worksheet on page 17.

General Requirements
All candidates must earn at least 90 total credits.
All candidates for a degree must attend PCC for at least two terms and earn at least 30 credits at PCC.
The final 18 credits for the degree must include at least 9 credits earned at PCC.
Twenty-four of the credits earned at PCC must apply to the degree requirements.
All candidates for a degree must have a 2.0 grade point average (C average) or higher for courses applied to the degree.
No more than 24 credits taken on a pass/no pass basis may be applied to the distribution requirements.
No more than 24 credits of English as a Non-Native Language (ENL) courses may be applied to the degree.
No more than 9 credits of 199 or 299 Special Topics courses may be applied to the degree.
A maximum of 3 credits of physical education courses may be used as electives.
One-credit workshops may not be applied to this degree.

Basic Competencies
Degree candidates must demonstrate competency in basic mathematics and writing skills within 5 years before receiving their degree.
Competency in writing must be demonstrated by either:
1. Completing WR 121 with a grade of C or higher, or
2. Passing a course for which WR 121 is listed as a prerequisite.
Competency in mathematics must be demonstrated by either:
1. Completing MTH 65, MTH 63 or MTH 56 with a grade of C or higher, or
2. Passing the PCC competency exam for MTH 65, or
3. Passing MTH 95 or higher.
*Contact any campus testing center for more information.

Oregon Transfer Degree Distribution Lists

 Candidates for the Associate of Arts, Oregon Transfer Degree must select distribution courses from the following lists. Courses marked * will satisfy the diversity requirement.

Arts and Letters
Art
List A Courses
ART 101, 102, 103 Introduction to Art
ART 142 Intro to Photography (Darkroom)
ART 143 Photography II
ART 204, 205, 206 History of Western Art
ART 207*, 208*, 209* History of Asian Art
ART 211, 212, 213 Modern Art History
List B Courses
ART 115, 116, 117 Basic Design
ART 141 Intro to Photography (Non-darkroom)
ART 231 Drawing
ART 237 Life Drawing
ART 253 Ceramics I
ART 256 Ceramics II
ART 277 Life Painting
ART 281 Painting
ART 284 Watercolor I
ART 287 Watercolor II
ART 293 Sculpture
Dance
List A Courses
D 150, 151, 152 Jazz Dance I, II, III
D 169 Musical Theater Dance
D 192A, 192B, 292 Ballet I, II, III
Modern Languages
List A Courses
ENL 250, 251 English as a Non-Native Language
FR 201, 202, 203 Second-Year French
FR 250, 251 Second-Year French
FR 256, 257 Accelerated French
FR 260A, 261A, 262A French: Culture
FR 270A, 271A*, 272A* Readings in French Literature
GER 201, 202, 203 Second-Year German
GER 250, 251 Second-Year German
GER 256, 257 Accelerated German
GER 260A, 261A, 262A German: Culture
GER 270A, 271A, 272A Readings in German Literature
JPN 201, 202, 203 Second-Year Japanese
JPN 250, 251 Second-Year Japanese
JPN 260A*, 261A*, 262A* Japanese: Culture
RUS 201, 202, 203 Second-Year Russian
RUS 250, 251 Second-Year Russian
RUS 270A, 271A, 272A Readings in Russian Literature
SPA 201, 202, 203 Second-Year Spanish
SPA 250, 251 Second-Year Spanish
SPA 260A*, 261A*, 262A Spanish: Culture
SPA 270A*, 271A*, 272A Readings in Spanish Literature
### Literature

**List A Courses**
- ENG 104, 105, 106 Introduction to Literature
- ENG 107, 108, 109 World Literature: Western
- ENG 195, 196, 197 Film as Literature
- ENG 201, 202, 203 Shakespeare
- ENG 204, 205, 206 Survey of English Literature
- ENG 207*, 208*, 209* World Literature: Asian
- ENG 253, 254, 255 Survey of American Literature

Three terms chosen from:
- ENG 211* Contemporary African Literature
- ENG 222* Images of Women in Literature
- ENG 240* Introduction to Native American Literature
- ENG 250* Introduction to Folklore and Mythology
- ENG 256* African-American Literature
- ENG 260* Introduction to Women Writers
- ENG 265* International Political Poetry

**List B Courses**
- ENG 212 Biography
- ENG 261 Literature of Science Fiction
- ENG 275 Bible as Literature

### Music

**List A Courses**
- MUS 201A, 202, 203 Introduction to Music and Its Literature
- MUS 205*, 206, 207 Introduction to Jazz History, History of Rock Music, History of Folk Music
- MUS 208*, 209*, 210* African-American Music

**List B Courses**
- MUS 105 Music Appreciation
- MUS 106 Opera Appreciation
- MUS 110 Fundamentals of Music
- MUS 131 Group Vocal
- MUS 220 Chorus
- MUS 221 Chorus: Chamber Choir

### Philosophy

**List A Courses**
- PHL 191 Lang & the Layout of Argument, PHL 193 Eval of Practical Argument, and PHL 195 Crt Think: Sci & the Occult or PHL 197 TV & the Present of Reality
- PHL 201, 202 Introduction to Philosophy and either:
  - PHL 204 Philosophy of Religion or
  - PHL 209 Business Ethics or
  - PHL 222 Elementary Aesthetics

**List B Courses**
- PHL 205 Biomedical Ethics
- PHL 208 Political Philosophy
- PHL 209 Business Ethics
- PHL 221 Symbolic Logic

### Speech

**List B Courses**
- SP 100 Introduction to Speech Communication
- SP 105 Listening
- SP 111, 112, 113 Fundamentals of Speech
- SP 130 Business and Professional Speech
- SP 140* Introduction to Intercultural Communication
- SP 215 Small Group Communications
- SP 217 Persuasion
- SP 229 Oral Interpretation

### Theater Arts

**List B Courses**
- TA 101 Theater Appreciation
- TA 141, 142, 143 Fundamentals of Acting Technique
- TA 144 Improvisational Theater
- TA 148 Movement for the Stage
- TA 155 Readers Theater
- TA 180A, 253A Theater Rehearsal and Performance
- TA 190A, 290A Projects in Theater
- TA 240 Beginning Pantomime
- TA 241, 242, 243 Intermediate Acting Technique

### Writing

**List B Courses**
- WR 241, 242, 243 Creative Writing
- WR 244, 245, 246 Creative Writing

### Social Science

#### Anthropology

**List A Courses**
- ATH 101, 102, 103 General Anthropology
- ATH 207, 208, 209 Cultural Anthropology
- ATH 214 Human Environments: Ecological Aspects
- ATH 215 Human Environments: Energy Consideration
- ATH 216 Human Environments: Productivity
- ATH 230*, Native Americans of Oregon, ATH 231*, Native Americans of the Northwest, and ATH 232*, Native North Americans

**List B Courses**
- ATH 210* Selected Topics in Ethnography
- ATH 211, 212, 213 Introduction to Field Archaeology

#### Economics

**List A Courses**
- EC 201 Principles of Economics: Microeconomics
- EC 202 Principles of Economics: Macroeconomics

**List B Courses**
- EC 203 Economic Issues

#### Geography

**List A Courses**
- GEO 105, 106, 107 Introduction to Human Cultural Geography

**List B Courses**
- GEO 206 Geography of Oregon
- GEO 208, 209 Physical Geography
- GEO 214* Geography of Mexico
- GEO 221 Field Geography
- GEO 290 Environmental Problems

#### History

**List A Courses**
- HST 101, 102, 103 Western Civilization
- HST 104*, 105*, 106* History of Eastern Civilization
- HST 201, 202, 203 History of the United States
- HST 274*, 275*, 276* Afro-American History

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List B Courses
- HST 204*, 205* History of Women in the U.S.
- HST 218* Native American History
- HST 220 Labor History
- HST 225* History of Women, Sex and the Family
- HST 240 Oregon’s Social History
- HST 246, 247 Religion in the United States
- HST 277 Oregon Trail

Political Science
List A Courses
- PS 201, 202 American Governments
- PS 203 State and Local Government
List B Courses
- PS 205 International Relations
- PS 211 Peace and Conflict
- PS 220 American Foreign Policy and World Order
- PS 225 Political Ideology

Psychology
List A Courses
- PSY 201, 202, 203 General Psychology
- PSY 201A*, 202A*, 203A* General Psychology: Gender Perspectives
List B Courses
- PSY 101 Psychology and Human Relations
- PSY 213 Brain, Mind & Behavior
- PSY 214 Introduction to Personality
- PSY 215 Human Development
- PSY 216 Social Psychology
- PSY 220 Psychology: Applied
- PSY 231, 232 Human Sexuality
- PSY 239 Introduction to Abnormal Psychology
- PSY 240 Interpersonal Awareness and Growth Techniques

Sociology
List A Courses
- SOC 204, 205, 206 General Sociology
List B Courses
- SOC 218* Sociology of Gender
- SOC 232 Death and Dying
- SOC 240 Sociology of Work and Leisure

Science and Mathematics

Biology
List A Courses
- BI 101, 102, 103 Biology
- BI 141, 142, 143 Habitats
- BI 211, 212, 213 Principles of Biology
List B Courses
- BI 222 Human Genetics
- BI 231, 232, 233 Anatomy and Physiology I, II, III
- BI 234 Microbiology
- BI 235 Microbiology

Chemistry
List A Courses
- CH 104, 105, 106 General Chemistry
- CH 201, 202, 203 General Chemistry
- CH 221, 222, 223 General Chemistry

Computer Science
List B Courses
- CIS 120, 121 Computer Concepts I, II
- CIS 122 Software Design
- CS 250 Discrete Structures
- CS 251 Logical Structures
- CS 161, 162 Computer Science: Pascal I, II
- CS 171, 264 Assembler Language I, II

Geology
List A Courses
- G 201, 202 Physical Geology and G 203 Historical Geology
List B Courses
- G 207 Introduction to Geology of the Pacific Northwest
- G 208 Volcanoes and their Activity
- G 291 Elements of Rocks and Minerals

General Science
List A Courses
Three of the following courses:
- GS 106 Physical Science (Geology)
- GS 107 Physical Science (Astronomy)
- GS 108 Physical Science (Oceanography)
- GS 109 Physical Science (Meteorology)
- GS 171 Environmental Science: Bio Perspectives, GS 172 Environmental Science: Chem Perspectives, GS 173 Environmental Science: Geo Perspectives

Mathematics
List B Courses
- MTH 105 Investigation of Modern Math
- MTH 111 College Algebra
- MTH 112 Elementary Functions
- MTH 116 Calculus Preparation
- MTH 211, 212, 213 Foundations of Elementary Math I, II, III
- MTH 231 Elements of Discrete Mathematics I
- MTH 241 Calculus for Management, Life and Social Science
- MTH 243, 244 Statistics I, II
- MTH 245 Mathematics for Management, Life and Social Science
- MTH 251 Calculus I (Differential Calculus)
- MTH 252 Calculus II (Integral Calculus)
- MTH 253 Calculus III (Infinite Series and Sequences)
- MTH 256 Differential Equations
- MTH 261 Applied Linear Algebra I

Physics
List A Courses
- PHY 121, 122, 123 Elementary Astronomy
- PHY 201, 202, 203 General Physics
- PHY 211, 212, 213 General Physics
List B Courses
- PHY 101 Fundamentals of Physics
Continuing Education Units

Portland Community College works with professional associations and individual employers to offer job-related classes where students may earn Continuing Education Units (CEUs). One CEU is defined as 10 contact hours of participation in an organized continuing education experience under qualified instruction. Contact the instructional department in your area of interest for more information.

Classes awarding CEUs may not be paid for with Financial Aid money and do not count toward the credit hour eligibility requirement for Financial Aid. CEUs may not be applied toward any PCC degree or certificate.

Grading Guidelines

Graded System

The traditional graded system uses A, B, C, D, and F, as defined under “Grade Definitions.” Degree or certificate requirements may designate certain courses as pass/no pass only.

Pass/No Pass System

To take a class on a pass/no pass basis, students must make arrangements with the instructor during the first 3 weeks of class. A pass grade does not satisfy the prerequisite of C or better required for entry into some courses — the English Composition sequence, for example. Transfer students should be aware that four-year institutions limit the number of pass/no pass credits that may be applied to a degree. Degree or certificate requirements may prohibit taking certain courses on a pass/no pass basis.

Attendance

Students who do not attend the first class meeting may not be allowed to continue in the class. Students are expected to attend all class meetings of the courses in which they are enrolled, and repeated absences may affect a student’s grade. Students must officially withdraw from a class when they stop attending and observe withdrawal deadlines. If a student has excessive absences and fails to withdraw by the deadline, a grade of F may be assigned.

Grade Definitions

A Superior. Honor grade indicating excellence. Earned as a result of a combination of some or all of the following as outlined by the instructor in the course handout: superior examination scores, consistently accurate and prompt completion of assignments, ability to deal resourcefully with abstract ideas, superior mastery of pertinent skills, and excellent attendance. Probable success in a field relating to the subject or probable continued success in sequential courses.

B Above average. Honor grade indicating competence. Earned as a result of a combination of some or all of the following as outlined by the instructor in the course handout: high examination scores, accurate and prompt completion of assignments, ability to deal well with abstract ideas, commendable mastery of pertinent skills, and excellent attendance. Probable continued success in sequential courses.

C Average. Standard college grade indicating successful performance earned as a result of a combination of some or all of the following: low examination scores, generally accurate, incomplete or late assignments, inadequate grasp of abstract ideas, barely acceptable mastery of pertinent skills, irregular attendance, insufficient evidence of ability to make advisable the enrollment in sequential courses. Does not satisfy requirements for entry into courses where prerequisites are specified.

D Substandard but receiving credit. Substandard grade indicating failure to meet minimum requirements as defined by the instructor in the course handout. Earned as a result of some or all of the following: low examination scores, generally inaccurate, incomplete or late assignments, failure to cope with abstract ideas, inadequate mastery of pertinent skills, repeated absence from class. Does not satisfy requirements for entry into courses where prerequisites are specified.

P Pass. Acceptable performance. A grade of P represents satisfactory achievement which would have been graded C or better on the regular grading scale. This option requires instructor permission during the first three weeks of class, unless the class is only offered on a pass/no pass basis.

NP No pass. Unacceptable performance under the pass/no pass grading system. Does not satisfy requirements for entry into courses where prerequisites are specified.

Mark Definitions

SC Satisfactory completion. Mark used when a student satisfactorily completes Continuing Education Units (CEUs).

NSC Not satisfactory completion. Mark used when a student does not satisfactorily complete Continuing Education Units (CEUs).

I Incomplete. When the quality of work is satisfactory, but some minor, yet essential, requirement of the course has not been completed; and for reasons acceptable to the instructor, a report of I may be made and additional time granted for completion of the work. If the course is not completed within a year, the I becomes permanent on the transcript unless the course is repeated and a grade earned. The conditions for completion of work should be

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stated in writing, signed by the instructor and the student, and kept on file in the department or program office. An I may not be assigned as a withdrawal. An I does not entitle a student to repeat a course without paying tuition. It may be impossible to receive an I in some courses where, for example, equipment usage is required.

W Withdrawal. This mark is to be used only by the student records office when the student has followed established school procedures for properly withdrawing from class within the specified time limits.

X Insufficient basis for grade. This mark is used only when the instructor judges there is insufficient basis for a grade.

CIP Course in progress. A mark used only for designated classes in modular programs or in self-paced programs that do not conform to the normal academic calendar. If the course is not completed within a year, the CIP becomes permanent on the transcript unless the course is repeated and a grade earned.

R Repeated courses. Courses with grades of D, F, NP, I, or CIP may be repeated for a higher grade. All grades earned will appear on the transcript. However, when a course is repeated, the first grade will be flagged and no longer included in the GPA calculation or accumulated number of credits. The first earned grade of C, P, or better will count into the GPA calculation and the accumulated credit total.

AUD Audit. Some courses may allow students to attend a course without receiving a grade or credit for the course. Tuition must be paid, and instructor permission must be obtained during the first three weeks of class. Instructors are expected to state on their course handouts any specific audit requirements. Does not satisfy requirements for entry into courses where prerequisites are specified.

Computing Grade Point Averages
Grade points are computed on the basis of 4 points for each credit of A, 3 points for each credit of B, 2 points for each credit of C, 1 point for each credit of D, and 0 points for each credit of F. Grades of P and NP and marks of SC, NSC, I, W, X, CIP, R, and AUD are disregarded in the computation of the grade point average. The grade point average is the quotient of total points divided by total credits in which A, B, C, D, and F are received.

Grade Changes
If a student feels that there has been a mistake in a grade, the instructor should be contacted immediately. If a grade dispute cannot be resolved with the instructor, the student may follow the student grievance procedure within one year after receiving a grade. Note that requests for grade changes after one year following receipt of a grade will not be considered unless the instructor who issued the grade agrees to such consideration.

Honors

Honor Roll
The College will recognize academic excellence in students who have earned a 3.25 or higher GPA on a minimum of 6 graded credits, excluding pass/no pass, in a given term. The following honors will be awarded:

- Honor’s List: 3.25 - 3.49
- Dean’s List: 3.50 - 3.74
- President’s List: 3.75 - 4.00

Highest Honors: 3.75 - 4.00 cumulative average awarded upon graduation.

Phi Theta Kappa
Phi Theta Kappa is an honorary society designed for students in two-year colleges who have established a 3.50 or higher grade point average. Membership forms are available through the Associated Students of Portland Community College (ASPCC).

Non-Traditional Credit
In all cases of non-traditional credit, a student must have an established PCC transcript before the credit can be recorded. The following non-traditional credit procedures are available with departmental approval. ($10 charge)

Formal Course Work at Non-Accredited Institutions
Credit may be granted for course work completed at training sites other than those listed in the “Transfer Credit Practices Directory” published by the American Association of collegiate Registrars and Admissions Officers. Examples include hospitals, banks, corporations, business schools, etc. Students must furnish detailed training records, course outlines and, whenever possible, transcripts. Individual departments will evaluate and assign PCC equivalencies. A maximum of 45 credit hours can be assigned through this process. Only those subject areas taught by PCC will be considered. Contact the Graduation Office for details.

Military Service Credit
PCC equivalencies can be granted for formal military courses after careful evaluation of transcripts, records and information provided in the “Guide to the Educational experiences in the Armed Services. Block credit is not granted and only the subject areas taught by PCC will be considered. Contact the Graduation Office for details.

Military Service Physical Education Credit
Two (2) hours of credit can be granted for military training. A copy of the DD 214 is required. Applications should be made on the non-traditional credit form and be approved by the Graduation Office.
College Level Entrance Examination Program (CLEP)

Students enrolled at PCC may receive credit from certain college courses by submitting official scores from the college Level Entrance Examination Program (CLEP). School policies currently allow credits to be granted based on scores of 500 and above for humanities, social sciences and natural sciences general exams. Minimum scores of 50 are accepted on certain subject area exams. CLEP credit is not given for English, or foreign languages. Credits earned in this manner will be recorded on the student’s transcript and will count toward graduation. Application is made on the non-traditional credit form and processed through the Graduation Office.

Course Challenge

Some courses offered at Portland Community College may be challenged. This allows a student to receive credit by taking a specialized examination. Students who wish to challenge a course must accept the following conditions:

1. Have an established PCC transcript before challenge credits will be recorded.
2. Receive permission from the instructor or department chairperson. If currently enrolled in the course, the challenge must be requested within the first three weeks, and formal withdrawal completed no later than the end of the third week.
3. Challenged credit hours will not be used to meet the residency requirement.
4. May not challenge a course on which a letter grade (A, B, C, D, F) or (W, NP, INC, NP, P0 or an X has been received.
5. Complete the challenge petition form furnished by the Business Office and pay the $10 non-refundable deposit fee.
6. Complete the examination. Student may challenge the same course only once.
7. Complete the challenge within two consecutive terms. If the challenge is successful, return the challenge petition to the Business Office and pay the course tuition rate in effect at the time of testing, less the initial $10 fee. Fees for a challenge are in addition to any tuition already paid for other courses.
8. If the challenge is unsuccessful, the $10 deposit fee is forfeited.

PCC Credit for High School Courses

Through the Portland Area Vocational/Technical Education Consortium, PAVTEC, high school juniors and seniors may earn PCC credits while they are enrolled in high school for a $15 annual charge. Students who take high school courses equivalent to PCC courses may qualify for PCC credits in the following professional/technical areas:

- Auto Collision Repair
- Automotive Service Technology
- Aviation Maintenance Technology
- Building Construction Technology
- Business
- Customer Service Technology
- Diesel Service Mechanics
- Drafting
- Early Childhood Education
- Electronic Engineering Technology
- Industrial Occupations
- Landscape Technology
- Machine Manufacturing Technology
- Medical Terminology
- Printing Technology
- Software Engineering Technology
- Welding

During the last two years of high school, juniors and seniors may choose a major course of study in one of the Tech-Prep/Associate Degree programs. These programs are linked to two-year associate degree programs at PCC. High school students should consult their high school counselors and professional/technical instructors for further information.

Standards for Student Progress

Portland Community College is open to any citizen of the PCC district who can benefit from the instruction offered. Students who are not making satisfactory progress will be provided with counseling, advising, and instruction which will be aimed at maximizing opportunities for students to benefit from their learning experience at PCC.

Any individual may be denied admission or continued admission if the appropriate college procedure indicates that the individual cannot benefit from the instruction desired. The procedure may be based on, but is not limited to, an evaluation of educational experiences, work history or appropriate testing.

Student Records

Confidentiality

The PCC district follows all applicable state and federal laws, rules and regulations that apply to student records. All information contained in the office of Student Records that is personally identifiable to any student will be kept confidential and will not be released, except upon prior written consent of the student or other order of a court of competent jurisdiction.

Portland Community College may publish “directory information” as a part of the operation of college departments without the student’s written consent. Such information may include name, address, class standing, date of attendance, major, date, and degrees and awards received.

A student may direct in writing that such directory information be kept confidential. This option may be exercised by filing a written, dated and signed request at any PCC registration office. A student may be denied admission or continued admission if the appropriate college procedure indicates that the individual cannot benefit from the instruction offered. The procedure may be based on, but is not limited to, an evaluation of educational experiences, work history or appropriate testing.

Student Progress

The right to inspect the educational records of the student and to obtain a copy upon request.

2. The right to challenge the accuracy of the records if they are believed to be misleading or to violate privacy or other rights of the student.
3. Except as may be provided by law, the right to prevent the release of any or all information from the records to any other party. The college will not send transcripts or copies of other educational records to any other school, prospective employer or other person without written request of the student.

**Transcripts**

To obtain a transcript of classes completed at PCC, students must complete a Transcript Request form in the Business Office at one of the college centers, or mail a letter which includes their social security number. There is a $3.00 fee per copy.

**Withholding Transcripts**

If a student owes money to the college for any reason (tuition, fines, etc.) the college will hold the student's transcript until payment is made in full.

All records submitted, filed and accumulated in the office of Student Records become the property of the College.

**Student Rights and Responsibilities**

The mission of Portland Community College as a comprehensive community college is to provide educational opportunities for a wide variety of individual and community needs. The rules and regulations of the college exist in order to provide an atmosphere that supports and fosters this mission. The college expects students to conduct themselves responsibly and in ways that reflect consideration and respect for the rights of others. PCC may take appropriate disciplinary actions when student conduct materially and substantially interferes with the operation of the college.

Every student has a right to conditions which allow pursuit of education. The right to academic freedom includes freedom of speech, freedom of expression and freedom of association. Students have rights to study, to have a safe and healthy environment, and to redress for grievances, including due process and appeal. Further, students have the right to privacy which is protected by the Family Educational Rights and Privacy Act. These rights, as well as rights to access of student records, campus rules and regulations, and grievance and disciplinary procedures are included in the "Code of Student Conduct" handbook, available at ASPCC offices and the Student Affairs office on each campus.

**Grievance Procedure**

Any student or group of students with a grievance concerning school policy, personnel or facilities has the right to be heard promptly. Grievance procedures should start with the instructor or department chairperson. Copies of the grievance procedures are available from ASPCC offices or executive deans.
PROGRAMS, SERVICES AND ACTIVITIES

Special Programs

Adult Basic Education (ABE)
Southeast Center A9, 244-6111, ext. 6911
ABE is a free program in basic skills for students whose abilities range from non-literate to the eighth grade level. Development of reading skills is emphasized, although arithmetic skills, life skills and other basic skills are included.

Air Force ROTC Program
In cooperation with the University of Portland, Portland Community College students may participate in the Air Force Reserve Officer Training Corps (Air Force ROTC) offered on the University of Portland campus. Administered by the Aerospace Studies faculty at the University of Portland, the program selects and trains students to serve as officers in the United States Air Force. It offers to men and women a two- and four-year program, both leading to an Air Force commission. Scholarships are available on a competitive basis for those who qualify. For more information, see the Aerospace Studies, University of Portland, 283-7216.

Apprenticeship Training
Ross Island Center C9, 244-6111, ext. 2817
Develop a marketable job skill in an area not normally addressed by on-campus programs through on-the-job training. Students receive no wages for the time spent in training and do not replace regular employees. This program is approved for state worker's compensation clients and disabled veterans.

Community Education
Ross Island Center B8, 244-6111, ext. 2586
At Portland Community College, education doesn't begin or end with the certificate or degree programs. PCC's Community Education programs provide non-credit and career enhancement classes to communities within the PCC district. Community Education classes are primarily designed for adults and are offered during the evening or on weekends. They are also designed for the communities in which they are offered. Courses range from special art workshops to karate, small business classes, professional development seminars and workshops. Community Education offers both traditional and non-traditional classes in Hillsboro, Tigard, Vernonia, Forest Grove, Scappoose, St. Helens, Newberg, Sherwood, Beaverton, Lake Oswego and Tualatin, in addition to PCC campuses and centers. These courses and offerings are designed to meet the needs of students who would otherwise have to travel great distances to take advantage of classes at a particular campus.

Dislocated Workers Project
4510 N.E. 102nd Avenue (252-0758)
The Dislocated Workers Project offers a comprehensive range of services, including outreach and recruitment prior to plant closure, orientation and skills assessment, job search instruction, job placement assistance, career and educational counseling, job development, occupational retraining and referral to social services. This project is offered in cooperation with Mt. Hood Community College.

English as a Second Language (ESL)
Southeast Center A9, 244-6111, ext. 6911
The ESL program offers free classes for persons whose native language is not English. Reading, writing, conversation and American culture are stressed.

Family Resource Center
Rock Creek Campus, 1900 N.E. 122nd Avenue (252-0758)
The Family Resource Center offers information and referral services for child care, community services and campus student services. The Center also sponsors workshops on issues related to students and family. The Center is open to all students Monday through Friday from 8 a.m. to 5 p.m. Students are encouraged to drop in for information or relax in the lounge area with materials from the resource library.

General Education Development (GED)
Southeast Center A9, 244-6111, ext. 6911
GED preparation is a free course in high school level skills needed for the GED test. Reading, mathematics, science and social studies are covered. The writing skills test covers both grammar and essay writing. General Education Development (GED) tests are also offered through PCC. See the GED Office for testing times and appointments. Persons passing the five GED tests earn a Certificate of Equivalency from the Oregon Board of Education, which indicates a level of educational development equivalent to that of a high school graduate.

Government Contracts Acquisition Program (GCAP)
123 N.W. 2nd, Suite 400, Portland, 222-4191
GCAP assists small businesses to secure government contracts. GCAP is a procurement technical assistance center providing information on government bid opportunities, procurement technical assistance material, military and federal specifications.

Institute for Continuing Education
Of Health Care Professionals
Ross Island Center C13, 244-6111, ext. 2596
The Institute gives health care practitioners opportunities for professional growth by sponsoring (or co-sponsoring) workshops and seminars on a variety of topics. Programs are held on and off PCC campuses as needed. The Institute's services include curriculum development, instructional design, program evaluation, help with faculty selection, marketing and promotion, participant registration and other support services.
Customized Workforce Training
Ross Island Center B9, 244-6111, ext. 2821
The Customized Workforce Training department provides customized training and specialty services to business, industry, labor, government, and a variety of associations. The department develops contracts with clients for assessment, training, workshops, and support services (i.e., counseling, advising, testing, and tutoring). In addition, the department helps develop seminars and conferences for targeted professional groups. The individuals and companies served by these programs are an important group of new students who want and need access to education and training not found in traditional college offerings.

Institute for Management And Professional Development
Ross Island Center C 12, 244-6111, ext. 2818
Management training in both customized workshop and traditional classroom formats, is offered by PCC's Institute for Management and Professional Development. Modular training programs are structured to serve organizations of all sizes in business, industry, labor and government. Currently practicing business managers and consultants provide the training, emphasizing participatory, "hands-on" activities.

International Education
PCC recognizes the importance of international education at the community college level. Programs are designed to educate citizens to appreciate the economic, political and cultural implications of international cooperation. All departments encourage increased awareness and understanding of world affairs and world cultures which can enrich career opportunities and help students expand their world view beyond the United States and realize their responsibilities to a diverse and interdependent world.

International Studies Certificate
PCC offers a certificate in International Studies. It is designed for PCC students, community leaders and representatives of business and industry who are interested in current questions of foreign policy, relations among nations, international resources, and international trade. Consult this catalog's "International Studies" section and counselors for details.

International Cooperative Education
The International Cooperative Education program offers work opportunities in several countries. Students earn academic credit for this experience. Employment is usually for eight weeks, extending from the middle of June to the end of August. A student's monthly stipend depends on the position and country, but may range from no stipend (with free room and board) to a generous stipend (with no prearranged room and board). Contact the college International Cooperative Education Coordinator for more information at 244-6111, ext. 4559.

International Student Exchange
Portland Community College has a sister college relationship with Nagasaki Wesleyan and Yamada Gakuen Junior Colleges in Japan, which affords one to three students from each institution an exchange opportunity for one year. PCC students pay tuition to and receive credit from PCC in Japanese language and culture. Previous Japanese language is not a prerequisite; however, it is strongly recommended. More information may be obtained from the program coordinator, Office of Cooperative Education, at 244-6111, ext. 4560, or from the Office of International Education at 244-6111, ext. 2567.

International Activities
International Students are valued for the cultural enrichment they contribute to the classroom and to the college environment. Each term over 400 students from 67 countries enroll. A foreign student academic advisor and a foreign student admissions specialist are part of the network of support services for international students. Information can be obtained from the International Student Admissions Office.

Other International Programs
For additional programs related to international education, see English as a Second Language, Modern Languages and World Trade and Transportation.

Lintner Center for Advanced Education
19500 N.W. Gibbs Drive, Suite 150, Beaverton 690-1463
The Lintner Center is an educational consortium connecting the technical industries in Washington County with key educational institutions. The center represents PCC, Portland State University, the Oregon Institute of Technology, Oregon State University and the University of Oregon.
Named after Paul Lintner, former president of Electro-Scientific Industries, Inc., the Center is a collaborative effort between business and higher education to provide responsive, academically sound programs for the place-bound worker.

Microcomputer Training Program
Southeast Center B6, 244-6111, ext. 6203
The Microcomputer Training Program's offerings range from basic computer literacy to advanced instruction in complex, specialized software applications, using both traditional classroom formats (listed in the Schedule of Classes) and specially contracted, customized workshops. A travelling van carries 15 PC's to deliver on-site training, and a computer lab is located at the college's Southeast Center.

PAVTEC
Ross Island Center B5, 244-6111, ext. 2576
PAVTEC is a consortium of education, business and industry whose purpose is to enhance, strengthen and expand working partnerships to provide the highest quality integrated articulated professional technical programs. PAVTEC works with 29 area high schools promoting cooperation in preparing students for professional/technical careers.
Professional Skills Training  
Ross Island Center C9, 244-6111, ext. 2817  
Professional Skills Training is a unique, off-campus training program, providing opportunities to develop marketable job skills in fields not normally addressed by ongoing college programs. 
An interview with the Professional Skills coordinator is required to determine educational goals and to see if a suitable training site is available. Certain skills require the ability to read and understand technical manuals, to use basic math skills and to write. Basic skills may be assessed at any PCC Testing Center. 
Professional Skills Training is an approved program for state worker's compensation clients and disabled veterans.

Refugee Program  
Ross Island Center C5, 244-6111, ext. 2812  
Provides English as a Second Language classes to adult refugees in order to help them become self-sufficient in their new economic and cultural environment.

Senior Studies Institute (SSI)  
Ross Island Center B4, 244-6111, ext. 2486  
The SSI is an affiliate of the Elderhostel Institute Network. 
This unique program offers older adults a connection with others to expand their horizons. The Institute provides a means by which dynamic older adults can engage in group discussion, exchange ideas and share knowledge. 
There is a $25 fee which entitles seniors to participate in all SSI activities for an entire school year, September through June. For information, call 244-6111, ext. 2485.

Small Business Development Center (SBDC)  
123 N.W. 2nd, Suite 321, Portland, 273-2828  
Helping businesses grow and prosper is the goal of the SBDC. Classes and workshops are provided on practically every aspect of starting and running a business. The Small Business Management program covers the full spectrum of small business management, including free counseling and an extensive resource center.

Small Business International Trade Program  
121 S.W. Salmon, Suite 210, Portland, 274-7482  
Located at the World Trade Center in Portland's Yamhill Market Complex, this program provides technical help and hands-on training to those moving into the field of international trade. 
Often working with Small Business Development Centers and other educational institutions state-wide, workshops and conferences stress licensing, U.S. and foreign import/export laws, shipping and transportation, marketing, and other keys to success in this field.

Steps to Success  
East: Centennial Community Center, 14750 S.E. Clinton, 760-4007  
West: Rock Creek Campus Building 2 Room 101, 244-6111, ext. 7334

North/Northeast: 4317 N.E. Emerson, 281-0495  
Provides welfare clients with life skills training, basic skills training, job placement and numerous support services necessary to enable them to become productive workforce members and to obtain a living-wage job.

Tektronix On-Site Program  
Building #74, Beaverton (692-2386)  
The PCC/Tektronix On-Site Program is an nine-year partnership providing education, training, and college services to Tektronix employees and other local businesses. Program components include: transfer, vocational, and continuing education classes; hands-on computer offerings on IBM, Macintosh, and UNIX; customized training; coordination of vendor and satellite-delivered seminars; self-paced learning center; and college services including registration, advising, and bookstore.

Teleconferencing  
Sylvania Campus College Center B2b, 244-6111, ext. 4260  
PCC's teleconferences use satellite-delivered, live programs, including workshops, seminars and other special training programs for business, industry, various associations, college staff and students. Continuing Education or other certification units are often available.

Telecourses  
Sylvania Campus College Center B2b, 244-6111, ext. 4481  
Telecourses are courses delivered by television that offer you the opportunity to learn at home, with a minimal number of visits to a campus. The components of a telecourse consist of a textbook, study guide, television programs and an instructor to guide students through the course. Telecourses are equivalent to on-campus courses and carry the same course numbers and college transferable credits.

Telecourses are offered through Portland Community College in cooperation with Oregon Public Broadcasting; the TCI, Paragon and Columbia Cable companies in the Portland area; and TCI Cable in Columbia and Yamhill counties. For more information, call 244-6111, ext. 4481.

Interactive Television Classes  
Sylvania Campus Communications Technology B4h (244-6111, ext. 4405)  
Interactive television classes are regular college courses delivered live from a PCC television classroom to receive classrooms at Rock Creek, Sylvania, and Cascade campuses, and Southeast Center. Receiving classrooms are also located at business sites, and at selected Washington County public libraries. Students taking Interactive televised classes see the instructor on live television and are able to interact with the instructor and with students at other sites through special audio systems.
Modem Delivered Classes
Sylvania Campus Distant Learning Department, 244-6111, ext. 4481

Modem delivered classes allow students who have access to either IBM or Macintosh format computers to take selected classes from PCC instructors. Students must have a Hayes compatible modem, special software and attend an orientation session for each class as part of the requirement for enrolling. Students interact with instructors and each other in electronic forums for each class. These classes carry regular college credit.

Trade Extension
Southeast Center B10, 244-6111, ext. 6905

Specialized courses are offered to provide upgrading of outdated skills to individuals currently employed in areas such as refrigeration, air conditioning, and the electrical trades.

Volunteer Tutoring
Sylvania Campus Social Science A7a, 244-6111, ext. 4148

Volunteer tutors are available to help with basic skills in reading, writing, math and speaking English. Some tutors can also help with academic subjects. Tutorial services are available at all PCC locations in addition to a variety of other community sites.

Washington County Consortium
Rock Creek Campus Building 2 Room 101, 244-6111, ext. 7334

Provides vocational training and job placement services to low income adults in Washington County with the goal of helping them become economically self-sufficient.

Student Services

Bookstore
Full-time bookstores are located at the Sylvania and Rock Creek campuses, while part-time bookstores serve Cascade and Southeast Center.
Cascade Campus: Cascade Hall, 244-6111, ext. 5267
Rock Creek Campus: Building 2, 244-6111, ext. 7209
Southeast Center: South Mall, 244-6111, ext. 6261
Sylvania Campus: College Center Upper Mall, 244-6111, ext. 4910

Hours vary, so check the Schedule of Classes or call for hours.
Tri-Met bus tickets and bus passes may be purchased at any bookstore.
The Bookstore accepts VISA and MasterCard. Checks are accepted for the amount of purchase only and checks must be drawn on a local bank and imprinted with current information. When paying by check, you must show one of the following two pieces of identification: your PCC membership card, check guarantee card, Oregon drivers license or Oregon I.D. There is a service charge for all returned checks.
Textbooks will be available and may be purchased one week before each term. You should be familiar with the bookstore refund policy at time of purchase. It is posted at all bookstores. A refund may be mailed when circumstances warrant, but allow at least four weeks for processing. Book buy-back times will be posted at each store.

Business Office

The college business offices accept payments for tuition, PE and library fines, work orders and miscellaneous charges. Checks, Discover, MasterCard and VISA are accepted. Current PCC students may cash checks up to a $10 maximum per day with:
1. Check drawn on student's own account and is a local, bank imprinted check
2. Oregon drivers license or Oregon I.D. card
3. PCC membership card
There is a $10 service charge on all returned checks.

Child Care

Child care is often a major concern to students, and PCC can help in a variety of ways. Child Care Services offers resources and referrals which help you find and evaluate the quality of care, arranges financial assistance if you meet low-income qualifications, and provides information about selecting care.

Child Care Services
Child Care Resource and Referral provides referrals for both on- and off campus child care. Referrals include child care centers, family child care providers, school-age programs, Head Start, and pre-schools located within the Tri-County area. The Child Care Subsidy program provides financial assistance for school related child care expenses. Consumer Education provides parents with a wide range of materials developed to help in the planning and selection of developmentally appropriate child care. All services are available by calling 244-6111, ext. 4366, and are offered at no charge to students.

Cascade Child Care
A Federally sponsored Head Start program is located on the Cascade Campus. Contact Cascade Student Services or call 283-1267 for eligibility information.

Rock Creek Child Care
Evening child care serves ages 4-12 on Monday through Thursdays from 5:30-10 p.m. The cost is $1.75 per hour for each child. Pre-registration is helpful. Activities include arts and crafts, play time, reading and quiet time. For more information, contact the Rock Creek Family Resource Center at 244-6111, ext. 7432.

Sylvania Child Care Center
The Child Development Center on the Sylvania Campus is operated by the Consumer and Family Studies department. The primary purpose of the Center is to provide a laboratory educational experience for students in PCC’s early childhood education program. As a benefit of the educational program, available space in the fully licensed Center is offered to student parents and college staff who pre-register. Programs include short-hour care for 14 month to six year olds, full day care for three and four year olds, preschool for four year olds, and a parent-child cooperative for three year olds. Type of care varies depending on the program.
Because the Center is staffed by teachers and supervised ECE students, there are many adults most of the time. Not all children do well in a laboratory school setting, so this environment may not be suitable for some children. A parent may be required to make other arrangements for a child if Center staff determine that adjustment to the Center is either too difficult for a child, or not satisfactory. The Center has guidelines for problem resolution, should that be necessary.

Fees for child care vary, depending on the program. Call 244-6111, ext. 3200 for a recorded message giving complete information. To apply for care, contact the Child Development Center at 244-6111, ext. 4434.

Cooperative Education

Cooperative education is an exciting supervised work experience program that enhances your educational program or provides an opportunity to explore career options before declaring a major. Students enrolled in Cooperative Education combine their classroom studies with related work experience that earns them college credit and in some cases earn them pay for their work.

Cooperative Education is an elective or a requirement in most professional/technical programs. You may enroll for a variable number of credits depending on the number of hours you work per week. In some cases, students who are already working may convert eligible employment into a Cooperative Education experience. The College must approve your training sites and the learning objectives developed by you and your supervisor.

If you are interested in exploratory cooperative education you must meet certain requirements and receive approval from a cooperative education specialist. Eligibility for other training experiences depends on the requirements of your major. In addition to job sites within the continental United States, you may be eligible to be placed in approved international cooperative education sites.

To earn cooperative education credit through an international placement, the work site must be inspected by a qualified representative of the College, the work experience must be supervised and a specific set of learning objectives must be agreed upon in writing.

Portland Community College provides equal opportunity in education and employment. The College is committed to a policy of non-discrimination based on sex, age, handicap, color, religion or national origin. Equal Employment Opportunity guidelines are followed and students are referred on a non-discriminatory basis for all possible cooperative education, practicum or clinical experience placements.

For more information, contact the Cooperative Education office at your campus.

Counseling Services

Portland Community College provides a comprehensive program of counseling services designed to assist students in solving problems and in developing academic and personal potential. Professional counselors are available at the Cascade, Rock Creek, and Sylvania campuses. They help in matters such as career development and exploration, learning problems and study skills, and assessment of abilities, interests and values. Counselors can also help with family, personal and social concerns. For more information, see Counseling in the Support Courses and Programs section of this catalog.

Ethnic Student Success Program

The Sylvania Campus Ethnic Student Success program offers student support services for African Americans, Asians, Hispanics and Native Americans. These services include: academic advising, peer tutoring, career counseling, personal counseling, workshops and seminars focusing on personal and academic skills development, cultural events and enrichment activities, and an individualized student mentoring program. For more information, contact the Sylvania Ethnic Student Success Center at 244-6111, ext. 4112.

Family Resource Center

Located at the Rock Creek Campus, the Family Resource Center offers information and referral services for child care, community services and campus student services. The Center sponsors workshops on issues related to work and family. It also has instructional programs, such as New Directions, a career planning, personal development course for single parent and displaced homemakers that is tuition free; and Education to Work, a scholarship program for women and minorities interested in the trades. The Center also provides an evening child care program for ages 4-12. All students are encouraged to drop by and use the services, or call 244-6111, ext. 7432 for more information.

Food Services

The college offers weekday food services at Sylvania, Southeast, Ross Island, Cascade and Rock Creek. Saturday service is available at Rock Creek, Southeast and Sylvania.

Health Services/Insurance

Portland Community College provides no health services on its campuses. Emergency medical treatment is available by calling ext. 4444.

PCC students of any age are not insured by the college for health and accident. However, students who are registered for six or more credit hours may purchase student health insurance or dental insurance on a voluntary basis. The application form and descriptive materials are available in the information center.

Housing

Portland Community College does not provide housing for students attending the college. However, information regarding housing in the Portland area can be obtained through an Associated Students of Portland Community College office. These offices also provide listing services for landlords seeking tenants and for students who need roommates.

Job Placement

Cascade Campus: Student Center 115, 244-6111, ext. 5290
Rock Creek Campus: Room 2, 123, 244-6111, ext. 7452 or 7325
Sylvania Campus: College Center West Mall, 244-6111, ext. 4474 or 4475

The Office of Student and Graduate Job Placement is a job referral service for Portland Community College students and graduates at all campuses. It is designed to provide equal opportunity to job leads at any time during college and upon graduation. Services include employer contact to develop job openings, campus recruiting for employers, direct assistance to students through workshops and seminars, and personal help for resume writing, interviewing techniques and job search development.
If you are currently enrolled and need a job to help pay for school, check the part-time job listings posted at each college campus. All campuses receive the identical job listings daily. Graduate placement representatives are available during scheduled hours at each campus. They will help you develop a competitive resume and graduate placement file, and aid in seeking a full-time position in your field of study.

Portland Community College provides equal opportunity in education and employment. The College is committed to a policy of non-discrimination based on sex, age, handicap, color, religion or national origin. Equal Employment Opportunity guidelines are followed and students are referred on a non-discriminatory basis.

For more information, contact the Job Placement office at your campus.

**Learning Assistance**

Free learning assistance for PCC students is available day and night hours at Alternative Learning Centers at each campus and at the Math Lab at Sylvania. Tutoring, self-help materials, videos, computer-aided instruction, word processing, and individualized credit options provide alternative learning opportunities in math, English, and other courses.

**Library and Media Centers**

100,000 books, videos, compact disks and other AV materials, plus 1,000 magazine subscriptions are in PCC Learning Resource Centers (LRCs).

Staff are available to help you find what you need using electronic information retrieval methods that include a computerized catalog linking all PCC LRCs and 26 other local libraries. A daily courier speeds delivery of materials. Through the OCLC computer network, the LRC can locate and borrow materials nationwide. The LRCs are part of PORTALS (Portland Area Academic Libraries) and, through the Internet, access their catalogs and other libraries throughout the world.

Each LRC provides additional services such as audio-tape duplication, photo-copying, typewriters.

Your PCC membership card will be bar coded and used to check out library materials. Protect it like a credit card since you are responsible for any items borrowed on that card.

**Membership Card**

All registered Portland Community College students are eligible to receive a PCC membership card. This validated card must be presented for any transaction with the Business Office, Library or Physical Education Department. There is a $1 charge for duplicate cards.

**Traffic and Parking Information**

Monday - Friday, 7 a.m. - 10 p.m., all motor vehicles parked on PCC property, roads and lots must display a valid parking permit. Motor vehicles shall be parked in appropriate designated parking areas as posted or marked. For a complete copy of the College's traffic and parking regulations, please ask for a PCC Motor Vehicle Code available at a parking office on any campus.

**Permits**

Purchase your permit at any campus parking offices (locations listed below) and your student account will be charged according to the following schedule:

<table>
<thead>
<tr>
<th>Status</th>
<th>Fee per term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time student, 9+ hours per week on campus</td>
<td>$25</td>
</tr>
<tr>
<td>Part-time student, 1-8 hours per week on campus</td>
<td>$18</td>
</tr>
<tr>
<td>Motorcycle, full-time</td>
<td>$13</td>
</tr>
<tr>
<td>Motorcycle, part-time</td>
<td>$9</td>
</tr>
<tr>
<td>Car Pool (2 persons)</td>
<td>$13</td>
</tr>
<tr>
<td>Car Pool (3 or more persons) Free</td>
<td></td>
</tr>
</tbody>
</table>

One-day permits are available from prominently located outdoor vending machines for $1.

**Cascade:**
- Portable Building 1 (244-6111, ext. 5640)
- Rock Creek Building, Information Counter (244-6111, ext. 7252)
- Ross Island Center: Business Office A6 (244-6111, ext. 5640)
- Southeast Center: Information Desk Room A12 (244-6111, ext. 6240)
- Sylvania: CC Main Mall and HP B2 (244-6111, ext. 4703)

**ADA Accessible Parking**

Parking areas for the physically disabled are located on every campus. Vehicles using these designated areas must be transporting the disabled individual and display a state-issued disabled license plate or placard. Additional, vehicles in disabled parking spaces must properly display a valid PCC parking permit.

**Carpool Parking**

A carpool is two or more PCC students or employees with similar schedules, sharing the use of a vehicle. Carpools are encourages by providing close in parking areas and reduced parking rates (see fees above.) A special registration process is required for all carpools. Holders of these permits may park in the special carpool parking areas as well as the general parking areas.

**Alternative Transportation**

PCC offers a variety of alternatives to traditional campus parking, such as carpool matching assistance (in conjunction with ASPCC), a free campus to campus shuttle with stops downtown and surrounding areas, and a limited number of discounts toward purchase of a Tri-Met Bus Pass. Additionally, we offer bicycle parking racks and trip planning assistance.
Student Activities

The college encourages activities that complement the instructional program by giving you opportunities for leadership, representation in college decision making, and by offering participation in social, cultural and recreational activities. Student activities, organizations and programs are open to all students. Information is available at Associated Students of Portland Community College (ASPCC) offices.

Athletics
The college athletic program includes both men's and women's basketball, men's soccer and women's volleyball. The programs are part of the Northwest Athletic Association of Community Colleges representing the community colleges of Oregon and Washington.

You may be enrolled at any PCC campus and participate in a sport based at another campus. You must carry a minimum of 12 credit hours and meet all other eligibility requirements set by the NWAAAC.

Men's Basketball
The team will be based at Cascade Campus. Home games will be split between the Cascade and Sylvania campuses. Official practice will begin October 22.

Women's Basketball
The team will be based at the Sylvania campus. Home games will be split between the Sylvania and Cascade campuses. Official practice will begin October 22.

Men's Soccer
The team will be based at the Sylvania campus for both practice and games. Official practice will begin August 20.

Women's Volleyball
The team will be based at the Rock Creek campus for both practice and games. Official practice will begin August 20.

For further information please contact the Athletic Department, 244-6111, ext. 4369.

Club Sports
A variety of club sports is offered at the campus level: bowling, volleyball, skiing, table tennis, etc. Contact your campus ASPCC for more information regarding availability and costs.

Forensics
Speech and debate opportunities are provided through an active Forensics Club on the Sylvania Campus.

Galleries
There are art galleries located at the Rock Creek and Sylvania campuses. Shows are continually changing, featuring artists such as students, faculty and guest faculty. For current showings, call 244-6111, ext. 7258 (Rock Creek) or ext. 4269 (Sylvania North View Gallery.)

Intramurals
The Intramural Office organizes a variety of events, activities and tournaments open to all PCC students enrolled in at least one credit, and to all PCC faculty and staff during the academic year. To participate present a valid PCC membership card. Activities are offered at little or no cost to students. Activities offered may include racquetball, golf, weight lifting, turkey trot, basketball, mushball, volleyball, skiing and bowling. For information, call 244-6111, ext. 4213 (Sylvania); ext. 5256 (Cascade); ext. 7261 (Rock Creek).

Student Government (ASPCC)
The Associated Students of Portland Community College (ASPCC) at Cascade, Rock Creek, Southeast and Sylvania invite you to get involved with activities, research, committees, clubs and organizations. Student council members are hired rather than elected, and are paid for their services. Other paid positions include secretary, activities assistant and sign maker. Volunteers are also encouraged to be active in clubs and committees. ASPCC provides housing referral, car pool and book buy-back exchanges.

Student Newspaper
The Bridge is the official student newspaper for Portland Community College. Published each Thursday, it provides a forum for student expression, plus on-the-job training for those interested in print journalism and advertising. Staff members must be students enrolled for at least 6 credit hours at PCC. For information, call 244-6111, ext. 4181.

Theater
The drama program offers students a chance to perform and to assist in the production of plays featured each term. Plays are produced and performed at the Rock Creek and Sylvania campuses.
BASIC SKILLS

PCC is committed to providing instruction and services that provide students with the opportunity for self-improvement as well as the skills needed for success in PCC's Career and Transfer Courses and Programs. The college's Support Courses and Programs offer this opportunity in a variety of formats. See the PCC Schedule of Classes for classes available during a specific term.

Adult Basic Education (ABE)

Description: A free program in basic skills for students whose abilities range from non-literate to the 8th grade level. Development of reading skills are emphasized although arithmetic skills, life skills and other basic skills are included.

Prerequisites: ABE classes are open to anyone 18 or over who desires to improve basic reading, writing and math skills at the pre-high school level. Students who are 16 or 17 must first obtain an official release from high school before attending class.

Course of Study: Daytime and evening classes are offered at all campuses and at many other locations in the community.

To enroll, individuals must attend an orientation session. Orientation includes a description of the program and a reading assessment.

These orientation sessions, for both day and evening classes, are held on a regular basis throughout each term and are listed in the PCC schedule. If you need any special assistance such as an interpreter, a reader or a writer to participate in the ABE/GED Orientation and Evaluation session, please contact the Office for Students with Disabilities (244-6111 ext. 4341) at least two weeks before the session is held.

Individuals may attend classes as long as reasonable progress is being made. Regular attendance is expected.

Do not preregister. Registration will take place at the first class attended. There is no charge for ABE classes.

Upon entering an ABE class, students' reading, writing and math abilities are assessed and individual programs of study are developed to guide them toward their personal academic goals. One-to-one and small group instruction with the aid of volunteer tutors maximize the personal help available to each individual.

To help with their studies, students may purchase books but are not required to do so.

Since reading is considered the most essential academic skill for adults to function in society, it is the primary focus of ABE activities. As such, the ABE class provides an excellent opportunity for pre-GED, vocational and ESL students to strengthen their reading abilities.

For further information on the ABE program, phone 244-6111 ext. 6911.

See also the "General Education (GED) Preparation" and "English as a Second Language" sections in the PCC catalog for related instruction.

Counseling Services

Description: Counseling and Guidance (CG) courses are offered for:
1. individuals in the process of developing a new career or thinking of a career change and
2. individuals who would like to assess and strengthen personal skills to maximize the college learning experience, career opportunities and the lifelong learning process.

Counseling and Guidance courses are offered at each PCC location and in the community. Consult the Counseling Department and/or the Schedule of Classes with respect to the courses/workshops being offered during a given term.

Prerequisites: With the exception of CG 111A College Learning & Study Skills, CG 280A, CG 280B Exploratory Cooperative Education and CG 100 Para-Professional Counseling, there are no prerequisites. However, students are encouraged to consult a counselor prior to enrolling in a course or workshop.

Courses: The following courses (CG 100A - CG 280B) may be transferable to a four-year institution. Consult the Counseling Department and/or the receiving institution with respect to the transferability and application of credit. Students enrolling in CG 144 through CG 145 may transfer a maximum of three credit hours.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CG 100A</td>
<td>College Survival and Success</td>
<td>3</td>
</tr>
<tr>
<td>CG 100B</td>
<td>College Survival and Success</td>
<td>2</td>
</tr>
<tr>
<td>CG 100C</td>
<td>College Survival and Success</td>
<td>1</td>
</tr>
<tr>
<td>CG 111A</td>
<td>College Learning &amp; Study Skills</td>
<td>3</td>
</tr>
<tr>
<td>CG 111B</td>
<td>College Learning &amp; Study Skills</td>
<td>2</td>
</tr>
<tr>
<td>CG 111C</td>
<td>College Learning &amp; Study Skills</td>
<td>1</td>
</tr>
<tr>
<td>CG 140A</td>
<td>Career Development</td>
<td>3</td>
</tr>
<tr>
<td>CG 140B</td>
<td>Career Development</td>
<td>2</td>
</tr>
<tr>
<td>CG 140C</td>
<td>Career Development</td>
<td>1</td>
</tr>
<tr>
<td>CG 143</td>
<td>Personal Effectiveness</td>
<td>3</td>
</tr>
<tr>
<td>CG 144</td>
<td>Intro to Assertiveness</td>
<td>1</td>
</tr>
<tr>
<td>CG 145</td>
<td>Stress Management</td>
<td>1</td>
</tr>
<tr>
<td>CG 146</td>
<td>Value Clarification</td>
<td>1</td>
</tr>
<tr>
<td>CG 147</td>
<td>Decision Making</td>
<td>1</td>
</tr>
<tr>
<td>CG 209</td>
<td>Job Finding Skills</td>
<td>1</td>
</tr>
<tr>
<td>CG 210</td>
<td>Job Finding Skills - Drafting</td>
<td>1</td>
</tr>
<tr>
<td>CG 280A</td>
<td>CE: Career Exploration - Seminar</td>
<td></td>
</tr>
<tr>
<td>CG 280B</td>
<td>CE: Career Guidance - variable credit</td>
<td></td>
</tr>
</tbody>
</table>

The one credit courses listed below consist of a total of 8 - 12 lecture/discussion hours each. These courses may be offered in a one or two day workshop or over the full term.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CG 0690</td>
<td>Stopping Test Anxiety</td>
<td>1</td>
</tr>
<tr>
<td>CG 0691</td>
<td>Positive Family Relations</td>
<td>1</td>
</tr>
<tr>
<td>CG 0693</td>
<td>Confidence Building</td>
<td>1</td>
</tr>
<tr>
<td>CG 0695</td>
<td>Single Again</td>
<td>1</td>
</tr>
<tr>
<td>CG 0696</td>
<td>Women in Their Middle Years</td>
<td>1</td>
</tr>
<tr>
<td>CG 100</td>
<td>Para-professional Counseling</td>
<td>3</td>
</tr>
</tbody>
</table>
Developmental Education

Cascade Campus
Student Center 115
244-6111, ext. 5271

Rock Creek Campus
Building 2/123
244-6111, ext. 7215

Southeast Center
D8
244-6111, ext. 6230

Sylvania Campus
Social Science Building A-23
244-6111, ext. 4192

Description: Programs in Developmental Education are designed to help students prepare for PCC academic and vocational programs and for their chosen careers. Many students already enrolled in vocational and transfer courses take developmental classes as required to meet program standards.

Courses in this department include developmental reading, writing and mathematics. Also available are support services including Drop-In Centers, Alternative Learning Centers, and tutoring.

Classes and services are offered at Cascade, Rock Creek, Southeast Center and Sylvania. Financial aid is available, depending on the student's circumstances, for Developmental Education courses. For more information, contact the Financial Aid Office.

Prerequisites: For accurate placement, students are required to take the college English and mathematics placement test. For specific information, contact the campus nearest you.

Alternative Learning Center

Developmental English and mathematics instruction is offered on an individualized basis through the Alternative Learning Centers at Cascade, Rock Creek and Sylvania. Instruction is available by computer, videotape, slide-tape programs, tutoring and other non-traditional teaching modes. Students may enter at any time and proceed at their own rate.

Drop-In Centers

Drop-In Centers offer tutorial assistance to students in many academic programs. Students may "drop-in" during any regularly scheduled tutoring time. For more information, contact the Drop-In Center at Cascade, Rock Creek or Sylvania.

Developmental Education

Transfer Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD 115</td>
<td>Speed Reading and Vocabulary</td>
<td>3</td>
</tr>
<tr>
<td>RD 116</td>
<td>College Vocabulary Development</td>
<td>3</td>
</tr>
<tr>
<td>RD 117</td>
<td>Advanced Speed Reading</td>
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Developmental English

<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>DE 50</td>
<td>Vocabulary Building</td>
<td>3</td>
</tr>
<tr>
<td>DE 60</td>
<td>Basic Grammar</td>
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</tr>
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<td>DE 61</td>
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<tr>
<td>DE 62</td>
<td>Basic Grammar</td>
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<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>RD 60</td>
<td>Reading for Enjoyment (Contemporary Literature)</td>
<td>3</td>
</tr>
<tr>
<td>RD 65</td>
<td>Reading for Enjoyment (Appreciation of Literature)</td>
<td>3</td>
</tr>
<tr>
<td>RD 70</td>
<td>Reading I</td>
<td>3</td>
</tr>
<tr>
<td>RD 80</td>
<td>Reading II</td>
<td>3</td>
</tr>
<tr>
<td>RD 90</td>
<td>Reading III</td>
<td>3</td>
</tr>
<tr>
<td>DE 20</td>
<td>Comprehensive Language Development</td>
<td>3</td>
</tr>
<tr>
<td>WR 60</td>
<td>Spelling I</td>
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<td>WR 65</td>
<td>Spelling II</td>
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<td>WR 70</td>
<td>Writing I</td>
<td>3</td>
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<tr>
<td>WR 80</td>
<td>Writing II</td>
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<tr>
<td>WR 90</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ALC 50</td>
<td>Basic English Language Skills Lab</td>
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<tr>
<td>ALC 51</td>
<td>Basic English Language Skills Lab</td>
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<tr>
<td>ALC 52</td>
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<td>ALC 54</td>
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Developmental Mathematics

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 10A</td>
<td>Fundamentals of Arithmetic</td>
<td>4</td>
</tr>
<tr>
<td>MTH 20A</td>
<td>Basic Math (Arithmetic)</td>
<td>4</td>
</tr>
<tr>
<td>ALC 60</td>
<td>Basic Math Lab</td>
<td>0</td>
</tr>
<tr>
<td>ALC 61</td>
<td>Basic Math Lab</td>
<td>5</td>
</tr>
<tr>
<td>ALC 62</td>
<td>Basic Math Lab</td>
<td>1</td>
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<td>ALC 63</td>
<td>Basic Math Lab</td>
<td>2</td>
</tr>
<tr>
<td>ALC 64</td>
<td>Basic Math Lab</td>
<td>3</td>
</tr>
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</table>

The following math mini-courses meet for a total of 12 clock hours each:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 21A</td>
<td>Ratio/Proportion</td>
<td>1</td>
</tr>
<tr>
<td>MTH 22A</td>
<td>Metric Scientific Notations</td>
<td>1</td>
</tr>
<tr>
<td>MTH 23A</td>
<td>Geometry</td>
<td>1</td>
</tr>
<tr>
<td>MTH 24A</td>
<td>Pre-algebra</td>
<td>1</td>
</tr>
<tr>
<td>MTH 25A</td>
<td>Fractions</td>
<td>1</td>
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<tr>
<td>MTH 26A</td>
<td>Decimals</td>
<td>1</td>
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<tr>
<td>MTH 27A</td>
<td>Word Problems</td>
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Other Developmental Education courses:

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>DE 30</td>
<td>Learning Skills</td>
<td>3</td>
</tr>
<tr>
<td>DE 40</td>
<td>Handwriting Improvement</td>
<td>2</td>
</tr>
<tr>
<td>DE 80</td>
<td>Applied Economics/Personal Finance</td>
<td>5</td>
</tr>
<tr>
<td>ALC 55</td>
<td>Basic Study Skills Lab</td>
<td>0</td>
</tr>
<tr>
<td>ALC 56</td>
<td>Basic Study Skills Lab</td>
<td>5</td>
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<tr>
<td>ALC 57</td>
<td>Basic Study Skills Lab</td>
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<td>ALC 58</td>
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</tr>
<tr>
<td>ALC 59</td>
<td>Basic Study Skills Lab</td>
<td>3</td>
</tr>
</tbody>
</table>

Disabled Student Services

Description: Specific academic and instructional support services are available to disabled students needing to improve basic skills in order to complete a program. These services include assessment of skill levels, vocational counseling, program advising, one-to-one and small-group instruction in the basic skills needed. Additional academic support services available include interpreting for the deaf, notetaking, writing for the mobility impaired, and generally any support service that is directly related to successful participation in the classroom setting.
Prerequisite: Students must consult with a counselor from the Office of Disabled Student Services prior to enrolling in a course.

Courses:
- CG 143 Personal Effectiveness 3
- DE 21 Comprehensive English Development for the Deaf 6
- DE 22 Comprehensive English Development for the Deaf 6
- DE 23 Comprehensive English Development for the Deaf 6

English as a Second Language (ESL)

Description: The ESL Program offers free classes for persons whose native language is not English. Reading, writing, conversation and American culture are stressed.

Prerequisites: ESL classes are open to U.S. citizens and immigrants who desire to improve their basic English language proficiency. (Refugee students should contact the PCC Refugee ESL Project at 244-6111, ext. 2812 for more information. Visitors and other foreign students should contact the foreign student advisor.)

Course of Study: The ESL Program offered by the GED/ABE/ESL Department consists of four levels: A, B, C and D. These classes provide instruction from beginning to a high intermediate level of proficiency in English as a Second Language. ESL Special Topics may be offered to meet special needs. ESL classes are offered at each of PCC’s campuses and at a variety of community sites throughout the district. Not all levels are offered at each location every term.

There are no fees for ESL classes. Classroom sets of textbooks are provided so that students do not have to buy books. However, students may purchase textbooks for home study; all textbooks used in ESL classes are available at PCC bookstores on each campus.

All new students must be tested to be assigned to the proper class. Students must be on time for testing. Individuals who are more than fifteen minutes late will be asked to come to a later testing session. Consult the schedule for testing times.

For more information, phone 244-6111, ext. 6911.

See also “Adult Basic Education (ABE)” and “General Education (GED) Preparation” sections in the PCC catalog for related instruction.

General Education (GED) Preparation

Description: GED preparation is a free course in high school level skills needed for the GED test. This test provides the opportunity for adults who have not graduated from high school to obtain a High School Equivalency Certificate. Reading, mathematics, science social studies, writing skills (grammar, and a written essay) are covered.

Prerequisites: GED preparation classes are open to anyone 18 or over without a high school diploma; students who are 16 or 17 must first obtain an official release from high school attendance before attending class or taking the test.

Course of Study: Daytime and evening classes are offered at all campuses and at many other locations in the community. To enroll, individuals must attend an orientation session. Orientation includes a description of the program and a reading assessment. These orientation sessions, for both day and evening classes, are held on a regular basis throughout the term and are listed in the PCC schedule. If you need any special assistance such as an interpreter, a reader or a writer to participate in the ABE/GED Orientation and Evaluation session, please contact the Office for Students with Disabilities (244-6111 ext.4341) at least two weeks before the session is held. Individuals may attend classes as long as reasonable progress is being made. Do not preregister. Registration will take place at the first class attended. Early in the GED preparation process, students’ reading, writing and mathematics abilities are assessed, and individualized programs of study are developed to guide students toward their desired GED test scores. Official GED practice tests are used to predict students’ scores on the actual GED test. One-to-one and small group instruction maximize students’ contact with an instructor. Students may wish to purchase one or more books to help with their studies. Books should be purchased after students have attended enough classes to know which ones they need to study.

The GED Certificate: A GED Certificate may be earned and used by people who have not completed high school and who are at least 16 years old. The GED Certificate is accepted as a substitute for a high school diploma by many employers, apprenticeship programs, community colleges and universities. It is used all over the United States and Canada, although passing scores may vary from state to state. In Oregon, the certificate is awarded by the Oregon Department of Education. When one completes the five GED tests and receives a GED score of 40 or more on each test and at least an average of 45, the individual qualifies. Each test has a time limit. Because some colleges and training programs require a score higher than 40 for admission, students are advised to discuss their plans with their instructor.

For further information on the GED program, phone 244-6111, ext. 6911.
The GED Test
The GED Test battery includes five tests:
1. Writing Skills: This test is divided into two sections. Part I will include sentence structure, usage and mechanics. Part II will require students to write an essay on a topic about which adults would be expected to have general knowledge.
2. Social Studies Test: Content will include history, economics, political science, geography and behavioral science. Skills that will be tested include comprehension, application, analysis and evaluation.
3. Science Test: Content will include life science, biology and physical sciences, earth science, physics and chemistry. Skills that will be tested include comprehension, application, analysis and evaluation.
4. Interpreting Literature and the Arts: Content will include popular literature, classical literature and commentary about literature and the arts. Skills assessed include comprehension, application and analysis.
5. Mathematics: Content will include arithmetic (measurement, number relationships and data analysis), algebra and geometry. Skills that will be tested are problem solving abilities and higher level thinking skills.

High School Completion

Cascade Campus
Student Center 115
244-6111, ext. 5276

Rock Creek Campus
Building 3/123
244-6111, ext. 7300

Southeast Center
Room D24
244-6111, ext. 6256

Sylvania Campus
Social Science Building A24b
244-6111, ext. 4473

Students 16 and over may complete studies for high school diplomas at PCC. Previous high school credits will be evaluated and applied toward the diploma. Students take PCC classes to satisfy remaining high school requirements and earn simultaneous college credit, which may also be applied toward college degrees or certificates. The program must be planned with the High School Completion office at the PCC campus the student wishes to attend.

Mathematics, Physics And Writing Support Courses

Mathematics
Additional information on Mathematics courses may be found under "Developmental Education" and under "Mathematics" in the Transfer portion of this catalog.

Description: The mathematics support courses are designed to fulfill course requirements in Career Programs and/or prepare students for entry into College Transfer mathematics courses.

Prerequisite: For accurate placement, it is recommended that students take the mathematics placement test.

MTH 30 Business Mathematics I 4
MTH 55 Applied Mathematics 4
MTH 56 Applied Math 2 4
MTH 60 Elementary Algebra - 1st Term 4
MTH 61 Elementary Algebra - Part I 3
MTH 62 Elementary Algebra - Part II 3
MTH 63 Elementary Algebra - Part III 3
MTH 65 Elementary Algebra - Second Term 4
MTH 70 Introduction to Intermediate Algebra 4
MTH 75 Euclidean Geometry 4
MTH 95 Intermediate Algebra 4

The sequence of MTH 61, 62 and 63 will meet the minimal graduation requirements of Portland Community College. The coursework is equivalent to MTH 60 and 65.

Physics
College Transfer physics courses are listed under "Physical Science" in the Transfer Courses and Programs section of this catalog.

Description: This course covers the concepts of physics and their relationship to practical application in various mechanically-related occupations. The course credit may be used to fulfill a portion of the General Education requirement for the Associate of Applied Science and the Associate of General Studies degrees.

Prerequisite: There are no prerequisites.

PHY 101 Fundamentals of Physics 4

Writing
For additional PCC writing courses and programs, see "Developmental Education" (in this section), "Technical Writing" (in the Career Courses and Programs section), and "Writing" (in the Transfer Courses and Programs section).

Description: Instruction is available in defining career goals, developing a resume and developing an understanding of the employment process; and developing technical writing skills as needed for the successful completion of Career Programs and entry-level employment. These courses are designed to meet the requirements for Associate of Applied Science and Associate of General Studies Degrees, and Career Certificate programs.

Contact the English Department at Cascade, Rock Creek or Sylvania for further information.
**Prerequisites:** There are no prerequisites for WR 95 The Resume and Employment Interview. Successful completion of WR 115 Introduction to Expository Writing or taking the writing placement examination and scoring at the level required for entry to WR 121 English Composition is required for entry into WR I 17 Introduction to Technical Writing.

**WR 95** The Resume and Employment Interview 1
**WR 117** Intro to Technical Writing 3

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**Physical Education Activity Program (PE 10)**

See the Transfer section for a description of Transfer PE offerings.

**Description:** This program provides students with an individual approach to fitness and serves as an activity class for students unable to enroll in PE 185 coed activity courses. Students work with a PE staff member to set up the guidelines and objectives for an activity program. Contact the Physical Education Department at Cascade, Rock Creek, or Sylvania for further information.

The guidelines listed below apply to this activity program:

1. Only one credit can be earned per term.
2. Only one validation can be earned per day, an average of 3 per week.
3. A minimum of 110 minutes of participation is required each week whether workouts are 2 or 3 days per week.
4. Depending on the term, a minimum of 24 validations is required for a “P” (Pass) grade. However, students are encouraged to use the facilities more often.
5. A student in this program must use the campus facilities at which they are registered.
6. Students must sign in and out with the locker room attendant when using facilities.

It is recommended that all students taking Physical Education classes, dance classes, participating in intramurals or competing in the college sports programs have a physical exam form on file in the Physical Education Department office. One form is recommended for two years of continuous enrollment.

Insurance for accidents, injuries, etc., is the student’s responsibility. Applications for an accident/injury insurance program can be obtained at the Business Office.

Students must supply their own clothing and shoes for PE classes.

**PE 10** Physical Education Activity Program 1
Agricultural Mechanics

Rock Creek Campus
Building 2 Room 107
244-6111, ext. 7210, 7331

Career Description: The agricultural mechanic maintains, repairs and overhauls farm machinery such as pumps, hydraulic systems, tilling equipment, trucks and other mechanized, electrically powered or motor-driven equipment on farms or in farm equipment repair shops.

Program Prerequisites: There are no prerequisites. However, students should consult the Diesel Department chair prior to enrolling in a course.

Course of Study: The first year offers a foundation in the field of agricultural mechanics. The second year of the program, the student's time can be divided between classroom work or field experience. Because the program is designed to meet a variety of student needs, a number of flexible features have been built into the curriculum. Students who are not working toward a degree or certificate may elect to take only courses that interest them. They may choose to spread the study time over a longer period, combining a limited number of hours each term with full-time employment.

Consult with the Diesel department chair for information concerning courses, credit, class and laboratory hours per week, cooperative work experience arrangements and General Education requirements.

PCC offers the following form of recognition:
Associate of Applied Science Degree - 114 credit hours; includes 96 credit hours of required program courses and 18 credit hours of General Education. A departmental advisor will assist the student in selecting appropriate General Education courses.

First Term
DS 101 Shop Practice 6
DS 201 Diesel Engine Rebuild 6

Second Term
DS 103 Fuel Injection Systems 6
DS 203 Fuel Injection Pumps 6

Third Term
DS 102 Truck Power Train 6
DS 106 Engine Diagnostic Tune-up 6

Second Year: In the second year of the Agricultural Mechanics Program, the student can take eight credit hours each term from any of a combination of courses in the areas of diesel and welding. Also, eight credit hours of cooperative work experience can be taken each term of the second year. Within this framework, individualized programs are arranged to suit the needs of the student.

Fourth Term
DS 104 Fundamentals of Electricity 6
DS 280A CE: Diesel Service Technology variable credit

Fifth Term
DS 105 Fundamentals of Hydraulics 6
DS 280A CE: Diesel Service Technology variable credit

Sixth Term
DS 206 Brakes, Suspension & Steering 6
DS 280A CE: Diesel Service Technology variable credit

Students may substitute DS 102 with WLD 217 Diesel Welding.

Students may substitute DS 280A with DS 204 Diesel Starting & Charging Systems.

Students may substitute DS 280A with DS 205 Mobile & Hydrostatic Hydraulics.

Students may substitute DS 280A with DS 202 Heavy Duty Power Train.

Alcohol and Drug Counselor

Cascade Campus
Terrell Hall Room 231
244-6111, ext 5661, 5209, 5254, 5245

Career Description: Alcohol and drug counselors work in public and private sector organizations to provide diagnosis, assessment, education, referral and treatment services to clients with alcohol and drug problems. In addition, the program may be used to provide preparation for individuals interested in employment in prevention and early intervention programs.

Program Prerequisites: All students applying for admission to the Alcohol and Drug Counselor program must meet the following requirements:

1. Attendance at A&D Counselor Program orientation session;
2. Readiness for entry into WR 121 English Composition, to be determined by placement tests including a writing sample;
3. Completion of AD 101 Alcohol: Use and Addiction, with a grade of "C" or above;
4. Documentation of not abusing alcohol and/or drugs for 18 months prior to admission;
5. An interview with a department advisor.

While participating in the program, recovering students will agree to abstain from alcohol and drug use. All other students must agree to not abuse alcohol and drugs while in the program.

Course of Study: The majority of program courses are offered in late afternoons or evenings to accommodate students working during the day. The program has been designed to update the skills of individuals currently working in alcohol and drug counseling related areas. It also trains students preparing to work in psychiatry or psychology, nursing, social work, rehabilitation, criminal justice, community services or related fields. On a space-available basis, some program courses are available for current alcohol and drug counselors who meet course prerequisites.
PCC offers the following form of recognition:

• Associate of Applied Science Degree - 95 credit hours; includes 77 credit hours of required program courses plus 18 credit hours of General Education. Consult a program advisor for assistance in planning General Education classes.

Certified Alcohol and Drug Counselor Examination (CADC): The CADC is granted by the Addiction Counselor Certification Board of Oregon (ACCBDO). The Alcohol and Drug Counselor program does not result in the CADC. The program does, however, meet the educational guidelines required by the CADC and provides approximately 800 practicum hours that contribute to the "supervised experience" requirement of 1000 hours for CADC.

Oregon Office of Alcohol and Drug Abuse Programs issues an Entry Level Counselor Certificate which is only documentation of the completion of Alcohol Use and Addiction, Drug Use and Addiction, Case Management, Group Counseling and Basic Counseling. This is NOT certification to be an alcohol and drug counselor in the State of Oregon, but a certificate of completion of 16 credit hours of basic Alcohol and Drug courses. Students must take the Alcohol Use & Addiction class and be admitted to the program to complete these courses at PCC. Come to a program orientation session for further information.

Transferability: The program has an agreement with Warner Pacific College allowing Alcohol and Drug Counselor graduates to be accepted at the junior level to work towards a bachelor degree in Psychology, Sociology/Social Work, or Human Studies. Transferability of credits to another institution is subject to the approval of that institution.

Required Courses: Students are required to attend a group advising session upon admission to the program. Projected course offerings, suggested guidelines, and scheduling procedures will be addressed at this orientation.

Students may enroll in AD 101, AD 102, AD 103, WR 121, WR 122, PSY 239 and General Education courses prior to being accepted into the program.

Excellent writing and spelling skills are required by practicum sites. Students will be expected to have achieved mastery in these areas prior to practicum placement.

Prior to graduation, students must also meet math competency requirements. This can be accomplished either by passing a placement test showing math skills at or above those required for successful completion of MTH 65, or by completing MTH 65 with a “C” grade or higher.

AD 101 Alcohol Use and Addiction 3
AD 102 Drug Use and Addiction 3
AD 103 Women and Addiction 3
AD 104 Multicultural Counseling 3
AD 150 Basic Counseling and Addiction 3
AD 151 Basic Counseling Skills Mastery 1
AD 152 Group Counseling and Addiction 3
AD 153 Theories of Counseling 3
AD 154 Case Management and Addiction 3
AD 155 Motivational Interviewing 3
AD 156 Ethical and Professional Issues 3
AD 201 Families and Addiction 3
AD 250 Advanced Counseling and Addiction 3
AD 251 Advanced Counseling Skills Mastery 1
AD 252 Advanced Group Counseling 3

AD 280A Practicum: Addictions Counseling variable credit
AD 280B Practicum: Addiction Counseling - Seminar 2
WR 121 English Composition 3
WR 122 English Composition 3
PSY 239 Introduction to Abnormal Psychology 3

Students are required to complete 18 credit hours/approximately 800 hours of practicum for the Associate of Applied Science degree.

General Education Courses: Students with previous college experience need to have their transcripts analyzed to determine their General Education course requirement. Students are encouraged to take introductory psychology, sociology, and biology courses.

Apprenticeship
Southeast Center
244-6111, ext. 6905, 6205

Career Description: Portland Community College provides classes in accordance with the Apprenticeship and Training Laws for the State of Oregon. These classes present technical instructional for the trades and are intended to complement on-the-job skills for both men and women. Each apprenticeable trade has a joint Apprenticeship Committee which outlines the procedures to become a journeyperson. This outline usually consists of two to five years of supervised, on-the-job experience in various aspects of the trade in conjunction with PCC class work. The training committees outline the type of supportive courses needed to prepare qualified journeypersons in addition to working with PCC for related training classes. PCC employs the instructors as well as provide classroom and laboratory facilities. The following is a list of apprentice trades conducting related training classes with the PCC Apprenticeship department: bakers, carpenters, floorcoverers, ironworkers, pipefitters, plumbers, metal trades, sheetmetal workers, manufacturing plant engineers, residential and commercial electricians, limited energy and marine electricians, HVAC/Refrigeration (Heating, Venting, Air-Conditioning/Refrig-
Auto Collision Repair Technology

Rock Creek Campus
Building 2, Room 126
244-6111, ext. 7229, 7331, or 7235

Career Description: The auto collision repair person repairs damaged vehicles by straightening, removing dents from fenders and body panels, replacing badly damaged parts, and refinishing. The auto painter applies surfacers, sealers and top coats to new and repaired parts. The painter may paint partial areas or complete refinish jobs with a wide variety of paint types including lacquer, acrylic enamel, and urethane.

Course of Study: The program is designed to train students for semi-skilled positions in the auto collision repair field. Training is varied to give students a broad understanding and background in the different phases of the auto collision repair industry.

PCC offers the following forms of recognition:
- One-year Certificate of Completion (Auto/Painting): 36 credit hours; Painting I, Painting II, Painting III.
- Two-year Certificate of Completion (Auto Collision Repair): 72 credit hours of required courses.
- Associate of Applied Science Degree (Auto Collision Repair): 90 credit hours; includes 72 credit hours of Auto Collision Repair courses and 18 credit hours of General Education. Consult a program advisor for assistance in planning General Education classes.

Auto Collision Repair

<table>
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<tr>
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<th>Course Title</th>
<th>Units</th>
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<tr>
<td>AB 101</td>
<td>AB Basic Skills I</td>
<td>6</td>
</tr>
<tr>
<td>AB 102</td>
<td>AB Basic Skills II</td>
<td>6</td>
</tr>
<tr>
<td>AB 103</td>
<td>Panel Repair I</td>
<td>6</td>
</tr>
<tr>
<td>AB 104</td>
<td>Panel Repair II</td>
<td>6</td>
</tr>
<tr>
<td>AB 105</td>
<td>Frame Analysis &amp; Repair I</td>
<td>2</td>
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<tr>
<td>AB 201</td>
<td>Panel Replacement I</td>
<td>2</td>
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<tr>
<td>AB 202</td>
<td>Auto Body Technical Skills</td>
<td>6</td>
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<tr>
<td>AB 203</td>
<td>Complete Collision Repair</td>
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<tr>
<td>AB 204</td>
<td>General Shop I</td>
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The following courses are offered and are not required courses for the Certificates of Completion or the Associate Degree.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
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<td>Introduction to Auto Collision Repair</td>
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<tr>
<td>AB 121</td>
<td>Estimating</td>
<td>3</td>
</tr>
<tr>
<td>AB 9120</td>
<td>Auto Body Restoration</td>
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</table>

Auto Body Painting

First Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>AB 110</td>
<td>Auto Painting IA</td>
<td>6</td>
</tr>
<tr>
<td>AB 111</td>
<td>Auto Painting IB</td>
<td>6</td>
</tr>
</tbody>
</table>

Second Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>AB 112</td>
<td>Auto Painting IIA</td>
<td>6</td>
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<tr>
<td>AB 113</td>
<td>Auto Painting IIB</td>
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Third Term

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>AB 114</td>
<td>Auto Painting IIIA</td>
<td>6</td>
</tr>
<tr>
<td>AB 115</td>
<td>Auto Painting IIIB</td>
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Cooperative Work Experience

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>AB 280A</td>
<td>CE: Auto Body Paint</td>
<td>variable credit</td>
</tr>
<tr>
<td>AB 280B</td>
<td>CE: Auto Body Repair - Sem I</td>
<td>2</td>
</tr>
<tr>
<td>AB 280C</td>
<td>CE: Auto Body Paint</td>
<td>variable credit</td>
</tr>
</tbody>
</table>

Automotive Service Technology

Sylvania Campus
Automotive Metals B-10
244-6111, ext. 4151

Career Description: The automotive service technician diagnoses, maintains and repairs the mechanical, hydraulic, pneumatic, electrical and electronic components of automobiles.

Program Prerequisites: Students must take the English and Math placement tests given through the admissions office. To begin the program students must place into Math 20 or a higher level math class. Students must successfully complete Math 20 before continuing on to their second term of automotive. Students whose first language is not English should take the English test through the ENNL department. ENNL students who place into advanced writing and advanced reading are ready to begin automotive classes.

Course of Study: The department accepts new students 3 or 4 times a year. Students may select one of six certificate or degree programs that meet their needs. The program consists of instructional modules of three weeks, each module being an intensive course in a specialized area. At the completion of each module, students earn satisfactory achievement ratings by successfully performing actual on-the-job tasks. The automotive modules consist of lecture and laboratory work. New students must contact the PCC Automotive Department for advising and permission forms. Students will have additional costs for tools and equipment.

PCC offers the following forms of recognition:
- Two-year Certificate in Automotive Service Technology - 89 credit hours (successful completion of 22 modules and Job Finding Skills class).
- Associate of Applied Science Degree - 107 credit hours plus the coursework to satisfy the writing and math competencies. The 107 credit hours consists of 89 Automotive credits and 18 credits of General Education. Consult an advisor for assistance in planning competency and general education requirements.

Students may receive coursework and PCC college credit for passing the Automotive Service Excellence (ASE) tests. See an automotive advisor for details.

Certificates
- Brake Certificate - 16 credit hours
- Alignment Certificate - 16 credit hours
- Transmission/Drive Train Certificate - 20 credit hours
- Engine Performance Certificate - 40 credit hours
Automotive Service Educational Program (ASEP): ASEP is an educational partnership between Portland Community College and General Motors Corporation. It is a GM specific program designed to prepare the student technician as an incoming dealership technician. The curriculum reflects current GM technology.

The student spends one term on-campus in the classroom and lab. The following term, student technicians work for their sponsoring GM dealership, earning a wage and gaining practical on-the-job experience as they put to use the skills learned in the classroom. The terms will alternate until completion of the program.

Technical training is provided on campus, in the lab/classroom and at the dealership. This includes diagnosis, service and repair of current production vehicles and the latest developments in drive train, ignition, fuel and emission control management systems. Also covered are heating/ventilation conditioning and body/chassis electrical. General Education courses from arts and humanities, mathematics, natural and physical sciences and social science provide the academic background. ASEP is an Associate of Applied Science degree program. It requires a total of 84 weeks (seven terms of 12 weeks). During “on campus” terms, the student attends classes five days per week. Each “work experience” term, the student will accrue a minimum of 480 clock hours working in the sponsoring General Motors dealership.

To be eligible for the ASEP program, the applicant must:

1. Be age 18 or over at the time of the first dealership work experience period (second quarter).
2. Be a high school graduate or have a GED equivalent.
3. Take English and Math placement tests.
4. Obtain an authorized General Motors dealer sponsor.
5. Possess a valid driver’s license.
6. Have a sincere desire for a career as a GM technician.

Engine Performance Certificate (40 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM 101</td>
<td>Unit 1: Engine Repair</td>
<td>4</td>
</tr>
<tr>
<td>AM 102</td>
<td>Unit 2: Electrical Systems I</td>
<td>4</td>
</tr>
<tr>
<td>AM 103</td>
<td>Unit 3: Engine Performance I</td>
<td>4</td>
</tr>
<tr>
<td>AM 109</td>
<td>Unit 9: Fuel Systems I</td>
<td>4</td>
</tr>
<tr>
<td>AM 112</td>
<td>Unit 12: Electrical II</td>
<td>4</td>
</tr>
<tr>
<td>AM 113</td>
<td>Unit 13: Emission Control Systems</td>
<td>4</td>
</tr>
<tr>
<td>AM 119</td>
<td>Unit 19: Fuel Systems II</td>
<td>4</td>
</tr>
<tr>
<td>AM 123</td>
<td>Unit 23: Engine Performance II - Diagnosis and Repair</td>
<td>4</td>
</tr>
<tr>
<td>AM 133</td>
<td>Unit 33: Engine Performance III - Diagnosis and Repair</td>
<td>4</td>
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</tbody>
</table>

Transmission/Drive Train Certificate (20 credit hours)

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AM 108</td>
<td>Unit 8: Intro to Automotive Systems</td>
<td>4</td>
</tr>
<tr>
<td>AM 107</td>
<td>Unit 7: Manual Drive Train and Axles</td>
<td>4</td>
</tr>
<tr>
<td>AM 117</td>
<td>Unit 17: Manual Drive Train and Axles</td>
<td>4</td>
</tr>
<tr>
<td>AM 127</td>
<td>Unit 27: Automatic Transmission/Transaxle I</td>
<td>4</td>
</tr>
<tr>
<td>AM 137</td>
<td>Unit 37: Automatic Transmission/Transaxle II</td>
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</table>

Alignment Certificate (16 credit hours)

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AM 108</td>
<td>Unit 8: Intro to Automotive Systems</td>
<td>4</td>
</tr>
<tr>
<td>AM 104</td>
<td>Unit 4: Steering and Suspension Systems I</td>
<td>4</td>
</tr>
<tr>
<td>AM 114</td>
<td>Unit 14: Steering and Suspension Systems II</td>
<td>4</td>
</tr>
<tr>
<td>AM 124</td>
<td>Unit 24: Steering and Suspension Systems III</td>
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</table>

Broke Certificate (16 credit hours)

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AM 108</td>
<td>Unit 8: Intro to Automotive Systems</td>
<td>4</td>
</tr>
<tr>
<td>AM 104</td>
<td>Unit 4: Steering and Suspension Systems I</td>
<td>4</td>
</tr>
<tr>
<td>AM 114</td>
<td>Unit 14: Steering and Suspension Systems II</td>
<td>4</td>
</tr>
<tr>
<td>AM 124</td>
<td>Unit 24: Steering and Suspension Systems III</td>
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</table>

Two-year Certificate (89 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AM 101</td>
<td>Unit 1: Engine Repair</td>
<td>4</td>
</tr>
<tr>
<td>AM 102</td>
<td>Unit 2: Electrical Systems I</td>
<td>4</td>
</tr>
<tr>
<td>AM 103</td>
<td>Unit 3: Engine Performance I</td>
<td>4</td>
</tr>
<tr>
<td>AM 104</td>
<td>Unit 4: Steering and Suspension Systems I</td>
<td>4</td>
</tr>
<tr>
<td>AM 105</td>
<td>Unit 5: Brake Systems I</td>
<td>4</td>
</tr>
<tr>
<td>AM 106</td>
<td>Unit 6: Heating and Air Conditioning Systems</td>
<td>4</td>
</tr>
<tr>
<td>AM 107</td>
<td>Unit 7: Manual Drive Train and Axles</td>
<td>4</td>
</tr>
<tr>
<td>AM 108</td>
<td>Unit 8: Intro to Automotive Systems</td>
<td>4</td>
</tr>
<tr>
<td>AM 109</td>
<td>Unit 9: Fuel Systems I</td>
<td>4</td>
</tr>
<tr>
<td>AM 112</td>
<td>Unit 12: Electrical II</td>
<td>4</td>
</tr>
<tr>
<td>AM 113</td>
<td>Unit 13: Emission Control Systems</td>
<td>4</td>
</tr>
<tr>
<td>AM 114</td>
<td>Unit 14: Steering and Suspension Systems II</td>
<td>4</td>
</tr>
<tr>
<td>AM 115</td>
<td>Unit 15: Brake Systems II</td>
<td>4</td>
</tr>
<tr>
<td>AM 117</td>
<td>Unit 17: Manual Drive Train and Axles</td>
<td>4</td>
</tr>
<tr>
<td>AM 119</td>
<td>Unit 19: Fuel Systems II</td>
<td>4</td>
</tr>
<tr>
<td>AM 122</td>
<td>Unit 22: Electrical III</td>
<td>4</td>
</tr>
<tr>
<td>AM 123</td>
<td>Unit 23: Engine Performance II - Diagnosis and Repair</td>
<td>4</td>
</tr>
<tr>
<td>AM 124</td>
<td>Unit 24: Steering and Suspension Systems III</td>
<td>4</td>
</tr>
<tr>
<td>AM 125</td>
<td>Unit 25: Brake Systems III</td>
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<tr>
<td>AM 127</td>
<td>Unit 27: Automatic Transmission/Transaxle I</td>
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<tr>
<td>AM 137</td>
<td>Unit 37: Automatic Transmission/Transaxle II</td>
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<tr>
<td>AM 133</td>
<td>Unit 33: Engine Performance III - Diagnosis and Repair</td>
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<tr>
<td>AM 141</td>
<td>Unit 41: Diagnosis and Repair</td>
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<tr>
<td>AM 280A CE: Automotive Service</td>
<td>8</td>
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<tr>
<td>CG 209 Job Finding Skills</td>
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</table>

Elective Modules (Unit 24 and Unit 25 are required for the certificate in Alignment or Brakes.)

ASEP students only

Career Description: An aircraft mechanic licensed under Part 65 of the Federal Aviation Regulations may maintain or alter aircraft within limitations specified by the regulations. The license also permits the holder to supervise other people in maintaining aircraft and to approve work for return to service. In addition, the licensed mechanic may perform 100 hour inspections. After completing 100 hour inspections or maintenance, the mechanic must certify airworthiness or approval for return to service in a signed entry in the appropriate aircraft record. The Aviation Maintenance program is approved by the State Division of Vocational Education, the Veterans Administration and the Federal Aviation Administration.
As an airframe and powerplant mechanic, you will be responsible for keeping aircraft in safe condition by doing the following activities: servicing, repair and overhaul of aircraft components and systems including airframes, engines, electrical and hydraulic systems, propellers, avionics and instruments.

The AMT mechanic is considered to be a general practitioner and may decide to specialize in: hydraulics, pneumatics, rigging, inspection, bonded repair, corrosion control, sheetmetal repair, electrical systems, avionics installation, propeller service, welding, painting, record keeping, or engine service.

**Program Prerequisite:** Satisfactory entrance testing

**Course of Study:** The Aviation Maintenance program is offered in a recommended sequence of 25 three-week modules. However, flexibility in program design does allow some variation in schedule. Any variation should be approved by the departmental representative.

The program is further divided into three areas of study:
- **General:** These classes contain requirements which are common to both airframe and powerplant ratings. They should be completed prior to entry into the airframe and powerplant areas.
- **Airframe:** Students who have completed all classes in the airframe and general areas may receive a certificate of completion which qualifies them to take FAA tests for an Aviation Mechanics License with the Airframe Rating.
- **Powerplant:** Students who have completed all classes in the powerplant and general areas may receive a certificate of completion which qualifies them to take FAA tests for an Aviation Mechanics License with the Powerplant Rating.

**PCC offers the following forms of recognition:**
- Airframe Certificate: 64 credit hours of required aviation maintenance technology courses, includes 28 credit hours of required general courses and 36 credit hours of required airframe courses.
- Powerplant Certificate: 64 credit hours of required aviation maintenance technology courses, includes 28 credit hours of required general courses and 36 credit hours of required powerplant courses.
- Two-year Certificate of Completion: minimum 100 credit hours of required aviation maintenance courses, including general airframe and powerplant courses.
- Associate of Applied Science Degree: minimum of 118 credit hours, includes 100 credit hours of aviation maintenance courses and 18 credit hours of General Education. Consult the college catalog General Education course list for approved General Education courses and distribution.

**Aviation Maintenance Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>AMT 101</td>
<td>Introduction to A&amp;P</td>
<td>4</td>
</tr>
<tr>
<td>AMT 102</td>
<td>Basic Electricity</td>
<td>4</td>
</tr>
<tr>
<td>AMT 203</td>
<td>A&amp;P Electricity I</td>
<td>4</td>
</tr>
<tr>
<td>AMT 204</td>
<td>A&amp;P Electricity II</td>
<td>4</td>
</tr>
<tr>
<td>AMT 105</td>
<td>FARs &amp; Related Subjects</td>
<td>4</td>
</tr>
<tr>
<td>AMT 106</td>
<td>A&amp;P Applied Math</td>
<td>4</td>
</tr>
<tr>
<td>AMT 107</td>
<td>Materials &amp; Processes</td>
<td>4</td>
</tr>
<tr>
<td>AMT 208</td>
<td>Aircraft Systems</td>
<td>4</td>
</tr>
<tr>
<td>AMT 109</td>
<td>Assembly &amp; Rigging</td>
<td>4</td>
</tr>
<tr>
<td>AMT 110</td>
<td>Aircraft Finishes</td>
<td>4</td>
</tr>
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<table>
<thead>
<tr>
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<th>Course Name</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>AMT 211</td>
<td>Bonded Structures</td>
<td>4</td>
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<tr>
<td>AMT 212</td>
<td>Sheet Metal</td>
<td>4</td>
</tr>
<tr>
<td>AMT 213</td>
<td>Hydraulic Systems &amp; Landing Gear</td>
<td>4</td>
</tr>
<tr>
<td>AMT 214</td>
<td>Instruments, Communication &amp; Navigation Systems</td>
<td>4</td>
</tr>
<tr>
<td>AMT 115</td>
<td>Aircraft Structures &amp; Inspection</td>
<td>4</td>
</tr>
<tr>
<td>AMT 216</td>
<td>AMT Practicum/Airframe</td>
<td>4</td>
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</table>

**Powerplant:**
- AMT 117 Reciprocating Engine Theory & Maintenance
- AMT 218 Powerplant Inspection
- AMT 219 Turbine Engine Overhaul
- AMT 120 Propellers and Engine Installation
- AMT 121 Turbine Engine Theory and Maintenance
- AMT 222 Reciprocating Engine Overhaul
- AMT 123 Ignition Systems
- AMT 124 Fuel Metering Systems
- AMT 225 A&P Practicum/Powerplant

**B-FIT Program**

(Building Futures in Industry and Trades)

Rock Creek Campus
Building 2, Room 104
244-6111 ext. 7201, 7475, or 7246

**Career Description:** This program is a component of the Building Construction Technology Department. It is a two-term certificate program giving students a unique hands-on experience in many of the basic skills required to enter an apprenticeship training program or other skilled non-traditional jobs in industry. Program focus is on the construction, electrical and mechanical trades.

**Program Prerequisites:** The B-FIT program was originally designed for women preparing to work in skilled trades jobs; some classes are now coed. Students must meet the program physical requirements, be able to read, write, and speak in English, and have the ability to do basic math computations. It is recommended that students have a driver's license. Students are required to take the ASSET assessment before they may be accepted in the program.

**Course of Study:** A series of courses structured to prepare students for entry into apprenticeship programs and other non-traditional occupations. Selected courses introduce industrial skills training in the construction, electrical and mechanical trades, trades math, physical strength training, job safety, researching industrial occupations, welding principles, computer literacy, and co-op work experience.

**PCC offers the following form of recognition:**
- Certificate of Completion: 35 credit hours as outlined in the sequence of courses.
### Professional / Technical Programs

**Fall Term 1994 — Summer Term 1995**

#### Term One

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BCT 107</td>
<td>Introduction to Applied Construction I</td>
<td>5</td>
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<tr>
<td>BCT 108</td>
<td>Introduction to Applied Construction II</td>
<td>5</td>
</tr>
<tr>
<td>BCT 104</td>
<td>Basic Trades Builders Math</td>
<td>2</td>
</tr>
<tr>
<td>BCT 111</td>
<td>Voc Training for Trades &amp; Industry</td>
<td>1</td>
</tr>
<tr>
<td>BCT 112</td>
<td>Target Occup Trades/Industry</td>
<td>2</td>
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<tr>
<td>HPE 296</td>
<td>Health and Fitness for Industry I</td>
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#### Term Two

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BCT 109</td>
<td>Intro Elect/Mech Trades I</td>
<td>5</td>
</tr>
<tr>
<td>BCT 110</td>
<td>Intro Elect/Mech Trades 2</td>
<td>5</td>
</tr>
<tr>
<td>BCT 113</td>
<td>Contemporary Worksite Issues</td>
<td>3</td>
</tr>
<tr>
<td>HPE 297</td>
<td>Health and Fitness for Industry II</td>
<td>2</td>
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<tr>
<td>BT 121A</td>
<td>Beginning Keyboarding</td>
<td>1</td>
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<tr>
<td>BT 201A</td>
<td>Beg WP Wordprf: DOS</td>
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<td>WLD 9902</td>
<td>Welding Practice I</td>
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</tr>
<tr>
<td>BCT 280A</td>
<td>CE: Building Construction</td>
<td>1</td>
</tr>
</tbody>
</table>

B-FIT courses may be applied towards a One-year Certificate of Completion in Residential Construction.

### Building Construction Technology

**Rock Creek Campus**

Building 2, Room 104
244-6111, ext. 7201, 7475, or 7246

#### Career Description:
Career possibilities exist for employment by others in residential or commercial projects, basic accounting, purchasing, sales (construction equipment, building materials and supplies), estimating, building inspection and contract work, as well as for self-employment.

#### Program Prerequisites:
Students are required to take the ASSET assessment before they may be accepted in the program. There are no other prerequisites if the student begins the program in courses that do not involve the use of building construction tools and equipment. BCT 106, Hand Tools, Power Tool Use and Safety, or instructor permission is a prerequisite for all other BCT courses.

#### Course of Study:
The program is designed to help students develop the technical qualifications needed in residential or commercial construction and prepare those with construction experience for management and upgrading.

#### PCC offers the following forms of recognition:
- Residential Construction One-year Certificate of Completion - minimum of 36 hours of listed Building Construction courses.
- Commercial Construction One-year Certificate of Completion - minimum of 36 hours of listed Building Construction courses.
- Two-year Certificate of Completion - minimum of 72 hours of listed Building Construction courses.
- Associate of Applied Science Degree - minimum of 90 credit hours, including 72 credit hours of Building Construction courses and 18 hours of General Education. Consult a program advisor for assistance in planning General Education classes.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCT 100</td>
<td>Building Construction/Contracting</td>
<td>2</td>
</tr>
<tr>
<td>BCT 101</td>
<td>Intro to Residential Construction</td>
<td>1</td>
</tr>
<tr>
<td>BCT 102</td>
<td>Blueprint Reading for Building Construction</td>
<td>2</td>
</tr>
<tr>
<td>BCT 103</td>
<td>Materials of Construction</td>
<td>2</td>
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### One Year Certificate in Residential Construction

#### First Term

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BCT 102</td>
<td>Blueprint Reading for Building Construction</td>
<td>2</td>
</tr>
<tr>
<td>BCT 104</td>
<td>Basic Trades Builders Math</td>
<td>2</td>
</tr>
<tr>
<td>BCT 105</td>
<td>Building Codes for</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One and Two Family Residences</td>
<td>3</td>
</tr>
<tr>
<td>BCT 106</td>
<td>Hand Tool/Power Tool Use and Safety</td>
<td>6</td>
</tr>
<tr>
<td>BCT 107</td>
<td>Introduction to Applied Construction I</td>
<td>5</td>
</tr>
<tr>
<td>BCT 120</td>
<td>Floor Framing</td>
<td>3</td>
</tr>
<tr>
<td>BCT 121</td>
<td>Wall Framing</td>
<td>3</td>
</tr>
<tr>
<td>BCT 122</td>
<td>Roof Framing I</td>
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<tr>
<td>BCT 123</td>
<td>Roof Framing 2</td>
<td>3</td>
</tr>
<tr>
<td>BCT 126</td>
<td>Site Layout</td>
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<td>BCT 127</td>
<td>Concrete Construction</td>
<td>6</td>
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<tr>
<td>BCT 128</td>
<td>Exterior Finish</td>
<td>3</td>
</tr>
<tr>
<td>BCT 202</td>
<td>Contracts, Specifications and Construction Bookkeeping</td>
<td>3</td>
</tr>
<tr>
<td>BCT 203</td>
<td>Interior Finish</td>
<td>6</td>
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<tr>
<td>BCT 204</td>
<td>Construction Codes and Estimating</td>
<td>3</td>
</tr>
<tr>
<td>BCT 205</td>
<td>Cabinetry I</td>
<td>2</td>
</tr>
<tr>
<td>BCT 206</td>
<td>Structural Timber Finish</td>
<td>3</td>
</tr>
<tr>
<td>BCT 207</td>
<td>Commercial Interior Finish</td>
<td>3</td>
</tr>
<tr>
<td>BCT 208</td>
<td>Commercial Concrete Construction</td>
<td>6</td>
</tr>
<tr>
<td>BCT 211</td>
<td>Remodeling</td>
<td>2</td>
</tr>
<tr>
<td>BCT 213</td>
<td>Advanced Blueprint Reading</td>
<td>2</td>
</tr>
<tr>
<td>BCT 215</td>
<td>Introduction to Uniform Building Codes</td>
<td>4</td>
</tr>
<tr>
<td>BCT 216</td>
<td>Beginning Cabinetry</td>
<td>2</td>
</tr>
<tr>
<td>BCT 217</td>
<td>Intermediate Cabinetry</td>
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</tr>
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<td>BCT 218</td>
<td>Advanced Cabinetry</td>
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</tr>
<tr>
<td>BCT 280A</td>
<td>CE: Building Construction</td>
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</tr>
<tr>
<td>BCT 280B</td>
<td>CE: Building Construction</td>
<td>4</td>
</tr>
<tr>
<td>BCT 280C</td>
<td>CE: Building Construction</td>
<td>8</td>
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<tr>
<td>BCT 280D</td>
<td>CE: Building Construction I</td>
<td>2</td>
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<tr>
<td>BCT 280E</td>
<td>CE: Building Construction - Seminar</td>
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#### Second Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BCT 120</td>
<td>Floor Framing</td>
<td>3</td>
</tr>
<tr>
<td>BCT 121</td>
<td>Wall Framing</td>
<td>3</td>
</tr>
<tr>
<td>BCT 122</td>
<td>Roof Framing 1</td>
<td>3</td>
</tr>
<tr>
<td>BCT 123</td>
<td>Roof Framing 2</td>
<td>3</td>
</tr>
<tr>
<td>BCT 126</td>
<td>Site Layout</td>
<td>2</td>
</tr>
<tr>
<td>BCT 127</td>
<td>Concrete Construction</td>
<td>6</td>
</tr>
<tr>
<td>BCT 128</td>
<td>Exterior Finish</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Third Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BCT 102</td>
<td>Blueprint Reading for Building Construction</td>
<td>2</td>
</tr>
<tr>
<td>BCT 104</td>
<td>Basic Trades Builders Math</td>
<td>2</td>
</tr>
<tr>
<td>BCT 105</td>
<td>Building Codes for</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One and Two Family Residences</td>
<td>3</td>
</tr>
<tr>
<td>BCT 106</td>
<td>Hand Tool/Power Tool Use and Safety</td>
<td>6</td>
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</tbody>
</table>

### One Year Certificate in Commercial Construction

#### First Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCT 102</td>
<td>Blueprint Reading for Building Construction</td>
<td>2</td>
</tr>
<tr>
<td>BCT 104</td>
<td>Basic Trades Builders Math</td>
<td>2</td>
</tr>
<tr>
<td>BCT 105</td>
<td>Building Codes for</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One and Two Family Residences</td>
<td>3</td>
</tr>
</tbody>
</table>

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**Technical Programs Fall Term 1994 — Summer Term 1995**
Business Administration

Cascade Campus
244-6111, ext. 5352, 5232, 5501, or 5317

Rock Creek Campus
Building 2/103
244-6111, ext. 7447

Southeast Center D 8
244-6111, ext. 6230

Sylvania Campus
Social Science Building B 17
244-6111, ext. 4287 or 4393

Programs:

Business Administration

Two-year Career Degrees:

Associate of Applied Science in Accounting
Associate of Applied Science in Management
Associate of Applied Science in Marketing

Related Programs:

Associate of Applied Science in Credit Services*
Associate of Applied Science in Sales Services*

*(descriptions for these programs appear under Customer Service Technology in catalog)

Two-year Transfer Business Administration Degree:

Associate of Science

Career Certificates:

Accounting Clerk
Marketing

Certificate of Completion:

International Business

Areas of Concentration (no certificate or degree awarded):

Income Tax Preparation and License Renewal
Purchasing

Business Administration Programs: Portland Community College offers two kinds of associate degree programs within the broad area of Business Administration. One is designed for students who will enter the workforce after completing their two-year degree, and the other is designed for those who will transfer to a four-year college or university to pursue a bachelor's degree. Associate degree programs may be completed in approximately six terms, assuming the student is enrolled on a full-time basis. These programs are described in the following pages. One-year career certificate programs are also offered through the Business Administration Department.

Career Degree Programs

Associate of Applied Science Degree Programs (non-transfer): Three Associate of Applied Science degrees in Business Administration are offered. They are: Accounting, Management, and Marketing. These two-year degrees emphasize skills to be used on the job upon completion of the degree requirements, and are not designed for students intending to transfer to four-year schools. Courses with three-digit numbers may be transferable to four-year colleges and universities. If transferability of courses is a concern, students should consult with the institution of their choice regarding transfer possibilities.

All courses and programs of study in business require a minimum of college entry-level competency in English and in computational skills. Additional skill requirements are specified through the listing of prerequisites. Students with questions about this entry-level readiness should arrange for evaluations of their skill levels through the PCC Counseling Department. ASSET testing designed to assist students in selecting appropriate writing and mathematics courses may be required prior to registration. Additional testing may be required for selected business courses. Due to the rapid changes in employment opportunities, technological advances and certifying agency regulations, business programs are subject to change.

Students must meet PCC's writing and math competencies prior to graduation. See academic regulations in the catalog.

Accounting

Career Description: The Associate of Applied Science Accounting program prepares students for entry into the accounting field as bookkeepers, accounting clerks or accounting assistants who perform routine calculations, posting and typing duties, check items on reports, summarize and post data in designated books, and perform a variety of other duties such as preparing invoices or monthly statements, preparing payrolls, verifying bank accounts, keeping record files and making periodic reports of business activities.
Program Prerequisites: College entry-level competencies in English and in computational skills. Additional skill requirements for individual business courses are listed in the course description section.

Course of Study: This program and individual courses are available at several PCC locations. Please call a campus or center for further information.

The two-year Associate of Applied Science degree program includes accounting and specialty courses in addition to general business and General Education courses.

PCC offers the following form of recognition:

- Associate of Applied Science Degree - 91 or 92 credit hours; includes 76/77 credit hours of required courses, 3 credit hours of business electives and 12 credit hours of General Education. Consult a program advisor for assistance in planning General Education courses. MTH 65 is required for graduation. A math challenge exam is available.

First Term
- BA 131 Computers in Business 4
- MTH 30 Business Mathematics I 4
- BA 102 Introduction to Accounting 3
- BT 131 10-Key on Calculators 1
- WR 121 English Composition 3

Second Term
- BA 211 Principles of Accounting I 3
- EC 200 Principles of Economics: Intro, Institutions & Philosophies 3
- BA 101 Introduction to Business 4
- BT 201 Beg WP Wordprf: DOS 3
- WR 214 Business Communications 3

Third Term
- BA 206 Management Fundamentals 3
- BA 212 Principles of Accounting II 3
- EC 202 Principles of Economics: Macroeconomics 3
- BT 177 Beg SS Lotus: DOS 3
- General Education 3

Fourth Term
- BA 226 Business Law I 3
- BA 213 Principles of Accounting III 3
- BA 228 Computer Accounting Applications 3
- EC 201 Principles of Economics: Microeconomics 3
- General Education 3

Fifth Term
- BA 215 Basic Cost Accounting 3
- BA 256 Income Tax 3
- BA 216 Accounting Problems 3
- General Education 3

Choose one of the following:
- BA 210 Adv Acctg Spst App 3
- BA 280A CE:Business Experience/ 3
  and
- BA 280B CE:Business Experience - Seminar 3

Sixth Term
- BA 222 Financial Management 3
- BA 240 Governmental Accounting 3
- PHL 202 Introduction to Philosophy: Elementary Ethics 3

or
- PHL 209 Business Ethics 3
- Business Elective 3
- General Education 3

1 May choose EC 201, 202, 203 sequence in lieu of EC 200, 201, 202
2 Choose from list of approved business electives for Business Administration programs
3 Prerequisites for business courses are listed in the course description section.
4 Students who have completed high school bookkeeping or have had work experience with full-cycle bookkeeping responsibilities should substitute an approved business elective and start the accounting series with BA 211 in the second term.

Approved business electives follow at the end of the Business Administration section.

Note: Scheduling requirements may prevent all courses from being offered every term. Consultation with advisor is critical to student’s selection of courses.

Management

Career Description: A management graduate enters business as a supervisory trainee who will coordinate activities and direct personnel to attain operational goals. Management supervisors assign duties to workers and establish work schedules. They may also evaluate performance, and may recommend hiring, promotions, and dismissals.

Program Prerequisites: College entry-level competencies in English and in computational skills. Additional skill requirements for individual business courses are listed in the course description section.

Course of Study: This program and individual courses are available at several PCC locations. Please call a campus or center for further information. The emphasis of the Management program is on management principles, marketing, accounting, office management and small business management.

PCC offers the following form of recognition:

- Associate of Applied Science Degree - 94 credit hours; includes 79 credit hours of required courses, and 15 credit hours of General Education. Consult a program advisor for assistance in planning General Education classes. MTH 65 is required for graduation. A math challenge exam is available.

First Term
- BA 101 Introduction to Business 4
- MTH 30 Business Mathematics I 4
- BA 102 Introduction to Accounting 3
- BT 121 Beginning Keyboarding 3
- WR 121 English Composition 3

Second Term
- BA 206 Management Fundamentals 3
- BA 21 I Principles of Accounting I 3
- BA 238 Sales 3
- BT 131 10-Key on Calculators 1
- WR 214 Business Communications 3

Third Term
- BA 203 Introduction to International Business 3
- BA 212 Principles of Accounting II 3
- BA 226 Business Law I 3
- BA 244 Introduction to Records Management 3
- BA 250 Small Business Management 3
**Fall Term 1994 — Summer Term 1995**

**Professional / Technical Programs**

### Fourth Term

- **BA 223** Principles of Marketing 3
- **EC 200** Principles of Economics: Intro, Institutions & Philosophies 3
- **General Education** 6

**Choose a 3-credit course from the following**

- **BT 201** Beg WP Wrprf: DOS 3
- **BT 219** Beg WP Word: MAC 3
- **BT 177** Beg SS Lotus: DOS 3
- **BT 172** Beg SS Excel: MAC 3

*Other software may substitute. Consult the Business Administration department for further information.

### Fifth Term

- **BA 131** Computers in Business 4
- **BA 113** Credit Procedures 3
- **BA 213** Principles of Accounting III 3
- **BA 224** Human Resource Management 3
- **General Education** 3

### Sixth Term

- **BA 228** Computer Accounting Applications 3
- **BA 222** Financial Management 3
- **BA 251** Office Management 3
- **BA 285** Human Relations-Organizations 3
- **General Education** 6

1. Prerequisites for business courses are listed in the course description section.
2. Students who have completed high school bookkeeping or have had work experience with full-cycle bookkeeping responsibilities should substitute an approved business elective and start the accounting series with BA 211 in the second term. Approved business electives follow at the end of the Business Administration section.
3. Students who can touch type should substitute an approved business elective.

**Note:** Scheduling requirements may prevent all courses from being offered every term. Consultation with advisor is critical to the student's selection of courses.

### Marketing

**Career Description:** Marketing is a major function of business, with widely diverse job opportunities in the world of commerce, industry, and retailing. Marketing workers typically are employed in advertising, direct sales, physical distribution, purchasing retailing, manufacturing and other commercial and industrial firms.

**Program Prerequisites:** College entry-level competencies in English and in computational skills. Additional requirements for individual business courses are listed in the course description section.

**Course of Study:** This program and individual courses are available at several PCC locations. The program emphasis is on a diverse cross section of Marketing courses. This foundation will enable students to successfully compete in the dynamic marketing environments of commerce, industry and retailing. Practical experience is provided through outside cooperative education jobs. Graduates of this program are prepared to enter marketing management training programs.

**PCC offers the following form of recognition:**

- Associate of Applied Science degree - 93 credit hours includes: 72 credit hours of required courses; 12 credit hours of General Education; 9 credit hours of electives. (Some restrictions apply: see footnotes 4 and 5 at end of sixth term listing). Consult a program advisor for assistance in planning General Education classes. MTH 65 is required for graduation. A math challenge exam is available.

**Note:** While courses listed below are required, the following is merely a suggested sequence for completing the degree. Course offerings will vary for each campus. See a marketing faculty advisor for assistance in planning a schedule.

### First Term

- **BA 101** Introduction to Business 4
- **BA 131** Computers in Business 4
- **MTH 30** Business Mathematics I 4
- **WR 121** English Composition 3

### Second Term

- **BA 102** Introduction to Accounting 3
- **BA 226** Business Law I 3
- **BA 285** Human Relations-Organizations 3
- **BT 121A** Beginning Keyboarding 1
- **BT 131** 10-Key on Calculators 1
- **WR 214** Business Communications 3
- **General Education** 3

### Third Term

- **BA 211** Principles of Accounting I 3
- **BA 223** Principles of Marketing 3
- **EC 200** Principles of Economics: Intro, Institutions & Philosophies 3
- **SP 111** Fundamentals of Speech 3
- **General Education** 3

### Fourth Term

- **BA 238** Sales 3
- **BA 203** Introduction to International Business 3
- **BA 250** Small Business Management 3
- **BT 201** Beg WP Wrprf: DOS 3
- **Business Elective** 3

### Fifth Term

- **BA 239** Advertising 3
- **BA 113** Credit Procedures 3
- **BA 234** International Marketing 3
- **BA 280A** CE: Business Experience I 3
- **BA 280B** CE: Business Experience - Seminar 1
- **Business Elective** 3

### Sixth Term

- **BA 249** Retailing 3
- **BA 280A** CE: Business Experience I 3
- **Business Elective** 3
- **General Education** 6

1. Prerequisites for business courses are listed in the course description section.
2. Students who have completed high school bookkeeping or have had work experience with full-cycle bookkeeping responsibilities should substitute an approved business elective and start the accounting series with BA 211 in the third term. Approved business electives are listed at the end of the Business Administration section.
Professional / Technical Programs

Fall Term 1994 — Summer Term 1995

Students who can touch type should substitute an approved business elective.

Students working toward the Marketing degree program must complete 2 courses (6 credit hours) from the following list:

- BA 114 Introduction to Buying
- BA 160 Purchasing I
- BA 252 Sales Management
- BA 280A CE: Business Experience (3rd term)
- BT 177 Beginning Spreadsheet

The remaining 3 credit hours of electives may be selected from the complete approved business electives list for Business Administration programs.

Note: Scheduling requirements may prevent all courses from being offered every term. Consultation with advisor is critical to student's selection of courses.

Transfer Degree Program

Associate of Science in Business Administration: Portland Community College offers a transferable degree titled Associate of Science in Business Administration. This degree is for students interested in pursuing a bachelor's degree in Business Administration from a four-year college or university after completing an associate degree. In this program, students can take most or all of their lower division coursework at PCC and transfer their college credit to a four-year college. For a list of program requirements check with your business advisor.

Note: Scheduling requirements may prevent all courses from being offered every term. Consultation with advisor is critical to student's selection of courses.

Career Certificate Programs

Accounting Clerk Certificate Program

Career Description: This program prepares students for entry-level positions in bookkeeping. Entry-level bookkeepers perform routine tasks such as bank reconciliations, journalizing, posting, worksheets, accounts payable, accounts receivable and payroll, plus clerical duties such as typing and filing.

Program Prerequisites: College entry-level competencies in English and in computational skills. Additional skill requirements for individual business courses are listed in the course description section.

Course of Study: This program and individual courses are available at several PCC locations. Please call a campus or center for further information. The program emphasizes bookkeeping and accounting specialty courses plus keyboarding, in addition to general business microcomputer applications courses.

PCC offers the following form of recognition:

- One-year Certificate - 46 credit hours as outlined in the required courses.

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 101</td>
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<tr>
<td>MTH 30</td>
<td></td>
</tr>
<tr>
<td>BA 102</td>
<td></td>
</tr>
<tr>
<td>BT 121</td>
<td></td>
</tr>
<tr>
<td>WR 121</td>
<td></td>
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Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 211</td>
<td>Principles of Accounting I</td>
</tr>
<tr>
<td>BA 226</td>
<td>Business Law I</td>
</tr>
<tr>
<td>BT 131</td>
<td>10-Key on Calculators</td>
</tr>
<tr>
<td>WR 214</td>
<td>Business Communications</td>
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</table>

Choose three credits from the following list of BT courses*

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>BT 201</td>
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<tr>
<td>BT 219</td>
<td>Beg WP Word: MAC</td>
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<tr>
<td>BT 177</td>
<td>Beg SS Lotus: DOS</td>
</tr>
<tr>
<td>BT 172</td>
<td>Beg SS Excel: MAC</td>
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</table>

*Other software may substitute. Consult the Business Administration department for further information.

Third Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BA 131</td>
<td>Computers in Business</td>
</tr>
<tr>
<td>BA 228</td>
<td>Computer Accounting Applications</td>
</tr>
<tr>
<td>BA 212</td>
<td>Principles of Accounting I</td>
</tr>
<tr>
<td>BA 285</td>
<td>Human Relations-Organizations</td>
</tr>
<tr>
<td>EC 200</td>
<td>Principles of Economics: Intro, Institutions &amp; Philosophies</td>
</tr>
</tbody>
</table>

Prerequisites for business courses are listed in the course description section.

Students who have completed high school bookkeeping or have had work experience with full-cycle bookkeeping responsibilities should substitute an approved business elective and start the accounting series BA 211 in the second term.

Students who can touch type should substitute an approved business elective.

Note: Scheduling requirements may prevent all courses from being offered every term. Consultation with advisor is critical to student's selection of courses.

Marketing Certificate Program

Career Description: Persons completing this program are prepared to enter the marketing field at entry-level positions with firms in commerce, industry and merchandising.

Program Prerequisites: College entry-level competencies in English and in computational skills. Additional skill requirement for individual business courses are listed in the course description section of the catalog.

Course of Study: This program and individual courses are available at several PCC locations. The emphasis on this program is to provide a basic understanding of the marketing environment of commerce and industry to develop a career in the field.

PCC offers the following form of recognition:

- One-year Certificate - 45 credit hours; including 42 credit hours of required courses and 3 credit hours of approved business electives.

Note: While all courses below are required to complete the certificate, course offerings will vary for each campus. See a Marketing faculty advisor for assistance in planning a schedule.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>BA 102</td>
<td>Introduction to Accounting</td>
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<tr>
<td>BA 101</td>
<td>Introduction to Business</td>
</tr>
<tr>
<td>BA 131</td>
<td>Computers in Business</td>
</tr>
<tr>
<td>BA 223</td>
<td>Principles of Marketing</td>
</tr>
<tr>
<td>BA 238</td>
<td>Sales</td>
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<td>BA 239</td>
<td>Advertising</td>
</tr>
<tr>
<td>BA 249</td>
<td>Retailing</td>
</tr>
<tr>
<td>BA 280A</td>
<td>CE: Business Experience</td>
</tr>
</tbody>
</table>
II

BA 280A CE: Business Experience - Seminar 1
BA 285 Human Relations - Organizations 3
BT 121A Beginning Keyboarding 1
BT 201 Beg WP Wrndfr: DOS 3
BT 131 10-Key on Calculators 1
MTT 30 Business Mathematics I 4
WR 121 English Composition 3

Elective 3

1Prerequisites for business courses are listed in the course description section.
2Students who have completed high school bookkeeping or have had work experience with full-cycle bookkeeping responsibilities should substitute an approved business elective.
3Approved business electives are listed at the end of the Business Administrative program description.

Note: Scheduling requirements may prevent all courses from being offered every term. Consultation with an advisor is critical to students' selection of courses.

Certificate of Completion, International Business

Description: The Business Administration Department offers a Certificate of Completion in International Business. This is not a career certificate but a program designed to enhance cultural awareness and expose the student to the international business environment in general. Students will be introduced to international law, international marketing, importing and exporting, global economics, and the managerial implications of operating in a foreign environment.

PCC offers the following form of recognition:
Certificate of Completion: 30-31 credit hours, including 15 credit hours of required courses and 15-16 credit hours of restricted electives.

Required courses:
BA 203 Introduction to International Business 3
BA 141 Introduction to International Business Law 3
BA 237 Fundamentals of Import/Export 3
BA 234 International Marketing 3
EC 230 Contemporary World Economic Issues: International Economics 3

Restricted Electives 15-16 

(see below)

1Prerequisites are listed in course description section of this catalog.
2Restricted Electives:
(see course descriptions in this catalog)

Restricted Electives: Choose 15-16 credits
BA 101 Introduction to Business 4
BA 206 Management Fundamentals 3
BA 211 Principles of Accounting I 3
BA 212 Principles of Accounting II 3
BA 213 Principles of Accounting III 3
BA 222 Financial Management 3
BA 223 Principles of Marketing 3
BA 224 Human Resource Management 3
BA 226 Business Law I 3
BA 227 Business Law II 3
BA 238 Sales 3
BA 280A CE: Business Experience I 3

Income Tax

Area of Concentration: All preparers of individual income tax returns who charge a fee for their services are required by Oregon law to complete 80 clock hours of basic income tax instruction before taking the state licensing exam. All preparers must be at least 18 years of age and be a high school graduate or GED recipient. A minimum of 20 clock hours must be completed each year following the applicant's initial licensing in order to renew the license. This renewal program consists of advanced study of income tax law, theory and practice. Two courses are offered to provide interested individuals with an opportunity for meeting Oregon statutory education requirements.

BA 9703 Income Tax Preparation: Basic 8
BA 9706 Income Tax Preparation: Advanced 3
Purchasing

Area of Concentration: In any business organization, equipment, materials, and supplies must be purchased. The purchasing function is very similar in all organizations. A purchasing agent is generally responsible for securing new materials, services, and goods as needed. Two courses are currently offered for either introduction to this business activity or upgrading of skills.

BA 150 Purchasing I
BA 161 Purchasing II

Approved Business Electives for Business Administration Programs:

These business electives apply to all Business Administration degrees and certificates that have electives identified in the curriculum. Contact the business division at any PCC location for further information. Prerequisites for business courses are listed in the course description section.

BA 113 Credit Procedures
BA 114 Introduction to Buying
BA 115 Credit Techniques
BA 131 Computers in Business
BA 141 Introduction to International Business Law
BA 160 Purchasing I
BA 161 Purchasing II
BA 203 Introduction to International Business
BA 206 Management Fundamentals
BA 210 Adv Acctg Spsht App
BA 211 Principles of Accounting I
BA 212 Principles of Accounting II
BA 213 Principles of Accounting III
BA 215 Basic Cost Accounting
BA 216 Accounting Problems
BA 218 Personal Finance
BA 222 Financial Management
BA 223 Principles of Marketing
BA 224 Human Resource Management
BA 226 Business Law I
BA 227 Business Law II
BA 228 Computer Accounting Applications
BA 234 International Marketing
BA 237 Fundamentals of Import/Export
BA 238 Sales
BA 239 Advertising
BA 240 Governmental Accounting
BA 242 Introduction to Investments
BA 244 Introduction to Records Management
BA 247 Advanced Sales
BA 249 Retailing
BA 250 Small Business Management
BA 251 Office Management
BA 252 Sales Management
BA 256 Income Tax
BA 280A CE: Business Experience I
BA 280B CE: Business Experience - Seminar
BA 285 Human Relations-Organizations
BA 292 Advanced Credit Analysis
BA 2936 Credit Management Case Studies
BA 908 Income Tax Preparation: Basic
BA 907 Income Tax Preparation: Advanced
BT 100 Introduction to Micros: DOS

Professional / Technical Programs

Fall Term 1994 — Summer Term 1995

Business Technology

Cascade Campus
Terrell Hall 209
244-6111, ext 5262 or 5317

Rock Creek Campus
Building 2/103
244-6111, ext. 7447

Southeast Center D 8
244-6111, ext. 6230

Sylvania Campus
Social Science Building B 17
244-6111, ext. 4287 or 4393

Business Technology Programs

Two-year Career Degrees:
Associate of Applied Science in Administrative Assistant
Associate of Applied Science in Administrative Assistant
(Office Management Emphasis)
Associate of Applied Science in Legal Secretary

One-year Career Certificate:
Business Technology (Office Support)
Portland Community College offers three associate degrees and one certificate program of study within the broad area of Business Technology. Associate degree programs may be completed in approximately two years, and the certificate program may be completed in one year, assuming the student is enrolled on a full-time basis.

**Associate of Applied Science Degree Programs:** The Associate of Applied Science degrees in Business Technology are Administrative Assistant, Administrative Assistant - Office Management, and Legal Secretary. These applied science degrees emphasize application skills to be used on the job upon completion of the degree requirements.

Students completing the first year Business Technology certificate will have also completed the first year's work toward the Administrative Assistant and Administrative Assistant - Office Management Associate degrees.

All courses and programs of study in Business Administration require a minimum of college entry-level competency in English and in computational skills. Additional skill requirements are specified through the listing of prerequisites. Students with questions about this entry-level readiness should arrange for evaluations of their skill levels through the PCC Counseling Department. Placement examinations to assist students in selecting appropriate writing and mathematics courses are required prior to registration. Additional testing may be required for selected business courses. Students must meet PCC's Writing and Math competencies prior to graduation. See Academic requirements in this catalog.

Due to the rapid changes in employment opportunities, technological advances and certifying agency regulations, business programs are subject to change.

### Business Technology Certificate Program (Core)

**Office Support**

**Career Description:** A Business Technology certificate is intended to meet business career needs for entry-level secretaries, office clerks, receptionists, file clerks, and word processing operators. Workers in these positions may perform a wide variety of duties, answering phones, copying data, compiling records and reports, tabulating and posting data in record books, computing wages, operating various office machines, including microcomputers, opening and distributing incoming mail, preparing outgoing mail, keeping books and ordering supplies, searching and investigating information in file, updating and maintaining files.

**Program Prerequisites:** Placement in WR 115 and in MTH 20. Additional skill requirements for individual Business Administration and Business Technology are listed in the course description section.

**Course of Study:** Programs are located at Cascade, Rock Creek, and Sylvania campuses. The program emphasis is on keyboarding, filing, and use of computers and other automated equipment.

**PCC offers the following form of recognition:**
- One-year Certificate - 47-48 credit hours as outlined; 3 of which are General Education courses, and 3 of which are business electives.
- One-year Certificate by Subject - Accounting, Business Administration, Business Technology.

### Business Technology Core - First Year

**First Term**

- **BT 124** Keyboard for Speed & Accuracy 3
- **BT 120** Business Editing Skills 3
- **BA 102** Introduction to Accounting 3
- **WR 121** English Composition 3
- **BT 131** 10-Key on Calculators 1

Choose one of the following beginning word processing courses:
- **BT 201** Beg WP Wrdprf: DOS 3
- **BT 213** Beg WP Word: DOS 3
- **BT 219** Beg WP Word: MAC 3
- **BT 216** Beg WP Word: WIN 3
- **BT 210** Beg WP Wrdprf: WIN 3

**Second Term**

- **BT 122** Intermediate Keyboarding 3
- **BT 240** Filing 3
- **WR 214** Business Communications 3
- **BA 285** Human Relations-Organizations 3
- **General Education** 3

Choose one of the following intermediate word processing courses:
- **BT 202** Int WP Wrdprf: DOS 3
- **BT 214** Int WP Word: DOS 3
- **BT 220** Int WP Word: MAC 3
- **BT 211** Int WP Wrdprf: WIN 3
- **BT 217** Int WP Word: WIN 3

**Third Term**

- **BT 245** Office Procedures 4

Choose one of the following introduction to microcomputer courses:
- **BT 100** Introduction to Micr: DOS 1
- **BT 101** Introduction to Micr: MAC 1
- **BT 102** Introduction to Micr: WIN 1
- **Elective** 3

Choose one of the following spreadsheet courses:
- **BT 177** Beg Lotus: DOS 3
- **BT 172** Beg Excel: MAC 3
- **BT 170** Beg Excel: WIN 3
- **BT 174** Beg Lotus: WIN 3

1Prerequisites for business courses are listed in the course description section of this catalog.

2Sp 111, Fundamentals of Speech, recommended.

3Students may substitute BT 132, BT 133 or BT 134 for BT 100, BT 101, BT 102 and the elective.

### Administrative Assistant

**Career Description:** An administrative assistant possesses skills and abilities to perform the tasks required in an office and is also prepared to assume secretarial responsibilities of an interpretive and decision-making nature. Administrative assistants analyze the scope and variety of their work in relation to the company's operations and set their own priorities and schedules. Microcomputer proficiency is required. They possess strong word processing skills.

**Program Prerequisites:** College entry-level competencies in English and in computational skills. Additional skill requirements for individual Business Administration and Business Technology courses are listed in the course description section.
Professional / Technical Programs

Course of Study: This program is available at the three major campus locations. The program emphasis is on information systems, machine transcription, and the use of automated equipment such as microcomputers and dedicated systems.

PCC offers the following form of recognition:
- Associate of Applied Science Degree - 91-94 credit hours: includes 70-73 credit hours of required courses; 3 credit hours of approved electives, and 18 credit hours of General Education.
- Second Associate of Applied Science Degree - 91-94 credit hours: offers the following form

Complete Business Technology Core - First Year

Second Year:

Fourth Term
- BA 101 Introduction to Business 4
- BA 244 Introduction to Records Management 3
- BT 242 Machine Transcription 3
- General Education 3
- Choose one of the following Desktop Publishing Courses for 3 credits:
  - BT 203 DTP WP Wrdprf: DOS 3
  - BT 212 DTP WP Wrdprf: WIN 3
  - BT 215 DTP WP Word: DOS 3
  - BT 221 DTP WP Word: MAC 3
  - BT 218 DTP WP Word: WIN 3

Fifth Term
- BT 123 Advanced Keyboarding 3
- BA 251 Office Management 3
- General Education 6
- Choose one of the following beginning word processing courses (must be different software than taken previously):
  - BT 201 Beg WP Wrdprf: DOS 3
  - BT 213 Beg WP Word: DOS 3
  - BT 216 Beg WP Word: WIN 3
  - BT 219 Beg WP Word: MAC 3
  - BT 210 Beg WP Wrdprf: WIN 3

Sixth Term
- WR 227 Technical Writing I 3
- BT 280F CE: Administrative Assistant I 5
- BT 280G CE: Administrative Assistant - Seminar 1
- General Education 3
- Choose one of the following desktop publishing courses:
  - BT 230 DTP PageMaker: WIN 3
  - BT 230A DTP PageMaker: WIN 1
  - BT 232A DTP PageMaker: MAC 1
  - BT 231A DTP PageMaker: DOS 1
  - BT 232 DTP PageMaker: MAC 3
  - BT 231 DTP PageMaker: DOS 3

1 Prerequisites for business courses are listed in the course description section of this catalog.
2 BT 280F AND BT 280G must be taken concurrently.

Administrative Assistant - Office Management

Career Description: Supervises and evaluates office personnel. Establishes short range and long range plans for the office. Coordinates office activities to meet organizational objectives.

Legal Secretary

Career Description: Legal administrative assistants work in an exciting and challenging environment where they are required to utilize a broad range of secretarial and computer skills, transcribe written and recorded legal documents and correspondence, process legal documents in various courts, implement personal and telephone contacts with clients, manage the attorney’s calendar, and coordinate travel arrangements.

Program Prerequisites: College entry level competencies in English language and in computational skills. Additional skill requirements for individual course are listed in the course description section of this catalog.
PCC Program: This program is located at the Sylvania Campus. However, individual courses may be available at another campus or center. In addition to secretarial skills, the program emphasizes specific knowledge of legal terminology and procedures for several areas of law.

PCC offers the following form of recognition:
- Associate of Applied Science Degree - 92 credit hours; includes 74 credit hours of required courses, and 18 credit hours of General Education. Scheduling requirements may prevent all courses from being offered every term. Consultation with an advisor is critical to the student's selection of courses. MTH 65, competency must also be met by students in order to complete this two-year associate degree.

First Term
- BT 122 Intermediate Keyboarding 3
- BT 240 Filing 3
- BT 120 Business Editing Skills 3
- WR 121 English Composition 3
- See options below 3

Second Term
- BA 226 Business Law I 3
- WR 214 Business Communications 3
- BT 201 Beg WP Wrprf: DOS 3
- BT 242 Machine Transcription 3
- See options below 3

Third Term
- BA 102 Introduction to Accounting 3
- BT 245 Office Procedures 4
- BT 140A Beg DB: dBASE - DOS 1
- BT 177 Beg SS Lotus: DOS 3
- BT 219 Beg WP Word: MAC 3
- General Education 3
- See options below 3

Fourth Term
- BT 252 Legal Procedures I 4
- BT 251 Legal Trans/Terminology 4
- BT 202 Int WP Wrprf: DOS 3
- General Education 3
- See options below 3

Fifth Term
- BT 253 Legal Procedures II 4
- BT 280A CE: Secretarial I 3
- BT 280B CE: Secretarial - Seminar 1
- BA 141 Introduction to International Business Law 3
- BA 100 Introduction to Micros: DOS 1
- General Education 3
- See options below 3

Sixth Term
- LA 105 Litigation I 3
- BT 131 10-Key on Calculators 1
- BT 280A CE: Secretarial I 3
- BT 280B CE: Secretarial - Seminar 1
- General Education 2

Shorthand Option
- BT 111 Stenography I 3
- BT 112 Stenography II 3
- BT 113 Stenography III 3

Non-Shorthand Option
- WR 227 Technical Writing I 3
- BA 244 Introduction to Records Management 3
- BA 251 Office Management 3
- LA 124 Law Office Management 3

1 Prerequisites are listed in the course description section of this catalog.
2 Legal Administrative Assistant students are recommended to use some of the following courses toward General Education.

Recommended General Education courses for
Legal Administrative Assistant program:
- PSY 101 Psychology and Human Relations 3
- PS 201 American Governments 3
- PS 202 American Governments 3
- PS 203 State and Local Government 3
- PS 205 International Relations 3
- SP 111 Fundamentals of Speech 3
- GEO 290 Environmental Problems 3
- GEO 107 Intro to Human Cultural Geography 3
- PHL 209 Business Ethics 3

Other recommended classes: (not for General Education)
- CJA 112 Introduction to Criminal Justice System - Courts 3
- CJA 211 Intro to Civil Law 3
- CJA 212 Intro to Criminal Law 3
- CJA 213 Intro to Evidence 3

Prerequisites for Business Administration and Business Technology courses are listed in the course description section of this catalog.

Approved electives for Business Technology
Certificate and Associate Degrees:
- BT 123 Advanced Keyboarding 3
- BT 112 Stenography II 3
- BT 113 Stenography III 3
- BT 121 Beginning Keyboarding 3
- BT 114 Applied Stenography I 3
- BT 115 Applied Stenography II 3
- BT 116 Applied Stenography III 3
- BT 117 Shorthand Skillbuilding 3
- BT 298 Business Machine-Calculators 3
- BA 141 Introduction to International Business Law 3
- BA 206 Management Fundamentals 3
- BA 211 Principles of Accounting I 3
- BA 218 Personal Finance 3
- BA 226 Business Law I 3
- BA 227 Business Law II 3
- BA 250 Small Business Management 3
- BT 105 Hard Disk Management:DOS 1
- BT 106 Hard Disk Management:MAC 1
- BT 108 Presentation Graphics: DOS 1
- BT 133 Beg Sftwr Applications: DOS 3
- BT 133 Beg Sftwr Applications: WIN 3
- BT 134 Beg Sftwr Applications: MAC 3
- BT 140A Beg DB: dBASE - DOS 1
- BT 260 Bus Edit Skills: Proofreading 1
- EC 200 Principles of Economics: Intro, Institutions & Philosophies 3
Civil Engineering Technology

Sylvania Campus
Science Technology Bldg B-8
244-6111, ext. 4163

Career Description: Civil engineering technicians assist civil engineers in planning, design, and construction of environmental protection facilities, energy management systems, buildings, transportation facilities, and public works plants.

Program Prerequisites: All students must have an advising interview with a Civil Engineering Technology (CET) faculty advisor. Students must place in WR 115 and have completed MTH 60 or equivalent. High school courses in chemistry and physics are helpful, but not required. Skill in keyboarding is highly recommended.

For students not meeting these requirements, advising is available to assist in preparing for entrance into the program and to earn credits which will apply toward the certificate or degree once accepted into the program.

Application and Admission: Full-time students: CET is a limited enrollment program for students seeking a certificate or degree. Qualified applicants are accepted in the order in which the application process is completed. Program starts in the Fall and Winter terms - see a department advisor for other term starts.

Job-upgrade students: Students must meet individual course prerequisites and complete an advising interview with a CET faculty advisor prior to enrollment. Admission may be granted on a space-available basis after the needs of the full-time students have been met.

Continuing Education: Students of this program may transfer to Oregon Institute of Technology to pursue a BS degree in Civil Engineering Technology or Industrial Management. Faculty advisors will provide assistance in the selection of additional course work appropriate to each student's goals.

PCC offers the following forms of recognition:

◆ One-year Certificate of Completion: 73 credit hours, including Communications and General Education courses, as shown in the first four terms.

◆ Associate of Applied Science Degree: 107 credit hours, including 18 credit hours of General Education courses.

First Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CET 110</td>
<td>Statics</td>
<td>4</td>
</tr>
<tr>
<td>CET 111</td>
<td>Engineering Technology Orientation</td>
<td>4</td>
</tr>
<tr>
<td>CET 112</td>
<td>Technical Algebra/Trigonometry</td>
<td>4</td>
</tr>
<tr>
<td>CET 113</td>
<td>Engineering Technology Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CET 113</td>
<td>General Education</td>
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Second Term

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<tr>
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<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>CET 121</td>
<td>Strength of Materials</td>
<td>4</td>
</tr>
<tr>
<td>CET 122</td>
<td>Technical Engineering Physics</td>
<td>4</td>
</tr>
<tr>
<td>CET 123</td>
<td>Technical Algebra with Analytic Geometry</td>
<td>4</td>
</tr>
<tr>
<td>CET 124</td>
<td>Technical Chemistry</td>
<td>3</td>
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<td>CET 124</td>
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Third Term

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<tbody>
<tr>
<td>CET 131</td>
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</tr>
<tr>
<td>CET 132</td>
<td>Plane Surveying</td>
<td>3</td>
</tr>
<tr>
<td>MET 133</td>
<td>Materials Technology</td>
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<tr>
<td>CIS 120</td>
<td>Computer Concepts I</td>
<td>4</td>
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<tr>
<td>WR 121</td>
<td>English Composition</td>
<td>3</td>
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Fourth Term

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<tr>
<td>CET 214</td>
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<tr>
<td>CET 211</td>
<td>Water Quality</td>
<td>3</td>
</tr>
<tr>
<td>MET 212</td>
<td>Fundamentals of Thermodynamics</td>
<td>4</td>
</tr>
<tr>
<td>CET 213</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CET 223</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>CET 224</td>
<td>Computer Aided Design II</td>
<td>2</td>
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<tr>
<td>CET 224</td>
<td>General Education</td>
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Fifth Term

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<tr>
<td>CET 225</td>
<td>Soil Mechanics</td>
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</tr>
<tr>
<td>CET 221</td>
<td>Hydrology and Hazardous Waste</td>
<td>3</td>
</tr>
<tr>
<td>MET 222</td>
<td>Thermodynamics: Heat Engines</td>
<td>3</td>
</tr>
<tr>
<td>CET 223</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>CET 224</td>
<td>Computer Aided Design II</td>
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<tr>
<td>CET 224</td>
<td>General Education</td>
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Sixth Term

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CET 234</td>
<td>Environmental Systems Design</td>
<td>3</td>
</tr>
<tr>
<td>MET 232</td>
<td>Thermodynamics: HVAC</td>
<td>3</td>
</tr>
<tr>
<td>CET 231</td>
<td>Reinforced Concrete Technology</td>
<td>3</td>
</tr>
<tr>
<td>CET 233</td>
<td>Computer Aided Design III</td>
<td>2</td>
</tr>
<tr>
<td>CET 280A</td>
<td>CE: Civil Engineering Technology</td>
<td>5</td>
</tr>
<tr>
<td>CET 280A</td>
<td>General Education</td>
<td>1</td>
</tr>
</tbody>
</table>

A minimum of 18 credits of General Education are required for the AAS degree. Each of the 3 areas listed below must be covered and suggested courses are listed. A maximum of 9 credits is allowed in any area. (AAS) indicates courses required for the AAS degree. (OIT) indicates courses required for students transferring to Oregon Institute of Technology.

Arts and Humanities
SP 100, Introduction to Speech Communication
SP 111, Fundamentals of Speech (OIT)

Social Science
PSY 201, General Psychology (OIT)

Mathematics, Natural and Physical Sciences
CIS 120, Computer Concepts I (AAS) (OIT)
PHY 202, 203, General Physics (OIT)

Confirm that your selections are on PCC’s General Education course list.

WR 121 is a comprehensive graduation requirement. It is not on PCC’s list of approved General Education courses.
A second communications course is required. Select from SP 100, SP 111, WR 122, or WR 214. Both Speech courses are approved General Education courses, but the Writing courses are not. SP 111 and WR 122 are required by OIT. Taking SP 100 or SP 111 will reduce the sixth term General Education requirement from 6 to 3 credit hours.

WR 227, Technical Writing I, is highly recommended to all students and required by OIT. WR 122 or WR 214 must be taken prior to WR 227.

Optional cooperative education work experience placements are available. For more information, see an advisor.

**Computer Information Systems**

Cascade Campus
Jackson Hall, Room 212
244-6111, ext. 5224, 5317

Rock Creek Campus
Building 2/103
244-6111, ext. 7447

Southeast Center
Room A5
244-6111, ext. 6903

Sylvania Campus
Social Science Building B17
244-6111, ext. 4393 or 4287

Programs
Computer Information Systems, Associate of Applied Science Degree
Microcomputer Information Systems, One year Certificate

**Computer Information Systems**

**Associate of Applied Science Degree**

**Career Description:** A wide variety of career opportunities are available to the Computer Information Systems professional. The traditional career programmer/analyst is responsible for all phases of program design and development. Another career option is that of microcomputer specialist, who is involved in application development, troubleshooting, technical support, and end user training. Local area network environments offer career opportunities in network administration. Systems analysis and database design are an integral part of most jobs involving Computer Information Systems.

**Program Prerequisites:** The first term major course in this program (CIS 120) requires no prerequisites. However, in order to follow the recommended sequence of courses, candidates should be ready to enter WR 121 and MTH 95 (readiness can be demonstrated through placement tests or documented previous college level work). Those candidates with insufficient background to enter at this level may need to extend the time it takes to complete the program. Students with limited typing skills are strongly advised to take BT 121A, Beginning Keyboarding. Faculty advisors will provide information regarding options to those students who may need to take preparatory course work.

**Course of Study:** Students in the program are able to custom build a CIS program to meet their career objectives. The student is expected to work with an advisor in planning term by term class schedules leading toward fulfillment of all program requirements. Students should contact an advisor at the earliest opportunity.

Students who plan to work toward a bachelor degree at a four-year institution, should contact the college or university of their choice to obtain specific information on the issue of transferability. Many of the courses in the CIS program are transferable to four-year colleges or universities. PCC has transferability agreements with some local colleges for the CIS program. Contact an advisor for current information.

PCC offers the following form of recognition:

- Associate of Applied Science Degree - 97 credit hours; includes 18 credit hours of General Education, 79 credit hours of CIS, business, or writing courses.

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CIS 120 Computer Concepts I</td>
<td>4</td>
</tr>
<tr>
<td>WR 121 English Composition</td>
<td>3</td>
</tr>
<tr>
<td>Business Elective</td>
<td>3²</td>
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<tr>
<td>General Education</td>
<td>6²</td>
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**Second Term**

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CIS 121 Computer Concepts II</td>
<td>4</td>
</tr>
<tr>
<td>CIS 122 Software Design</td>
<td>4</td>
</tr>
<tr>
<td>CIS 140 Operating Sys:</td>
<td>4³</td>
</tr>
<tr>
<td>WR 214 Business Communications</td>
<td>3¹</td>
</tr>
<tr>
<td>Business Elective</td>
<td>3³</td>
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**Third Term**

<table>
<thead>
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<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>WR 227 Technical Writing I</td>
<td>3</td>
</tr>
<tr>
<td>Programming Elective</td>
<td>4⁴</td>
</tr>
<tr>
<td>CIS 278 Communications: WAN</td>
<td>4</td>
</tr>
<tr>
<td>General Education</td>
<td>3</td>
</tr>
<tr>
<td>CIS-CS Elective</td>
<td>4⁵</td>
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</table>

**Fourth Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 275 Data Base Program Development</td>
<td>4</td>
</tr>
<tr>
<td>CIS-CS Elective</td>
<td>4⁶</td>
</tr>
<tr>
<td>Programming Elective</td>
<td>4⁴</td>
</tr>
<tr>
<td>General Education</td>
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**Fifth Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 244 Structured Systems Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CIS-CS Electives</td>
<td>8⁵</td>
</tr>
<tr>
<td>General Education</td>
<td>3</td>
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</table>

**Sixth Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS-CS Electives</td>
<td>12⁵</td>
</tr>
<tr>
<td>General Education</td>
<td>3</td>
</tr>
</tbody>
</table>

1WR 122 and WR 123 can substitute for WR 214 and WR 227.
²Placement at MTH 111 (College Algebra) or higher is required for graduation. It is strongly recommended that eight credits of General Education be taken in the Math area.
³CIS 140D, CIS 140M, CIS 140A, or CS 140U.
⁴Programming electives must be a two term sequence from the approved list.

Programming sequence elective list
CIS 133C, CIS 233C COBOL sequence
CIS 125D, CIS 135D dBASE sequence
CS 161, CS 162 Computer Science sequence
Microcomputer Information Systems—
One year certificate

Career Description: Microcomputer Information Systems are developed and utilized by individuals in a wide variety of job titles (corporate executives, department managers, small business owners, secretaries, accountants, etc.) with various job responsibilities. Typical Microcomputer Information Systems functions include applications design and development, software and hardware evaluation and selection, software integration, system maintenance, data management-security and integrity, documentation, training, and technical support.

Program Prerequisites: Some classes in the program will require prospective students to show, by high school or college transcripts or PCC placement examination, that they are prepared to take WR 121 English Composition and MTH 95 Intermediate Algebra. In some cases BA 102 Introduction to Accounting might be required before students may enroll for BA 211 Principles of Accounting I. Students with limited typing skills are strongly advised to take BT 121A Beginning Keyboarding. Students should consult with a department advisor prior to enrolling in Microcomputer Information Systems courses.

Course of Study: This program is designed to prepare and upgrade the student for career positions involving the evaluation, selection, and use of microcomputer hardware and software packages. It also enables students in other disciplines to acquire skills in using the microcomputer as a managerial, organizational, and analytical tool. The one-year curriculum provides a foundation in computer system concepts with an emphasis in microcomputer applications and practical experience. All required courses in this certificate program apply toward the credits needed to obtain an Associate of Applied Science degree in Computer Information Systems.

The student is expected to work with an advisor in planning term by term schedules leading toward fulfillment of all program requirements. Students should contact an advisor at the earliest opportunity.

PCC offers the following form of recognition:
◆ One-year certificate - 55 credits as outlined in the suggested sequence of courses.

First Term
CIS 120 Computer Concepts I 4
WR 121 English Composition 3
PSY 201 General Psychology 3
MTH 95 Intermediate Algebra 4

Second Term
CIS 121 Computer Concepts II 4
CIS 122 Software Design 4
CIS 125S Elective 4
CIS 140D Operating Sys: DOS 4
CIS-CS Elective 4

Third Term
WR 214 Business Communications 3
CIS 125D Data Base Mgt for Micros 4
CIS 278 Communications: WAN 4
CIS-CS Elective 7

See Business Elective course list at the end of the AAS - CIS degree requirements.

CIS Electives:
BT 201 Beg WP Wrprf: DOS 3
CIS 133B Programming (Basic) 4
CIS 133C Application Prog Dev I (COBOL) 4
CIS 135D App Prog Dev (DATABASE) 4
CIS 225 End User Support 4
CIS 233C App Prog Dev II (COBOL) 4
CIS 279 Communications: LAN 4
CIS 280D CE: Application Development I 4
CIS 299C LAN Monitoring and Management 4
CIS 299D Install/ Troubleshoot-LANs 4
CS 161 Computer Science I 4
CS 162 Computer Science II 4
CS 233 C Programming 4

Course Equivalencies:
WR 122 for WR 214
Fall Term 1994 — Summer Term 1995

Professional / Technical Programs

Computer Integrated Manufacturing

Applied Manufacturing Technology and Education Center (AMTEC)
Portland Community College
Sylvania Campus AM A11
503-244-6111, Ext. 4897

Portland Community College (PCC) and the Oregon Advanced Technology Consortium (OATC) offer classes addressing the concepts and technologies of Applied Manufacturing. Portland Community College classes are held at or administered from the AMTEC Demonstration Center (PCOIBM CIM Center).

The AMTEC is a joint project between PCC and IBM to establish a facility for the demonstration, teaching, training and use of the CIM approach to managing a manufacturing enterprise. CIM can be defined as an architecture or structured plan for the integration of multiple technologies through information systems technology. Its purpose is to support management efforts in meeting the goals and objectives of the enterprise.

The OATC is a consortium of 12 member community colleges; Portland, Clackamas, Chemeketa, Mt. Hood and Linn-Benton, and seven associate member community colleges; Blue Mountain, Central Oregon, Clatsop, Columbia Gorge, Lane, Rogue, and Southwestern, which has been established to offer a coordinated advanced manufacturing technology program among the twelve institutions. Program offerings are held at the twelve campuses, the Advanced Technology Center (ATC) in Wilsonville, which is operated by the OATC or at other designated sites.

Contact the AMTEC for more complete and updated information on offerings related to Advanced Manufacturing Technology.

PCC offers the following form of recognition:

Certificate of Completion: 9 credit hours upon completion of the three term sequence of CIM credit classes.

Non-credit Program Offerings:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIM 9649</td>
<td>CIM: Seminar Series</td>
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</tr>
<tr>
<td>CIM 9650</td>
<td>CIM: Demonstrator Training</td>
<td>0</td>
</tr>
<tr>
<td>CIM 9651</td>
<td>CIM: PCC/IBM CIM Center Overview</td>
<td>0</td>
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<tr>
<td>CIM 9652</td>
<td>CIM: PCC/IBM CIM Center Series I</td>
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</tr>
<tr>
<td>CIM 9653</td>
<td>CIM Center Workshops</td>
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Credit Program Offerings:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CIM 100</td>
<td>CIM I</td>
<td>3</td>
</tr>
<tr>
<td>CIM 101</td>
<td>CIM II</td>
<td>3</td>
</tr>
<tr>
<td>CIM 102</td>
<td>CIM III</td>
<td>3</td>
</tr>
</tbody>
</table>

Computer Software Engineering Technology

Sylvania Campus
Science Technology Bldg. B-8
244-6111, ext. 4163

Career Description: Computer software engineering technicians assist software engineers in the development and support of software for microprocessor-based systems. They perform tasks following established standards to ensure compliance with specifications. Typical tasks include software design, documentation, coding, testing, installation, maintenance, troubleshooting, and customer support. In addition, technicians may support microprocessor hardware/software combinations performing tasks such as microcomputer and network installation, maintenance, troubleshooting, and systems administration.

Graduates are employed in positions with varied job titles including computer or software technician, programmer, maintenance programmer, technical writer, systems administrator, systems support specialist, or customer support specialist. This is due to the varied skill sets of graduates which include training in microcomputer-based operating environments such as Microsoft DOS and Windows, and UNIX System V.

Program Prerequisites: All students must have an advising interview with a Computer Software Engineering Technology (CSET) faculty advisor. Students seeking a certificate or degree must place in WR I21 and MTH I11. Students seeking to upgrade job skills must meet individual course prerequisites. Skill in keyboarding is highly recommended.

For students not meeting these requirements, advising is available to assist in preparing for entrance into the program and to earn credits which will apply toward the certificate or degree once accepted into the program.

For students with previous work experience in software or electronics who desire advanced placement, a CSET faculty advisor will determine placement and/or evaluate previous post-secondary course work.

Application and Admission: Day/Full-time students: CSET is a limited enrollment program for students seeking a certificate or degree. Qualified applicants are accepted in the order in which the application process is completed. Applications for the next year are accepted from October 1 until the program is filled. Accepted applicants must attend the program orientation prior to the start of the first term.

Evening/job-upgrade students: Courses are offered on an open enrollment basis in the evenings and on weekends for students seeking to upgrade job skills. Students must meet individual course prerequisites and complete an advising interview with a CSET faculty advisor prior to enrollment. Admission to day sections may be granted on a space-available basis after the needs of the full-time students have been met.
Program Progression: To advance from term to term within the program, certificate and degree seeking students must have successfully completed the prior term's course work by receiving a grade of "C" or above in all required courses. All first year courses must be completed before progressing to the second year.

Faculty advisors will be assigned to each student to provide guidance toward an orderly progression through the program and to assist in other ways as appropriate. Students are required to work with their advisor in planning both term-by-term schedules and in fulfilling the total program requirements. Students with academic problems must contact their advisor at the earliest opportunity.

Continuing Education: Students of this program may transfer to Oregon Institute of Technology to pursue a BS degree in Computer Engineering Technology, Software Engineering Technology, or Industrial Management. Faculty advisors will provide assistance in the selection of additional course work appropriate to the student's goals.

PCC offers the following form of recognition:
- One-year Certificate of Completion: 50 credit hours, including Communications and General Education courses, as shown in the first three terms.
- Associate of Applied Science Degree: 104 credit hours, including 18 credit hours of General Education courses.

First Term
- CST 101 Software Applications for Technicians 3
- CST 106 DOS for Technicians 3
- CST 115 Introduction to Software Engineering in C++ 3
- EL 176 Digital Fundamentals I 3
- MTH 111 College Algebra 4

Second Term
- CST 206 DOS Windows for Technicians 3
- CST 116 Software Engineering in C++ 4
- EL 177 Digital Fundamentals II 3
- WR 121 English Composition 3
- General Education 3

Third Term
- CST 140 UNIX System V 4
- CST 211 Data Abstraction in C++ 4
- EL 178 Microcomputer Systems Servicing 3
- MTH 231 Elements of Discrete Mathematics I 4
- Writing Course 3

Fourth Term
- CST 240 Advanced UNIX System V 4
- CST 126 Team Programming in C++ 4
- EET 241 Microcomputer Systems I 4
- WR 227 Technical Writing I 3
- General Education 3

Fifth Term
- CST 250 80X86 Assembly Language Programming 4
- CST 256 Software Engineering in C 4
- CST 258 Windows Programming 4
- Technical Elective 4
- General Education 3

Sixth Term
- CST 260 Advanced 80X86 Assembly Language Programming 3
- CST 266 Advanced Software Engineering in C 4
- CST 268 Advanced Windows Programming 3
- Technical Elective 4
- General Education 3

Technical electives may be any one of the following sequence pairs:
- CST 280A Cooperative Work (taken two consecutive terms)
- or
- CST 270 Special Projects: Analysis and Design 4
- CST 272 Special Projects: Implementation 4
- or
- EET 251 Microcomputer Systems II 4
- CIS 279 Communications: LAN 4

18 credits of General Education are required for the AAS degree. Each of the 3 areas listed below must be covered and suggested courses are listed. A maximum of 9 credits is allowed in any one area. (AAS) indicates courses required for the AAS degree. (OIT) indicates courses required for students transferring to Oregon Institute of Technology.

Arts and Humanities:
- SP 111, Fundamentals of Speech (OIT)

Social Science:
- PSY 201, General Psychology (OIT)

Mathematics, Natural and Physical Sciences:
- MTH 111, College Algebra (AAS) (OIT)
- MTH 231, Elements of Discrete Mathematics I (AAS) (OIT)
- MTH 112, Elementary Functions (OIT)
- MTH 251 & 252, Calculus I, II (OIT)
- PHY 211, 212, 213 General Physics (Calculus) (OIT)

Confirm that your selections are on PCC's General Education course list.

WR 121 is a comprehensive graduation requirement. A second writing course, either WR 122 or WR 214, is required before taking WR 227. None of these writing courses are on PCC's list of approved General Education courses. OIT requires WR 121, 122, and 227.

Consumer and Family Studies

Sylvania Campus
Health Technology Bldg D-8e
244-6111, ext. 4217, 4218

Description: Consumer and Family Studies programs/courses are offered under the subject headings of Dietetic Technician, Dietary Manager, Early Childhood Education, Fashion Design and Construction, Interior Design, and Parent Education.

Fashion Design and Construction

Career Description: These courses are for the sewer who wants to develop and increase skill in fashion design, fitting and construction techniques. Emphasis is on skills used in clothing.
related small businesses including alteration, patternmaking, draping, custom designing and sewing, tailoring and sample sewing. Courses are taught by instructors who are experienced in the fashion industry.

Not all courses are offered every term and some courses are offered in alternate years.

These courses are elective occupational supplementary classes. Students may work toward an Associate of General Studies degree with an area of concentration in fashion design and construction if they desire. Students should contact the Consumer and Family Studies Department for advice.

**Prerequisite:** Intermediate sewing skill is needed for most of the classes. See course descriptions for specific prerequisites.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>HEC 221</td>
<td>Contemporary Tailoring</td>
<td>4</td>
</tr>
<tr>
<td>HEC 222</td>
<td>Traditional Tailoring</td>
<td>4</td>
</tr>
<tr>
<td>HEC 131</td>
<td>Draping I</td>
<td>3</td>
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<tr>
<td>HEC 141</td>
<td>Flat Pattern Making I</td>
<td>3</td>
</tr>
<tr>
<td>HEC 241</td>
<td>Flat Pattern Making II</td>
<td>3</td>
</tr>
<tr>
<td>HEC 151</td>
<td>Basic Fitting and Alterations</td>
<td>4</td>
</tr>
<tr>
<td>HEC 251</td>
<td>Professional Practices in Fitting and Alterations</td>
<td>4</td>
</tr>
<tr>
<td>HEC 231</td>
<td>Draping II</td>
<td>3</td>
</tr>
<tr>
<td>HEC 111</td>
<td>Beginning Clothing Construction</td>
<td>3</td>
</tr>
<tr>
<td>HEC 191</td>
<td>Careers in Fashion and Interiors</td>
<td>1</td>
</tr>
<tr>
<td>HEC 210</td>
<td>Clothing Construction</td>
<td>3</td>
</tr>
<tr>
<td>HEC 211</td>
<td>Advanced Clothing Construction</td>
<td>3</td>
</tr>
<tr>
<td>HEC 250</td>
<td>Textiles</td>
<td>4</td>
</tr>
<tr>
<td>HEC 272</td>
<td>Fashion and Society</td>
<td>4</td>
</tr>
</tbody>
</table>

**Parent Education**

**Career Description:** These courses are designed to help participants develop skills for successful parenting, learn more about their roles as parents and to enhance their relationships with their children. The classes are taught by PCC parent education instructors with expertise in working both with children and adults. Some classes are lecture/discussion and others are interactive with parents and children together. Each class is tailored to the ages of the children and includes study topics. The study topics for the term are chosen by the participants and the instructor in each class. Topics include: development, guidance, communication, self-esteem, health, current issues and others.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEC 9402</td>
<td>Parents and Child Learn Together</td>
<td>1</td>
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<tr>
<td>HEC 157</td>
<td>Parenting Skills</td>
<td>1</td>
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<tr>
<td>HEC 9420</td>
<td>Living and Learning with Your Baby</td>
<td>1</td>
</tr>
<tr>
<td>HEC 9421</td>
<td>Living and Learning with Your Toddler</td>
<td>1</td>
</tr>
<tr>
<td>HEC 9422</td>
<td>Living and Learning with Your Two Year Old</td>
<td>1</td>
</tr>
</tbody>
</table>

**Criminal Justice**

Cascade Campus
Terrell Hall, 4B
244-6111, ext. 5236 or 5317

**Career Description:** Persons in the criminal justice field may work in a municipal, county, state or federal law enforcement organization or corrections system. Other positions requiring law enforcement training are available at all levels of government and in private industry. Duties range from crime prevention programs to investigative and uniform patrol duties. Technical skills such as data processing and criminalistics are used to support overall law enforcement operations.

**Program Prerequisites:** Student must demonstrate through transcripted record or by appropriate ASSET test score the following:
- Reading comprehension
- Spelling
- English

Math competency required for degree

Students must complete CJA 111 Intro to Civ Just Sys-Policing with a "C" grade or better.

Because of security standards of cooperative education sites and future hiring requirements, students are required to submit a fingerprint card ($10 fee; done by private company) for a criminal history check ($12 fee; done by the Oregon State Police) or be BPST certified. Processing information can be obtained through the Criminal Justice program.

Because of the unique responsibilities of the law enforcement field, the Criminal Justice department reserves the right to require that a student who appears to the department unsuited for law enforcement be counseled into another area of study.

**Course of Study:** Students may earn an Associate of Applied Science or Associate of Science degree in the Criminal Justice program at Portland Community College.

**PCC offers the following forms of recognition:**
- Associate of Science Degree - 90 credit hours, minimum, are required.

Students who plan to transfer to law enforcement, social science, social work or General Education programs at a four-year institution should contact that institution for transfer information.

- Associate of Applied Science Degree - 90 credit hours; includes 72 credit hours of required courses and 18 credit hours of General Education. Consult a program advisor for assistance in planning General Education classes.

**Criminal Justice Associate of Science degree**
The following is a suggested course of study.

**First Term**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJA 111</td>
<td>Introduction to Criminal Justice System - Police</td>
<td>3</td>
</tr>
<tr>
<td>HPE 295</td>
<td>Health and Fitness for Life</td>
<td>3</td>
</tr>
<tr>
<td>SOC 204</td>
<td>General Sociology: Sociology in Everyday Life</td>
<td>3</td>
</tr>
<tr>
<td>WR 121</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>BT 121A</td>
<td>Beginning Keyboarding</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Elective - Humanities</td>
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</tr>
</tbody>
</table>

**Second Term**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJA 112</td>
<td>Introduction to Criminal Justice System - Courts</td>
<td>3</td>
</tr>
<tr>
<td>SP 111</td>
<td>Fundamentals of Speech</td>
<td>3</td>
</tr>
<tr>
<td>WR 122</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>CJA 219</td>
<td>Introduction to Police Community Relations &amp; Crime Preventio</td>
<td>3.4</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJA 217</td>
<td>Interviewing &amp; Interrogation</td>
<td>3.4</td>
</tr>
</tbody>
</table>
Third Term
CJA 113 Introduction to Criminal Justice System - Corrections 3
CJA 212 Intro to Criminal Law 3
CJA 215 Forensic Science & Criminalistics 3
SOC 206 Gen Soc: Social Problems - Conformity and Deviance 3
CJA 280 CE: Criminal Justice 3

Fourth Term
CJA 243 Narcotics & Dangerous Drugs 3
CJA 214 Intro to Criminal Investigation 3
PSY 201 General Psychology 3
CJA 218 Criminal Justice Perspectives of Violence & Aggression 3
Elective - Math or Science 3

Fifth Term
CJA 222 Intro to Juvenile Corrections 3

Sixth Term
CJA 213 Intro to Evidence 3
WR 228 Police Report Writing 3
PSY 203 General Psychology 3
PSY 220 Psychology: Applied 3
Elective - Math or Science 3

1Program permission required.
2SP 100 may be substituted for SP 111.
3See program advisor.
4Students have option of taking either CJA 217 or CJA 219 in the second term and CJA 222 or CJA 226 in the fifth term.
5Other computer/keyboarding classes may be substituted.

Criminal Justice Associate of Applied Science degree

The following is a suggested course of study:

First Term
CJA 111 Introduction to Criminal Justice System - Police 3
HPE 295 Health and Fitness for Life 3
WR 121 English Composition 3
BT 121A Beginning Keyboarding 1.5
Elective - Math or Science 3

Second Term
CJA 112 Introduction to Criminal Justice System - Courts 3
SP 111 Fundamentals of Speech .3
WR 122 English Composition 3
CJA 219 Introduction to Police Community Relations & Crime Prevention 3

or
CJA 217 Interviewing & Interrogation 3
Elective 3

Third Term
CJA 113 Introduction to Criminal Justice System - Corrections 3
PSY 214 Introduction to Personality 3
CJA 212 Intro to Criminal Law 3
CJA 215 Forensic Science & Criminalistics 3
PS 203 State and Local Government 3

Fourth Term
CJA 218 Criminal Justice Perspectives of Violence & Aggression 3
CJA 214 Intro to Criminal Investigation 3
CJA 243 Narcotics & Dangerous Drugs 3
Elective 3

Fifth Term
CJA 211 Intro to Civil Law 3
CJA 210 Arrest, Search & Seizure 3
CJA 222 Intro to Juvenile Corrections 3
CJA 226 Introduction to Dynamics of Juvenile Behavior 3

Sixth Term
CJA 213 Intro to Evidence 3
CJA 280 CE: Criminal Justice 3
WR 228 Police Report Writing 3
PSY 220 Psychology: Applied 3
SOC 206 Gen Soc: Social Problems - Conformity and Deviance 3
Elective 3

1Program permission required.
2SP 100 may be substituted for SP 111.
3See program advisor.
4Students have option of taking either CJA 217 or CJA 219 in the second term and CJA 222 or CJA 226 in the fifth term.
5Other computer/keyboarding classes may be substituted.

Criminal Justice Electives: Students in the Criminal Justice program should consider taking elective courses related to Criminal Justice (examples: alcohol, drugs, psychology, sociology, etc.).

Customer Service Technology
Cascade Campus
244-6111, ext 5501, 5317

Program:
Credit Services
Sales Services

Career Degree Programs
Associate of Applied Science Degree Program (non-transfer)

Customer Service Technology Program
Portland Community College offers two kinds of Associate of Applied Science degree programs within the broad base of Customer Service Technology. One is Credit Services, the other is Sales Services. Associate of Applied Science degree programs may be completed in approximately six terms, assuming the student is enrolled full time. These programs are described below. The two-year degree emphasizes skills to be used on the job upon completion of degree requirements, and are not designed for students intending to transfer to four-year schools.

Program Prerequisites: College entry-level competencies in English and computational skills are required. Additional skill requirements for individual courses are listed in course descriptions in this catalog.
Credit Services

Career Description: Students are prepared for various credit service occupations in business and industry. Credit Service employees represent their organizations to customers through credit forecasting, collection and authorization services. The program includes instruction in basic business courses as well as courses directly related to credit. In addition to classroom instruction, cooperative education (on-the-job work experience) is a vital component of the program.

PCC offers the following form of recognition:

◆ Associate of Applied Science Degree - 90 credit hours, 75 in required courses, 12 credits in General Education, 3 credits in electives. In addition, candidates for a degree must comply with current college English and math competency requirements. PCC's program is an affiliate of the National Institute of Credit (NIC). The Credit Service program facilitates earning credit toward course requirements of the NIC Credit Business Associate (CBA) and the NIC Credit Business Fellow (CBF).

Sales Services

Career Description: Students are prepared for occupations in retail, industrial and institutional sales services. The curriculum includes instruction in basic business courses as well as courses specific to sales occupations. In addition to classroom instruction, cooperative education (on-the-job work experience) is a vital component to the program.

Program Prerequisites: College entry-level competencies in English and computational skills are required. Additional skill requirements for individual courses are listed in course descriptions in this catalog.

Note: Courses need not be taken in suggested sequence. However, scheduling requirements may prevent all courses from being offered every term. Consultation with a faculty advisor is recommended in the selection of courses each term.

PCC offers the following form of recognition:

◆ Associate of Applied Science Degree - 90 credit hours, 69 in required courses, 15 credits in General Education, 6 credits in electives. In addition, candidates for a degree must comply with current college catalog English and math competency requirements. Please refer to the Academic Regulations section of this catalog for details.
Dental Assisting

Sylvania Campus
Health Technology Building C8a
244-6111, ext. 4236

Career Description: The dental assistant is a professional member of the dental team, working with and assisting the dentist during clinical procedures. Traditional duties and responsibilities include: preparing and mixing dental cements and bases, preparing the operatory, sterilizing procedures, exposing and processing x-rays, operating air, water and suction devices and passing instruments to the dentist. PCC students are also prepared in the areas of expanded functions (EFDA): coronal polishing, placing the rubber dam, taking and pouring study model impressions, amalgam polishing and a variety of orthodontic procedures.

Dental assistants also teach oral health principles and must be prepared to assume office management responsibilities. Computer skills are needed to be competitive in the field.

Safety Considerations: Students enrolled in the Dental Assisting Program will be required to wear safety glasses, face masks, latex gloves and other protective clothing during all laboratory procedures that produce air-borne particulate matter, or expose the students to patients during dental procedures. Safety policies, procedures and protocols are strictly taught and followed according to CDC recommendations and OSHA regulations to ensure a safe learning environment in the laboratories and clinics.

Immunizations: Students must show evidence of having begun or completed the immunization series for Hepatitis B as well as evidence of immunity to measles. Tetanus immunization and T.B. testing are also required.

Program Prerequisites:
1. GED or high school graduation.
2. Satisfactory scores in basic math and English placement test.
3. Satisfactory performance on manual dexterity tests. Students must exhibit the ability to follow directions.

Application/Acceptance: Applications are accepted from January 1st, until 45 students have been accepted for entry the following fall term. Application forms may be obtained from, and should be submitted along with high school and college transcripts, if any, to:

Dental Department
Sylvania Campus, HT C8a
Portland Community College
P.O. Box 19000
Portland, Oregon 97280-0990

For additional information call (503) 452-4909.

Course of Study: PCC offers a one-year Certificate of Completion program that is accredited by the American Dental Association Commission on Dental Accreditation. The 48 credit hours prepare the student for job entry with State and National certification in dental radiology, basic dental assisting, and expanded function dental assisting.

First Term
DA 110 Clinical Procedures I 2
DA 111 Clinical Procedures Lab I 2
DA 120 Dental Radiology I 1
DA 121 Dental Radiology I (Lab) 2
DA 130 Dental Materials I I
DA 131 Dental Materials I (Lab) 2
DA 140 Integrated Basic Science I 3
DA 145 Dental Health Education 2

Second Term
DA 112 Clinical Procedures II 1
DA 113 Clinical Procedures Lab II 3
DA 118 Expanded Duties I 1
DA 122 Dental Radiology II 1
DA 123 Dental Radiology II (Lab) 2
DA 132 Dental Materials II 1
DA 133 Dental Materials II (Lab) 2
DA 142 Integrated Basic Science II 2
DA 150 Dental Office Procedures I 1
HPE 295 Health and Fitness for Life 3

Third Term
DA 114 Clinical Procedures III 1
DA 115 Clinical Procedures Lab III 5
DA 119 Expanded Duties II 1
DA 125 Dental Radiology III (Lab) 2
DA 135 Dental Materials III (Lab) 2
DA 152 Dental Office Procedures II 2
DA 156 Ethics and Jurisprudence 1
DA 160 Dental Pharmacology 1

Dental Hygiene

Sylvania Campus
Health Technology Building C8a
244-6111, ext. 4236

Career Description: The dental hygienist is a licensed dental health care professional who specializes in periodontal therapy and maintenance, and who has a broad-based education that includes biological sciences and humanities as well as clinical skill development. In the dental office the hygienist performs oral examinations, exposes and develops x-rays, performs oral prophylaxis (tooth cleaning) and administers topical fluoride applications. The hygienist also provides nutritional counseling and acts as a dental health educator in the community.
As expanded function hygienists, they may administer local anesthetic and nitrous oxide sedation, perform root planing and gingival curettage, remove sutures and place occlusal sealants.

**Safety Considerations:** Students enrolled in the Dental Hygiene program will be required to wear safety glasses, latex gloves, face masks, and protective clothing during all laboratory and clinic activities that produce airborne particulate matter, or expose students to patients during dental procedures. Safety policies, procedures and protocols are strictly taught and followed according to CDC recommendations and OSHA regulations to provide a safe learning environment.

**Immunizations:** Students must show evidence of having begun or completed the immunization series for Hepatitis B as well as evidence of immunity to measles. Tetanus immunization and T.B. testing are also required.

**Program Prerequisites:**
1. High school graduation with a GPA of 2.0 or better; or GED.
2. Completion of high school biology, algebra, chemistry and writing composition - or appropriate equivalent college courses.
3. Completion of PCC courses: MTH 60 and MTH 65, BI 121 and BI 122 (or the higher level sequence, BI 231, BI 232, and BI 233), and BI 234 - all with a grade of C or better. Check with the Dental Sciences Department for advisement.

**Application/Acceptance:** Applications are accepted each year from January 2nd to March 1st only. An entrance examination will be given in the Department after all applications are received. Eighteen students and twelve alternates will be selected based upon examination results, analysis of transcripts and prerequisites completed. Further information can be obtained from the Dental Sciences Department:

- Dental Department
- Sylvania Campus, HT C8a
- Portland Community College
- P.O. Box 19000
- Portland, Oregon 97280-0990

For additional advisement, call 503-452-4909 or 4908.

**Course of Study:** The Dental Hygiene Program offers a two-year curriculum that is accredited by the American Dental Association, Commission on Dental Accreditation. The program of study prepares students for the National Board written examination, and State licensure examinations.

PCC offers the following form of recognition:
- Associate of Applied Science Degree which includes 42 credit hours of General Education and science courses (including prerequisites) and 81 specific dental hygiene courses for a total of 123 credits.

**Dental Hygiene Curriculum:** Computer skills—Students must have acquired basic computer skills in word processing before the second term, and WordPerfect for the IBM PC by the start of the fifth term. It is recommended that this preparation be taken prior to entry.

*Electives must include one course of speech, sociology, and psychology. Recommended: SP 111, SOC 204, and PSY 101.

<table>
<thead>
<tr>
<th>First Term</th>
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<tbody>
<tr>
<td>DH 101 Dental Hygiene Theory I</td>
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<tr>
<td>DH 104 Dental Hygiene Practice I</td>
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<tr>
<td>DH 113 Dental Anatomy</td>
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<tr>
<td>*Speech Elective</td>
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</tr>
<tr>
<td>*Psychology Elective</td>
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<thead>
<tr>
<th>Second Term</th>
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</tr>
</thead>
<tbody>
<tr>
<td>DH 102 Dental Hygiene Theory II</td>
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<tr>
<td>DH 105 Dental Hygiene Practice II</td>
<td>3</td>
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<tr>
<td>DH 121 Dental Health Education Strategies</td>
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<td>DH 128 Oral Histology</td>
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<td>CH 102 Organic Chemistry Principles</td>
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<td>FN 225 Nutrition</td>
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<thead>
<tr>
<th>Third Term</th>
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<tbody>
<tr>
<td>DH 103 Dental Hygiene Theory III</td>
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<td>DH 129 Oral Pathology</td>
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<td>DH 212 Radiographic Interpretation</td>
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**Dental Laboratory Technology**

- Sylvania Campus
- Health Technology Building C8a
- 244-6111, ext. 4236

**Career Description:** The dental laboratory technologist is a professional member of the dental team and is considered the “artist” of that group. Upon the orders of the dentist, the laboratory technician designs and fabricates dental replacements such as crowns, bridges, dentures and orthodontic appliances. In this process, the technician carves complex structures and
designs in wax, casts and finishes a variety of metals and duplicates tooth form and color in acrylic resin or porcelain materials.

**Safety Considerations:** Students enrolled in the Dental Laboratory Technology Program will be required to wear safety glasses/goggles and face masks during procedures that produce air-born particulate matter. Additional protective wear and gear may be required. Safety policies, procedures and protocols are taught and reinforced throughout the curriculum according to industry standards and OSHA regulations to provide a safe learning environment.

**Immunizations:** Students must show evidence of having begun or completed the immunization series for Hepatitis B as well as evidence of immunity to measles. Tetanus immunization and T.B. testing are also required.

**Program Prerequisites:**
1. GED or high school graduation.
2. Satisfactory scores in basic math and English placement tests.

**Application/Acceptance:** Applications are accepted from January 1, until 24 students have been accepted for entry the following fall term. Application forms may be obtained from, and should be submitted along with high school and college transcripts, if any, to:

Dental Department
Sylvania Campus, H1T C8a
Portland Community College
P.O. Box 19000
Portland, Oregon 97280-0990

For additional information call (503) 452-4909 or 4908.

**Course of Study:** PCC offers a two-year program that is accredited by the American Dental Association, Commission on Dental Accreditation. Students may select one of the following PCC forms of completion and recognition:

- Certificate in Dental Laboratory Technology: 75 credit hours of basic DLT courses.
- Associate of Applied Science: 75 credit hours of basic DLT courses plus 18 credit hours of approved General Education courses and PCC requirements in writing and algebra competencies.

**First Term**
- DT 101 Dental Technology Lab I 6
- DT 120 Introduction to Dental Anatomy 1
- DT 141 Denture Techniques I 2
- DT 151 Science of Dental Materials I 2
- MTH 20A Basic Math (or higher level math courses) 4

**Second Term**
- DT 102 Dental Technology Lab II 6
- DT 142 Denture Techniques II 2
- DT 152 Science of Dental Materials II 3
- HE 252 First Aid 3

**Third Term**
- DT 103 Dental Technology Lab III 6
- DT 143 Denture Techniques III 2

**Fourth Term**
- DT 204 Dental Technology Lab IV 6
- DT 253 Science of Dental Materials III 2
- DT 270 Inlay Casting, Crown & Bridge 3
- DT 275 Dental Laboratory Management 3
- DT 276 Dental Laboratory Mgmt Lab 0

**Fifth Term**
- DT 205 Dental Technology Lab V 6
- DT 254 Science of Dental Materials IV 2
- DT 272 Dental Ceramics 3

**Sixth Term**
- DT 206 Dental Technology Lab VI 6
- DT 271 Partial, Clasp & Bar 2
- DT 281 Professional Ethics 1
- DT 284 Dental Specialties 2
- DT 285 Dental Seminar 2

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**Diesel Service Technology**

Rock Creek Campus
Building 2 Room 107
244-6111, ext. 7210, 7204, 7331

**Career Description:** The diesel service technician repairs and maintains diesel engines and component support systems.

**Course of Study:** The program is designed to prepare students for entry-level positions in diesel service technology. Training is varied to give students a broad understanding and background in the different phases of the diesel service industry. Students have additional cost for tools and books. In addition, the program offers industry upgrade courses.

**PCC offers the following forms of recognition:**

- One-year Certificate of Completion - Minimum of 36 credit hours of required diesel courses.
- Two-year Certificate of Completion - Minimum of 72 credit hours of required Diesel courses.
- Associate of Applied Science Degree - 90 credit hours, includes 72 credit hours of required Diesel courses and 18 credit hours of General Education. Consult a program advisor for help in planning General Education classes.

**First Term**
- DS 101 Shop Practice 6
- DS 102 Truck Power Train 6
- DS 103 Fuel Injection Systems 6
- DS 104 Fundamentals of Electricity 6
- DS 105 Fundamentals of Hydraulics 6
- DS 106 Engine Diagnostic Tune-up 6
- DS 107 Live Equipment & Lab 6
- DS 201 Diesel Engine Rebuild 6
- DS 202 Heavy Duty Power Train 6
- DS 203 Fuel Injection Pumps 6
- DS 204 Diesel Starting & Charging Systems 6
- DS 205 Mobile & Hydrostatic Hydraulics 6
- DS 206 Brakes, Suspension & Steering 6
- DS 280A CE: Diesel Service Tech variable credit
- DS 280B CE: Diesel Service Technology - Seminar 2
The following courses are offered for Industry Upgrade:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tr>
<td>DS 9100</td>
<td>Truck Technology</td>
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<tr>
<td>DS 9101</td>
<td>Truck Technology (Lab)</td>
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<td>DS 9102</td>
<td>Truck Transmissions</td>
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<tr>
<td>DS 9103</td>
<td>Fuel Injection Systems</td>
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<td>DS 9104</td>
<td>Fundamentals of Electricity</td>
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<tr>
<td>DS 9105</td>
<td>Fundamentals of Hydraulics</td>
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<tr>
<td>DS 9106</td>
<td>Heavy Duty Truck Engine Tune-up</td>
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<td>DS 9107</td>
<td>Automotive Diesel Engine Tune-up</td>
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<tr>
<td>DS 9109</td>
<td>Diesel Electronic Control System</td>
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<td>DS 9110</td>
<td>Mixer Truck Hydraulics</td>
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<tr>
<td>DS 9112</td>
<td>Small Marine Diesel Engine Preventive Maintenance and Tune-up</td>
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<td>DS 9113</td>
<td>Caterpillar Diesel Engine Tune-up</td>
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<td>DS 9114</td>
<td>Detroit Diesel Engine Tune-up</td>
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<td>DS 9201</td>
<td>Diesel Engine Rebuild</td>
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<td>DS 9202</td>
<td>Truck Power Train</td>
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<td>DS 9205</td>
<td>Mobile Hydraulics</td>
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<tr>
<td>DS 9206</td>
<td>Truck Air Brakes</td>
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</table>

PCC offers the following form of recognition:
- Certificate of Completion - 17 credit hours. Those students who hold a high school diploma are also eligible for membership in the Dietary Managers Association.
- First Term
  - FN 110 Managing Quantity Food Services
  - FN 111 Field Experience I
- Second Term
  - FN 130 Managing Food Production
  - FN 131M Field Experience II
- Third Term
  - FN 150 Normal Nutrition
  - FN 225 Nutrition
  - FN 151M Field Experience III
- Fourth Term
  - FN 210 Diet and Disease
  - FN 211M Field Experience IV

### Dietary Manager

**Food Service Supervisor**

Sylvania Campus
Health Technology Bldg D-8e
244-6111, ext. 4217

This program is offered for occupational upgrading.

**Career Description:** Dietary Managers, under the direction of registered dietitians, provide food service in health care facilities such as hospitals, nursing homes, convalescent hospitals, schools, correctional institutions and other non-commercial settings. Duties may include kitchen management and supervision of kitchen workers, preparation of modified diets, and food and equipment purchasing.

**Program Prerequisites:** Students must be currently employed in a health care facility and must have a qualified preceptor willing to supervise the student in field experience through-out course of study. Students must have completed or be currently enrolled in MTH 20.

1. Program advising session with a faculty advisor.
2. PCC placement testing in reading, writing, and mathematics showing placement into MTH 20 and WR 115.
3. Current Food Handler's card.
4. Evidence of freedom from tuberculosis and proof of immunity to measles.

**Course of Study:** This program is approved by the Dietary Managers Association, thus meeting Oregon regulations for health care facilities. The program includes 120 clock hours of classroom instruction and 150 clock hours of supervised work experience at the student's place of employment. Program begins each fall. However, students may begin study during any term of the school year. Students must enroll in both theory and field experience courses each term. Course credits may be applied to Associate Degree in Dietary Technology for future occupational upgrading.

### Dietetic Technician

**Career Description:** The dietetic technician program prepares the student to sit for the national exam for registered dietetic technician, DTR. Courses in nutrition and foods management prepare the technician for challenging careers in food service or health care. Job responsibilities require knowledge of food science and good interpersonal skills, and may involve: supervising foods and nutrition personnel; using computer systems; monitoring sanitation, food quality, and production; nutritional screening of patients; diet interviews, educating and counseling patients and their families about nutrition; working with a Registered Dietitian to plan meals and menus for a health care facility; calculating nutrient intake and diet plans for patients with special health problems. Employers include hospitals, long-term care facilities, nutrition programs for the elderly, child nutrition and school lunch programs, public health nutrition programs, health and fitness centers, and food service systems management firms.

**Program Prerequisites:**
1. Program advising session with a Dietetic Technician program advisor.
2. PCC placement testing in reading, writing, and mathematics showing placement into or completion of MTH 60 (Elementary Algebra) and WR 115 (Introduction to Expository Writing).
3. High school graduation or GED.
5. Evidence of freedom from tuberculosis, and proof of immunity to measles.

Students provide their own textbooks, uniform and transportation to field sites. Contact the Consumer and Family Studies Department, Sylvania Campus HT D8e, ext. 4217 for application materials.
Progression: Faculty advisors will provide guidance in extending the six-term curriculum for applicants needing part-time study or preparatory work. Students must successfully complete coursework by receiving a grade of "C" or above in all required courses.

Course of Study: The program begins each September. Beginning the first term, campus instruction is combined with field experience in appropriate community sites. Seminars provide feedback and link field site experiences to on-campus instruction (ADA). PCC offers the following form of recognition: Associate of Applied Science Degree: 91 credit hours including coursework. Students must successfully complete courses by receiving a grade of "C" or above in all required courses.

Programs:
Architectural Drafting Technology
Industrial Drafting
Technical Illustration/Publication

Career possibilities exist for both self-employment and working for hire. Graduates may pursue various drafting jobs with construction firms, architectural product manufacturers, building design firms, engineers, architects, city, county, state and federal drafting departments, and corporate drafting departments. Drafters are needed to develop site plans, construction details, building designs, cost estimates, specifications, plans for remodeling and additions to existing buildings. Drafting skills are also needed to become plans examiners, building inspectors and construction supervisors.

Program prerequisites: Students new to the drafting program must take the college's placement exams for math and English prior to departmental advising and registration. Students must place in MTH 60 Elementary Algebra and WR 115 Introduction to Expository Writing before registering for beginning drafting classes. Department permission is required before registering for First Term classes.

Course of Study: This program is designed to help students develop the technical and other skills needed in architectural drafting. The Architectural Drafting Department should be contacted for program advising, program costs and employment opportunity information.

Consult a department advisor for information on PCC's policy on acceptance of courses taken at other colleges or high schools or the transferability of PCC courses to other colleges. Some colleges may grant transfer credit toward a bachelor's degree.

Oregon Institute of Technology offers B.S. degrees that may accept PCC's Architectural Drafting courses and other General Education courses. Consult a program advisor or O.I.T. for other specific transfer requirements.

Students intending to transfer from PCC to PSU and complete a B.A. or B.S. degree with a concentration in Architecture need to complete the following courses at PCC:

First Year:
- ART 115, 116, 117, 204, 205, 206, 131 (ART 131 to be taken 3 times)
- MTH 111, 112, 251 (Math courses recommended, not required)

Second Year:
- PHY 201, 202, 203 (Physics is recommended, not required)
- ART 142, 218, 281, 284, or 293 (courses may be repeated)
- DRF 112, 127, 265

Summer of transfer:
- ARCH 260, 261, 262 at PSU
Completing the above courses will allow a student to start taking the junior year series of architecture classes. Additional courses in arts and letters, science or social science areas may be taken to fulfill PSU distribution requirements. Only courses graded “C” or better will be accepted for transfer. Departmental advising is highly recommended.

**Exploring Architecture:** Classes which allow the subject material to be tailored to fit the individual student's needs are offered both day and evening each term. Interests such as Advanced High School Drafting, Interior Architecture, Perspectives/Renderings, Blueprint Reading, or Finish Your Own Designs can be the subject of a class with individual instruction offered for one or more students. Contact the Architectural Drafting Department for more information on tailoring a class to your individual needs.

**PCC offers the following form of recognition:**
- Associate of Applied Science Degree - 95 credit hours including: 64 credit hours of architectural drafting courses; 12 credit hours of required industrial drafting courses; 6 credit hours of physics; 1 credit hour of CG 210; 3 credit hours of ART 101; 11 credit hours of General Education courses. Consult a department advisor for assistance in planning General Education classes. Department minimums for math, MTH 95 and writing, WR 121.

**Note:** General Education requirements and a list of courses approved to satisfy those requirements will be found in the Academic Regulations section of this catalog.

The following is a recommended course sequence for students starting fall term. Students starting at other times/terms should see a department advisor for a revised schedule of courses.

**First Term**
- DRF 116 Introduction to Drafting 8
- DRF 126 Introduction to AutoCAD 2
- General Education 6

**Second Term**
- ADT 101 Architectural Graphics I 2
- ADT 111 Working Drawings I 2
- ADT 121 Structural Systems I 2
- ADT 122 Structural Systems II 2
- ADT 132 Building Codes 4
- DRF 136 Intermediate AutoCAD 3

**Third Term**
- ADT 102 Architectural Graphics II 2
- ADT 112 Working Drawings II 2
- ADT 113 Working Drawings III 2
- ADT 123 Structural Systems III 4
- ADT 131 Environmental Control Systems 4
- ADT 280B CE: Architectural Drafting 2

**Fourth Term**
- ADT 103 Architectural Graphics III 2
- ADT 201 Design Studio I 6
- ART 101 Introduction to Art 3
- PHY 101 Fundamentals of Physics 4
- General Education 2

**Fifth Term**
- ADT 202 Design Studio II 8
- ADT 231 Specifications 3
- CG 210 Job Finding Skills - Drafting 1
- General Education 3

**Sixth Term**
- ADT 203 Design Studio III 8
- ADT 232 Estimating 3
- ADT 280DCE: Architectural Drafting 4

1Prerequisite: MTH 60
2Cooperative Education is a variable credit course.
3Prerequisite: DRF 116 and CIS 120 or department approved equivalent.
4Recent high school graduates and transfer students with previous drafting coursework should see a department advisor for advanced placement in the program.

**Note:** MTH 95 and WR 121 must be completed prior to graduation.

**Exploring Architecture/Occupational Upgrading Courses:**
- ADT 161 Blueprint Reading-Residential 2
- ADT 162 Blueprint Reading-Commercial 2
- ADT 191 Special Projects I 2
- ADT 192 Special Projects II 2
- ADT 193 Special Projects III 2
- ADT 251 Uniform Building Codes I 3
- ADT 252 Uniform Building Codes II 3
- ADT 253 Uniform Building Codes III 3
- ADT 151 1 & 2 Family Structural Code 3
- ADT 152 1 & 2 Family Mechanical Code 3
- ADT 153 1 & 2 Family Electrical Code 3
- ADT 154 1 & 2 Family Plumbing Code 3

**One and Two-Family Building Inspection Certificate**

**Career Description:** This program prepares students for the State of Oregon One and Two-Family Building Inspector's test and for entry level employment as a Building Inspector.

**Program Prerequisites:** To enter program, students must be able to take MTH 20 and WR 121 or higher level math and writing courses.

Placement tests are available at “testing centers” to determine entry level skills in math and writing.

**Course of Study:** This program and individual courses are intended for evening students. ADT 280C Cooperative Education (work experience) is available only during the day. Some courses may be offered days and/or weekends in addition to evenings.

**Note:** A One-Year Certificate of Completion is awarded upon completion of the 36 credit hours of course work listed below.

**Program Requirements:**

**First Term**
- ADT 151 1 & 2 Family Structural Code 3
- ADT 161 Blueprint Reading-Residential 2
- ADT 251 Uniform Building Codes I 3
- MTH 60 Elementary Algebra - 1st Term 4

**Second Term**
- ADT 152 1 & 2 Family Mechanical Code 3
- ADT 153 1 & 2 Family Electrical Code 3
- ADT 252 Uniform Building Codes II 3
- PSY 101 Psychology and Human Relations 3
Third Term
ADT 253 Uniform Building Codes 3
ADT 154 1 & 2 Family Plumbing Code 3
ADT 280CCE: Architectural Drafting 3
WR 214 Business Communications 3

Industrial Design/Drafting

Career Description: Industrial drafters are skilled technicians who interpret engineering data to produce sketches, plans and detailed working drawings used in manufacturing and construction. Career opportunities exist for drafters in many areas including: product design, electrical layout, process piping, sheet metal, structural detailing, electronics, special tools and fixtures and machine design. The job market and advancement opportunities are good for graduates with a two year certificate or an Associate of Applied Science degree. Graduates are found working for manufacturing firms, construction companies, engineering firms, city, state and federal agencies or they may be self-employed. Advancement to positions of designer, drafting supervisor, or engineer are possible.

Industrial drafters with a one year certificate work directly under the supervision of a designer or engineer to produce detailed drawings used in manufacturing and construction. The job market and advancement opportunities are limited and are often related to the students previous work experience.

Program Prerequisites: Students new to the program must take the college's placement examination for math and English prior to departmental advising and registration. Students must place in MTH 60 and WR 115 before registering for First Term drafting classes. Department advising and placement is required prior to registration.

For acceptance into the second year program the student must have completed MTH 65 or equivalent, WR 115 and the first year required courses.

Course of Study: This program is designed to assist students in acquiring the knowledge and skills required of industrial drafters. The program and courses are developed with the advice and support of an industrial advisory committee.

Both day and evening courses are offered. The scheduled program is mostly followed when entering the first term classes in the fall or winter terms. However, the first term classes are offered each term and, with careful planning, a student may enter at the beginning of any term. Contact a program advisor for possible curriculum variations.

The majority of the courses involve short lecture/discussions of specific concepts followed by supervised lab time where the student is helped with suggestions on various techniques and drafting solutions. Students are encouraged to try both independent and group problem solving methods.

A modern CAD (Computer Aided Drafting) lab provides the opportunity for CAD skill development using CADKEY 3-D and/or AUTOCAD software.

PCC offers the following forms of recognition:

- One-year Certificate of Completion requires: 41 credit hours of drafting courses, 3 credit hours of PSY 101.
- Two-year Certificate of Completion requires: 85 credit hours of drafting courses, 3 credit hours of PSY 101; 3 credit hours of PHY 210, 1 credit hour of CG 210.

- Associate of Applied Science degree requires: 85 credit hours of drafting courses, 3 credit hours of PHY 210, 1 credit hour of CG 210, 18 credit hours of General Education courses.

In addition to the Degree or Certificate requirements, students are required to meet the PCC communications and computations requirements by completing WR 121, English Composition and MTH 65 Elementary Algebra.

Industrial Design/Drafting

First Term
DRF 112 Technical Freehand Sketching 2
DRF 116 Introduction to Drafting 8
DRF 161 Industry Orientation 2
PSY 101 Psychology and Human Relations 3

Second Term
DRF 134 Introduction to Machine Manufacturing 4
DRF 119 Introduction to CADKEY 3-D 2
DRF 132 Industrial Drafting II 4
MTH 65 Elementary Algebra - Second Term 4

Third Term
DRF 126 Introduction to AutoCAD 2
DRF 122 Isometric Illustration 4
DRF 124 Exploded Isometric Illustration 4
DRF 128 Descriptive Geometry 2
DRF 258 Geometric Dimensioning & Tolerancing 3
WR 121 English Composition 3

Fourth Term
DRF 136 Intermediate AutoCAD 3
DRF 139 Intermediate CADKEY 3-D 3
DRF 240 Casting and Molding Design Drafting 3
DRF 241 Structural Detail Drafting 3
DRF 253 Electro/Mechanical Design/Drafting 3
DRF 244 Drafting Math and Problem Solution 4
PHY 101 Fundamentals of Physics 4

Fifth Term
DRF 256 Advanced AutoCAD 3
DRF 239 Advanced CADKEY 3-D 3
DRF 250 Fluid Power Design Drafting 2
DRF 251 Kinematics Drafting 2
DRF 252 Logic Schematic Drafting 3
DRF 254 Drafting Design and Problem Solution 4
General Education 3

Sixth Term
DRF 260 Tool and Fixture Design/Drafting 2
DRF 261 Electronic Pkg Dsgn/Drafting 3
DRF 262 Machine Design Drafting 3
CG 209 Job Finding Skills 1
General Education 9

Technical Illustration/Publication

Career Description: The technical illustrator/publisher is a skilled technician who interprets engineering drawings, specifications and photographs to create a pictorial representation of the object, design or idea. Many illustrators create exploded views, assembly views, cutaway sections, flow diagrams and perspectives. These illustrations are used in technical manuals, printed literature, slides, displays and engineering proposals. The technical illustrator/publisher may be included as an important member of a design team working with technical writers in the prepara-
tion of camera-ready documents for publication. Career possibilities exist for both individual contract work and full or part-time employment in such areas as advertising, package design and technical manuals. Advance career opportunities might be into positions such as Graphic Specialist and Publications Coordinator.

**Program Prerequisites:** Students new to the Technical Illustration/Publication program must take the college’s placement examinations for mathematics and English prior to department advising and registration. Students must place in MTH 60 Elementary Algebra first term and WR 115 Introduction to Expository Writing before registering for first term illustration/publication classes. Department advising and placement is required prior to registration.

For acceptance into the second year of the program the student must have completed MTH 65 or equivalent and the first year required courses.

**Course of Study:** The two-year sequence of classes prepares students for entry-level employment in two and three dimensional technical drawing, art production for technical publications and operation of computer graphics and desktop publishing software. The program and courses are developed with the advice and support of an advisory committee consisting of professional technical illustrators and employers.

Technical Illustration/Publication is offered both day and evening. The scheduled program is most easily followed when entering the first term classes in the Fall or Winter terms. However, the first term classes are offered each term and, with careful planning, a student may enter at the beginning of any term. Contact a program advisor for possible curriculum variations.

The majority of the courses consist of short lecture/discussions of specific concepts followed by supervised lab time where the student is helped with suggestions on various techniques and technical solutions. Students are encouraged to try both independent and group problem solving methods.

A modern CAD (Computer Aided Drafting) lab provides the opportunity for skill development using Pagemaker (desktop publishing), Adobe Illustrator (computer graphics), Aldus Persuasion (presentation graphics) and CADKEY 3-D (Computer Aided Drawing) software.

**PCC offers the following forms of recognition:**

- Two-year Certificate of Completion - 86 credit hours including 3 credits of PSY 101, 3 credits BT 201BWP, 3 credits of WR 121, 3 credits of WR 214, 3 credits of WR 227, 3 credits of SP 101, 2 credits of PT 120, 3 credits of PT 136, 2 credits of PT 114, 2 credits of PT 170, 3 credits of GD 120, and 1 credit of CG 210.
- Associate of Applied Science Degree - 104 credit hours including the above mentioned 87 credits together with an additional 18 credits of appropriate General Education courses.

General Education requirements and a list of courses approved to satisfy those requirements may be found in the Academic Regulations section of this catalog.

**First Term**

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<th>Course Title</th>
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<td>Technical Freehand Sketching</td>
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<tr>
<td>DRF 116</td>
<td>Introduction to Drafting</td>
<td>8</td>
</tr>
<tr>
<td>DRF 161</td>
<td>Industry Orientation</td>
<td>2</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Psychology and Human Relations</td>
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**Second Term**

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<th>Course Title</th>
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<tr>
<td>DRF 122</td>
<td>Isometric Illustration</td>
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<tr>
<td>DRF 124</td>
<td>Exploded Isometric Illustration</td>
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</tr>
<tr>
<td>DRF 127</td>
<td>Shading &amp; Rendering Techniques</td>
<td>2</td>
</tr>
<tr>
<td>DRF 119</td>
<td>Introduction to CADKEY 3-D</td>
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</tr>
<tr>
<td>BT 201</td>
<td>Beg WP Wrdprf:DOS</td>
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**Third Term**

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<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>DRF 242</td>
<td>Computer Graphics I - Adobe on PC</td>
<td>2</td>
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<tr>
<td>DRF 129</td>
<td>Intermediate CADKEY 3-D</td>
<td>3</td>
</tr>
<tr>
<td>DRF 137</td>
<td>2-D Illustrations, Diagrams</td>
<td>4</td>
</tr>
<tr>
<td>WR 121</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>PT 120</td>
<td>Typesetting</td>
<td>2</td>
</tr>
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</table>

**Fourth Term**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>DRF 131</td>
<td>Desktop Publishing I: PageMaker on PC</td>
<td>2</td>
</tr>
<tr>
<td>DRF 244</td>
<td>Drafting Math and Problem Solution</td>
<td>4</td>
</tr>
<tr>
<td>PT 170</td>
<td>Screen Printing I</td>
<td>2</td>
</tr>
<tr>
<td>SP 101</td>
<td>Oral Communication Skills</td>
<td>3</td>
</tr>
<tr>
<td>WR 214</td>
<td>Business Communications</td>
<td>3</td>
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</tbody>
</table>

**Fifth Term**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>DRF 255</td>
<td>Perspective Illustration, 2-point and Grid</td>
<td>4</td>
</tr>
<tr>
<td>DRF 248</td>
<td>Desktop Publishing II: PageMaker on PC</td>
<td>2</td>
</tr>
<tr>
<td>DRF 257</td>
<td>Computer Graphics in Industry II - Adobe on PC</td>
<td>2</td>
</tr>
<tr>
<td>WR 227</td>
<td>Technical Writing I</td>
<td>3</td>
</tr>
<tr>
<td>PT 114</td>
<td>Camera/Prep I</td>
<td>2</td>
</tr>
</tbody>
</table>

**Sixth Term**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRF 299</td>
<td>Technical Publication Production</td>
<td>4</td>
</tr>
<tr>
<td>DRF 263</td>
<td>Printing Orientation</td>
<td>2</td>
</tr>
<tr>
<td>DRF 264</td>
<td>Computer Presentation Graphics</td>
<td>2</td>
</tr>
<tr>
<td>CG 210</td>
<td>Job Finding Skills - Drafting</td>
<td>1</td>
</tr>
<tr>
<td>GD 120</td>
<td>Graphic Tools and Layout Techniques</td>
<td>3</td>
</tr>
<tr>
<td>PT 136</td>
<td>Electronic Layout</td>
<td>3</td>
</tr>
</tbody>
</table>

**Early Childhood Education**

Sylvania Campus
Health Technology Bldg D-8e
244-6111, ext. 4217

**Career Description:** Teachers of young children, ages birth through five, plan the environment and develop suitable learning experiences and work closely with families in child care situations. They also supervise play and physical needs of small children, organize daily activities, keep records of children’s progress and confer with parents.

**Program Prerequisite:**

1. Completion of PCC placement testing in reading, English, and math prior to advising.
2. A personal counseling session with an Early Childhood Education program faculty advisor. MTH 20 and placement in WR 115 are required for Level I coursework. Placement in WR 121 is required for Level II coursework. Evidence of immunity to measles and a current Oregon Food Handlers card are required for enrollment in practicum. Attendance at pre-enrollment information sessions is required for all levels of practicum.

**Course of Study:** The Early Childhood Education program is planned as a career ladder to accommodate the part-time as well as the full-time student. The basic step on the ladder is the Level I Certificate. This certificate provides the necessary formal clock-hour child care education portion of the CDA Direct Assessment process. For those desiring further education, the next step is the Level II Certificate, which meets the Oregon Children’s Services Division minimum requirements for day care teacher in a licensed child care facility. The National Association for Education of Young Children’s (NAEYC) minimum suggested training for a head teacher in a child care facility licensed by Oregon Children’s Services Division. The National Association for Education of Young Children’s (NAEYC) minimum suggested training for teachers is also an AAS degree in ECE. All required courses/competencies mastered for each certificate apply to the next step.

At the certificate level, students may choose emphasis in Infant/Toddler, Early Childhood, or they may choose courses from both areas (Generalist).

**PCC offers the following forms of recognition:**
- Level I Certificate
- Level II Certificate
- Associate of Applied Science

Exit requirements for all Certificates (Level I and II) is in Early Childhood Education and the AAS degree in Early Childhood Education.

Students must receive a grade of “C” or better in every required (nonselective) Early Childhood Education class in order to receive a certificate or degree. Students may retake classes in order to meet this requirement with the exception of ECE Practicum I (ECE 150) and Advanced Practicum (ECE 251-259), both seminar and lab components. These classes may only be re-taken once after students receive a grade of less than “C”.

A minimum of two credits and a maximum of six credits in Practicum Lab I are required for the Level I certificate. A minimum of two and a maximum of four additional practicum lab credits are required for a Level II certificate. Credits required depend on individual student competence as evaluated by ECE instructors. Students MUST enroll in Practicum seminar each term they take Practicum I or Advanced Practicum.

**Certificate/Degree Requirements:**

**Level I Certificate:** 21-25 credits. This certificate provides the necessary formal clock-hour child care education portion of the CDA Direct Assessment process. Level I coursework requires completion of MTH 20 and placement in WR 115. Core courses required for Infant/Toddler, Early Childhood, or Generalist certificate:

- **Core:** 12 credits
  - ECE 226 Child Development
  - ECE 100 Applied Child Development
  - ECE 101 Child, Family, Community
  - ECE 102 Guidance of Young Children
  - ECE 103 Observation of Young Child

**Infant/Toddler Emphasis Courses required in addition to 12 core credits**
- ECE 110 Infant/Toddler Environments
- ECE 112 Infant/Toddler Materials and Activities
- ECE 151 Infant/Toddler Practicum I
- ECE 152 Infant/Toddler Practicum I
- ECE 153 Infant/Toddler Practicum I
- ECE 154 Infant/Toddler Practicum I
- ECE 155 Infant/Toddler Practicum I
- ECE 156 Infant/Toddler Practicum I
- ECE 150 Infant/Toddler Practicum I (Seminar)

**Early Childhood Courses required in addition to 12 core credits**
- ECE 111 Early Childhood Environments
- ECE 113 Early Childhood Materials and Activities
- ECE 161 Early Childhood Practicum I
- ECE 162 Early Childhood Practicum I
- ECE 163 Early Childhood Practicum I
- ECE 164 Early Childhood Practicum I
- ECE 165 Early Childhood Practicum I
- ECE 166 Early Childhood Practicum I
- ECE 160 Early Childhood Practicum I (Seminar)

**Generalist Courses required in addition to 12 core credits**
- ECE 110 Infant/Toddler Environments
- ECE 111 Early Childhood Environments
- ECE 112 Infant/Toddler Materials and Activities
- ECE 113 Early Childhood Materials and Activities
- ECE 151 Infant/Toddler Practicum I
- ECE 152 Infant/Toddler Practicum I
- ECE 153 Infant/Toddler Practicum I
- ECE 154 Infant/Toddler Practicum I
- ECE 155 Infant/Toddler Practicum I
- ECE 156 Infant/Toddler Practicum I
- ECE 160 Early Childhood Practicum I (Seminar)

**Level II Certificate:** 38-44 credits

This certificate requires achievement of a Level I Certificate, placement into WR 121 and completion of ECE 226 Child Development, plus the courses listed below. (ECE 100 Applied Child Development may be used as an elective for this certificate.)
### Associate of Applied Science in Early Childhood Education

**Prerequisite courses required for Certificate Level I & II plus:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ECE 270</td>
<td>Integrating Theory and Practice I</td>
<td>3</td>
</tr>
<tr>
<td>ECE 271</td>
<td>Integrating Theory and Practice II</td>
<td>3</td>
</tr>
</tbody>
</table>

**A Materials and Activities or Environments class from the following list in addition to Level I Certificate requirements:**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>ECE 100</td>
<td>Early Childhood Environment</td>
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<tr>
<td>ECE 101</td>
<td>Early Childhood Environment</td>
<td>3</td>
</tr>
<tr>
<td>ECE 102</td>
<td>Early Childhood Environment</td>
<td>3</td>
</tr>
<tr>
<td>ECE 103</td>
<td>Early Childhood Environment</td>
<td>3</td>
</tr>
</tbody>
</table>

**Program Prerequisites:**

1. A minimum of two credits and a maximum of six credits are required for the Level I certificate. A minimum of two and a maximum of four additional practicum credits are required for a Level II certificate. Credits required depend on individual student competence as evaluated by ECE instructors.

2. A total of 90 credits are required for the AAS degree.
**Course of Study:** PCC offers the following two options:

Option One is a one-year certificate program that develops skills used in public, private, and libraries and media centers. Two terms of practicum are included.

Option Two is an Associate of General Studies degree. Students take a combination of 45-60 credit hours from Option One, plus 18 credit hours of General Education in order to complete the 90 credit hours necessary to receive an associate degree. Students completing the two-year option have gained experiences in the field of libraries, media centers, and audio-visual departments. Each student’s program must be approved by the Education department.

**PCC offers the following forms of recognition:**

- One-year Certificate of Completion (Education Paraprofessional with a Library/Media Assistant endorsement) - 45 credit hours.
- Two-year Associate of General Studies - 90 credit hours. See a program advisor for help in planning.

**Library/Media required classes**

- **ED 102** Educational Media Production I - 5
- **ED 109** Library Procedures - 3
- **ED 111** Selection of Library Materials - 3
- **ED 114** Reference Materials - 3
- **ED 133** Media and Materials - 3
- **ED 136** Computers in Education - 3
- **ED 200** Introduction to Education - 3
- **ED 209** Practicum - 3
- **ED 210** Practicum - 3
- **BT 121A** Beginning Keyboarding - 1
- **HE 112** First Aid and Emergency Care - 1

**Recommended Electives**

- **ED 101** Audio Visual Equipment II - 2
- **ED 103** Educational Media Production II - Computers - 5
- **ED 104** Educational Media Production III - Photography - 5
- **ED 105** Television Production I - 3
- **ED 112** Intro to Juvenile Literature - 3
- **ED 115** Storytelling - 2
- **ED 171** Computers in Education II - 3
- **ED 206** Seminar: Advanced Education Techniques - 3
- **ED 298** Special Projects in Education - 5
- **ED 298C** Special Projects in Education - 3

A total of 45 credit hours is required for the one year Library/Media certificate.

**Instructional Assistant, Special Education**

The PCC Instructional Assistant/Special Education program prepares students on a personal level to resolve everyday challenges and to professionally support teachers in planning, presenting and evaluating instruction and learning. Practicums (field experiences) are arranged with local school districts.

**Career Description:** The instructional assistant responsibilities may include the following: 1) working under the supervision of a teacher; 2) assisting small group instruction in reading, math, spelling etc.; 3) assisting individual students in the above academic areas and/or self-help skills, daily living skills, physical therapy and other skills, depending on the functioning level of the student; 4) following behavior programs as directed by the teacher; 5) preparing and assembling materials. The particular responsibilities assigned to an assistant depend on the program and personnel in each school. Employment opportunities are excellent in Portland and in surrounding areas as a result of the present legislative support for equal education for students with special needs (PL 94-142 and PL 99-457). The PCC Instructional Assistant/Special Education program is designed for persons of all ages, races, cultures and economic backgrounds. The program values diversity in the field of education.

**Program Prerequisites:** Students in the instructional assistant program at PCC are required to demonstrate competencies in areas of English, reading and math by passing appropriate placement tests. Scores must be high enough to qualify students for enrollment in WR 115, RD 115 and MTH 60. Students born after 1957 are required to provide proof of immunizations against measles. Students will be asked to fill out a criminal check.

**Course of Study:** PCC offers a 45-credit-hour certificate with emphasis on field experience in public or private elementary and secondary schools. The program has three goals: 1) to train students to work with special needs students in an academic or vocational environment; 2) to allow students to progress toward teacher certification at a four-year institution; and 3) to provide exploratory experiences for students who are considering regular or special education as a career.

**PCC offers the following form of recognition:**

- One-year Certificate of Completion (Education Paraprofessional with an Instructional Assistant, Special Education endorsement) - 45 credit hours.
- Two-year Associate of General Studies - 90 credit hours. See a program advisor for help in planning.

**Required Courses**

Instructional Assistant, Special Education Program

**Fall**

- **ED 133** Media and Materials - 3
- **ED 205** Tutoring Principles and Practices - 3
- **ED 209** Practicum - 3
- **ED 251** Overview of Handicapping Conditions - 3

**Winter**

- **ED 207** Seminar: Adaptive Sign for Special Populations - 3
- **ED 210** Practicum - 3
- **ED 225** Behavior Management - 3
- **ED 268** Introduction to Mental Retardation - 3
- **HE 112** First Aid and Emergency Care - 1
- **PSY 101** Psychology and Human Relations - 3

**Spring**

- **ED 136** Computers in Education - 3
- **ED 200** Introduction to Education - 3
- **ED 211** Practicum - 3
- **ED 269** Introduction to Teaching the Learning Disabled Student - 3
- **ED 295** Leisure for Special Populations - 3
- **ED 295** Two half-day workshops - 3

**Suggested Courses**

- **ED 126** Math for Young Children - 3
- **ED 123** Math for Young Children - 2
- **ED 124** Math for Young Children - 1
- **ED 128** Whole Language Approach to Reading - 2
- **ED 130** Whole Language Approach to Reading - 2
- **ED 131** Whole Language Approach to Reading - 3
Associate of Applied Science degree: 90 credit hours; includes six credit hours of communication courses. Students may receive a maximum of 22 credits for their occupational training in the knowledge, sensitivity, and skills required to become a successful teacher. Students will be required to spend at least two terms in a field experience.

**Professional/Technical Teacher Education**

**Career Description:** Experienced individuals from business and industry can qualify to teach their specialty in high schools and community colleges. The specialty areas now accepting teachers with less than a B.A. degree are: accounting, bookkeeping, child care services, cooperative work experience, construction, computer science, electricity/electronics, food service, graphic arts, health occupations, marketing, mechanical repair and metals. Employment opportunities are available in both private and public institutions across the country and overseas.

**Program Prerequisites:** Anyone entering this program must have three years of verified work experience or equivalent professional/technical training. In most trade areas the teacher candidate should have three years at the journeyman level. All students entering this program must take the PCC math and English placement tests.

**Course of Study:** The professional courses prepare a student in the knowledge, sensitivity and skills required to become a successful teacher. Students will be required to spend at least two terms in a field experience.

**PCC offers the following form of recognition:**

- One year certificate: 45 credit hours; includes a minimum of 28 credit hours of professional courses, three credit hours of math and six credit hours of communication courses. Students may receive a maximum of 11 credits for occupational/technical training and/or industrial work experience.
- Associate of Applied Science degree: 90 credit hours; includes a minimum of 28 credit hours of professional courses, 9 credit hours of communication courses, 17 credit hours of electives, and 18 credit hours of General Education courses. Students may receive a maximum of 22 credits for their occupational training and industrial work experience. Consult a program advisor for help in planning General Education classes.

**One-year Certificate**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ED 110</td>
<td>Educational Psychology of Learning</td>
<td>3</td>
</tr>
<tr>
<td>ED 132</td>
<td>Evaluation Techniques</td>
<td>3</td>
</tr>
<tr>
<td>ED 133</td>
<td>Media and Materials</td>
<td>3</td>
</tr>
<tr>
<td>ED 136</td>
<td>Computers in Education</td>
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</tr>
<tr>
<td>ED 209</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td>ED 218</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td>ED 215</td>
<td>CAM Practicum</td>
<td>3</td>
</tr>
<tr>
<td>ED 258</td>
<td>Multicultural Education</td>
<td>3</td>
</tr>
<tr>
<td>ED 252</td>
<td>Behavior and Techniques of Teaching At a Community College</td>
<td>3</td>
</tr>
<tr>
<td>ED 292</td>
<td>Curriculum Design and Development</td>
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</table>

**Math Requirement**

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<tbody>
<tr>
<td>MTH 211</td>
<td>Foundations of Elementary Math I</td>
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</table>

**Two-year Associate of Applied Science Degree**

**Professional Courses**

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</thead>
<tbody>
<tr>
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<td>Educational Psychology of Learning</td>
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</tr>
<tr>
<td>ED 132</td>
<td>Evaluation Techniques</td>
<td>3</td>
</tr>
<tr>
<td>ED 133</td>
<td>Media and Materials</td>
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<td>Practicum</td>
<td>3</td>
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<tr>
<td>ED 210</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td>ED 218</td>
<td>Practicum</td>
<td>1</td>
</tr>
<tr>
<td>ED 215</td>
<td>CAM Practicum</td>
<td>3</td>
</tr>
<tr>
<td>ED 258</td>
<td>Multicultural Education</td>
<td>3</td>
</tr>
<tr>
<td>ED 281</td>
<td>Philosophy and Techniques of Teaching At a Community College</td>
<td>3</td>
</tr>
<tr>
<td>ED 292</td>
<td>Curriculum Design and Development</td>
<td>3</td>
</tr>
</tbody>
</table>

**Recommended electives:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 126</td>
<td>Math for Young Children</td>
<td>3</td>
</tr>
<tr>
<td>ED 128</td>
<td>Whole Language Approach to Reading</td>
<td>2</td>
</tr>
<tr>
<td>ED 130</td>
<td>Whole Language Approach to Reading</td>
<td>2</td>
</tr>
<tr>
<td>ED 131</td>
<td>Whole Language Approach to Reading</td>
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</tr>
<tr>
<td>ED 133</td>
<td>Media and Materials</td>
<td>3</td>
</tr>
<tr>
<td>ED 136</td>
<td>Computers in Education</td>
<td>3</td>
</tr>
<tr>
<td>ED 158</td>
<td>Multicultural Education and the Paraprofessional</td>
<td>3</td>
</tr>
<tr>
<td>ED 200</td>
<td>Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>ED 205</td>
<td>Tutoring Principles and Practices</td>
<td>5</td>
</tr>
<tr>
<td>ED 209</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td>ED 251</td>
<td>Overview of Handicapping Conditions</td>
<td>3</td>
</tr>
<tr>
<td>ED 252</td>
<td>Behavior Management</td>
<td>3</td>
</tr>
<tr>
<td>ED 258</td>
<td>Multicultural Education</td>
<td>3</td>
</tr>
<tr>
<td>ED 268</td>
<td>Introduction to Mental Retardation</td>
<td>3</td>
</tr>
<tr>
<td>ED 269</td>
<td>Introduction to Teaching the Learning Disabled Student</td>
<td>3</td>
</tr>
<tr>
<td>ED 298C</td>
<td>Special Projects in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elementary Education Transfer**

Elementary Education is an Associate of Arts Oregon Transfer degree program, transferable to four-year public universities and colleges in Oregon. For more detailed information, please see an education faculty advisor.

Recommended electives:

<table>
<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
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<td>Computers in Education</td>
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<td>ED 158</td>
<td>Multicultural Education and the Paraprofessional</td>
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<td>ED 258</td>
<td>Multicultural Education</td>
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<tr>
<td>ED 268</td>
<td>Introduction to Mental Retardation</td>
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<td>ED 269</td>
<td>Introduction to Teaching the Learning Disabled Student</td>
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<tr>
<td>ED 298C</td>
<td>Special Projects in Education</td>
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**Professional Courses:**

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<td>Educational Psychology of Learning</td>
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<td>Practicum</td>
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<tr>
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<td>Practicum</td>
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<td>Curriculum Design and Development</td>
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</tbody>
</table>
Outdoor School
ED 214 Practicum: Outdoor School 3

Portland Community College, in conjunction with Washington County Educational Service District (WCESD) Outdoor School, offers the following Outdoor School experience.

PCC students gain experience while working with sixth grade students in an outdoor school setting. Students must complete the following requirements:
1. Attend two evening classes at WCESD held by the Outdoor School staff.
2. Spend one week at an Outdoor School camp.
3. Meet with the Outdoor School staff and the PCC staff.

For more information about the Outdoor School Experience, contact either the Education Department or the WCESD Outdoor School Department.

Electrical Trades
Southeast Center
244-6111, ext. 6905, 6205

Career Description: The electrician is a person who installs, maintains and repairs wiring, electrical equipment, and fixtures. They ensure that work is in accordance with relevant codes. These are Oregon licensed occupations, and a person MUST meet State standards to practice these occupations. Please contact the Building Codes Agency at (503) 373-1268 in Salem for specific licensing requirements.

Prerequisites: MTH 20 Basic Math and WR 115 Expository Writing are recommended.

Courses: PCC offers, at our Cascade Electrical Training Center, an opportunity to enter the Manufacturing Plant Apprentice Electrical program. Students must prepare for and meet state electrical apprentice standards to fulfill their complete on the job training program. Apply through Oregon State Apprenticeship and Training, 800 NE Oregon Street #32, Portland, Oregon, or call them at (503) 731-4072.

PCC is an approved training agent for continuing education for journeyperson electrical license renewal through the State of Oregon Electrical Licensing Division.

TE 9061 National Electrical Code 3
TE 9075 NEC Limited Maint Indus Elect 3
TE 9083 National Electric Code II 3
TE 9086 Instrumentation Process Control 2
TE 9090 Electrical Estimating I 3
TE 9091 Electrical Field Job Management 3
TE 9092 Electrical Contracting 2
TE 9093 Electrical Calculations and Planning (Design) I 2
TE 9120 Basic Programmable Controllers 2
TE 9121 Advanced Programmable Controllers 2
TE 9122 Electrical Power Generation I 2
TE 9123 Electrical Power Generation II 2
TE 9124 Electrical Power Generation III 2
TE 9125 Electrical Power Generation IV 2
TE 9145 Electrical Motor Controls 2
TE 9610 Electrical I: 1st Year, 1st Term 3
TE 9611 Electrical II: 1st Year, 2nd Term 2
TE 9612 Electrical III: 1st Year, 3rd Term 2
TE 9613 Electrical IV: 2nd Year, 1st Term 2
TE 9614 Electrical V: 2nd Year, 2nd Term 2
TE 9615 Electrical VI: 2nd Year, 3rd Term 2
TE 9616 Electrical VII: 3rd Year, 1st Term 2
TE 9617 Electrical VIII: 3rd Year, 2nd Term 2
TE 9618 Electrical IX: 3rd Year, 3rd Term 2
TE 9619 Electrical X: 4th Year, 1st Term 2
TE 9620 Electrical XI: 4th Year, 2nd Term 2
TE 9621 Electrical XII: 4th Year, 3rd Term 2

Electronics Engineering Technology

Sylvania Campus
Science Technology Bldg. B-8
244-6111, ext. 4163

Oregon Institute of Technology
Metro Center
725-3066

Electronics Engineering Technology (EET) is concerned with the theory and practice of applied electronics engineering. Emphasis is placed on the practical application of engineering knowledge. To apply electronics engineering knowledge requires a thorough background in mathematics and science. Electronics Engineering Technology graduates possess a combination of theoretical and practical understanding and require minimal on-the-job training to become productive.

Programs: The program at Portland Community College offers an Associate degree in Electronics Engineering Technology and satisfies requirements for the first two years of a four-year Bachelor of Science degree offered in cooperation with Oregon Institute of Technology. The two-year EET program at PCC results in an Associate of Applied Science degree, with the option of entering the workforce as an engineering technician or continuing on for a Bachelor of Science degree at OIT. Completion of the upper division two years at OIT's Metro Center or Klamath Falls campus results in a Bachelor of Science degree in Electronics Engineering Technology.

Career Description: Graduates of an Associate degree program in Electronics Engineering Technology are called engineering technicians and find employment in circuits and system testing, product development, prototype construction and testing, circuit and systems modification, systems operation, and manufacturing.

Graduates of a Bachelor of Science degree program in Electronics Engineering Technology are called engineering technologists. They have additional background and function in industry as component and system designers, field engineers, marketing specialists, sales engineers, component and systems test engineers, production engineers, manufacturing engineers and process control specialists.

Associate and Baccalaureate EET graduates are expected to have good communication skills and be capable of creative problem solving, working independently and in teams. They should have extensive knowledge of both the hardware and software of electronic systems.
Employers of Engineering Technicians and Engineering Technologists include research and development laboratories, electronic equipment manufacturers, public utilities, colleges and universities, government agencies, medical laboratories and hospitals, electronic equipment distributors, semiconductor manufacturers, and manufacturing and processing industries that use electronic control equipment.

Program Prerequisites: Placement in MTH 111 College Algebra and WR 121 English Composition I.

Application and Admission: Students are admitted to the program by application to the Engineering Division. The EET program starts in the Fall and enrollment is limited. Therefore, students are encouraged to apply early. All students planning to transfer to OIT are encouraged to contact an academic advisor at OIT Metro Center. Please contact the EET Department at PCC or the OIT Metro Center for additional information.

PCC offers the following form of recognition:

Associate of Applied Science Degree:

1. 103 to 107 credit hours, including 18 credit hours of General Education courses. This degree is directly transferable to Junior status at Oregon Institute of Technology for work toward a BS (EET) degree.

Course of study:

First Term (Fall)

EET 101  Introduction to Circuit Analysis 3
EET 102  Introduction to Circuit Analysis Lab 1
CST 115  Introduction to Software Engineering in C++ 3
MTH 111  College Algebra 4
WR 121  English Composition 3
Social Science Elective 3

Second Term (Winter)

EET 103  Circuit Analysis I 4
EET 104  Circuit Analysis I (Lab) 2
MTH 112  Elementary Functions 4
CST 116  Software Engineering in C++ 4
WR 122  English Composition 3

Third Term (Spring)

EET 105  Circuit Analysis II 4
EET 106  Circuit Analysis II (Lab) 2
EET 243  Introduction to Digital Concepts 3
EET 244  Introduction to Digital Concepts (Lab) 1
MTH 251  Calculus I (Differential Calculus) 4
WR 227  Technical Writing I 3

Fourth Term (Fall)

EET 201  Semiconductor Devices 4
EET 202  Semiconductor Devices (Lab) 2
EET 265  Digital Logic I 2
EET 266  Digital Logic I (Lab) 1
MTH 252  Calculus II (Integral Calculus) 4
PHY 201  General Physics 4

Fifth Term (Winter)

EET 211  Analog Devices and Circuits 4
EET 212  Analog Devices and Circuits (Lab) 2
EET 267  Digital Logic II 2
EET 268  Digital Logic II (Lab) 1
MTH 253  Calculus III (Infinite Series and Sequences) 4
PHY 202  General Physics 4

Sixth Term (Spring)

EET 231  Operational Amplifiers 4
EET 232  Operational Amplifier (Lab) 2
EET 227  Introduction to Microcontrollers 3
EET 228  Introduction to Microcontrollers (Lab) 2
PHY 203  General Physics 4
Arts & Humanities Elective 3

This must be a course from the “Arts and Humanities” section of the “General Education Course List” in this catalog.

Optional Courses (Only for students not transferring directly to OIT, and with departmental approval.)

EET 241  Microcomputer Systems I 4
EET 251  Microcomputer Systems II 4
EET 255  Industrial Control/Robotics I 4
EET 257  Optical Electronics I 4
EET 280A  CE: Electronics Engineering Tech-credit hours by arrangement

This must be a course from the “Social Science” section of the “General Education Course List” in this catalog.

SP 111, Fundamentals of Speech, is required for the OIT BS EET degree.

Equivalent to OIT’s EET 327, EET 328.

Electronics Service Technology

Sylvania Campus
Science Technology Bldg. B8
244-6111, ext. 4163

Career Description: Electronics technicians work with electronic, computer-controlled, and electromechanical systems. Servicing includes repair, maintenance, calibration, analysis, installation and testing. Service technicians are employed by servicing organizations and by manufacturers and users of electronic, computer-controlled electronic, and related equipment.

Servicing present-day equipment requires training in computer literacy and in a variety of analog and digital electronic systems. Troubleshooting skills are essential and include mastery of standard and specialized test and evaluation equipment and the ability to utilize detailed service information.

Course of Study: Electronics Service Technology (EST) is a hands-on two-year associate degree program preparing students for entry-level positions as technicians servicing electronic, electromechanical and computer controlled systems; additionally, the program contains a sequence in microcomputer repair and maintenance. Servicing includes troubleshooting, repair, maintenance, evaluation and calibration.

The program consists of a series of systems courses in audio, electromechanics, communications, video and imaging, instrumentation and control, and microcomputers following fundamental courses in electricity, electronics, digital, solid state and linear integrated circuitry; all systems and fundamental courses include laboratory time at least equal to that of the corresponding lecture. Courses in computer literacy and DOS are included in the program. Cooperative education is required for the EST degree.
Fundamental and system laboratory facilities are equipped with quality standard and specialized test and evaluation equipment as well as representative tear-down systems. The use of the basic test equipment of electronics as well as troubleshooting techniques are stressed throughout the program. Specialized test and evaluation equipment is utilized as appropriate in system course laboratories. System course laboratories utilize representative tear-down equipment for student servicing experiences; for example, our microcomputer courses utilize mix-and-match AT compatible tear-down microcomputers for hands-on servicing training.

Program Prerequisites: All students must have an advising interview with an EST faculty advisor. Students seeking a certificate or degree must place in WR 121 and MTH 70, or complete MTH 65 or MTH 56. Students seeking to upgrade job skills must meet individual course prerequisites. Skill in keyboarding is highly recommended.

For students not meeting these requirements, advising is available to assist in preparing for entry into the program and to earn credits which will apply toward the certificate or degree once accepted into the program.

For students with previous work experience in electronics who desire advanced placement, an EST faculty advisor will determine placement and/or evaluate previous post-secondary course work.

Application and Admission: Day/full-time students: EST is a limited enrollment program for students seeking a certificate or degree. Qualified applicants are accepted within the order in which the application process is completed. Applications for the next year are accepted from October 1 until the program is filled. Accepted applicants must attend the program orientation prior to the start of the first term.

Evening/Job-upgrade students: Courses are offered on an open enrollment basis in the evenings and on weekends for students seeking to upgrade job skills. Students must meet individual course prerequisites and complete an advising interview with an EST faculty advisor prior to enrollment. Admission to day sections may be granted on a space-available basis after the needs of the full-time students have been met.

Program Progression: Faculty advisors will be assigned to each student to provide guidance toward an orderly progression through the program and to assist in other ways as appropriate. Students are required to work with their advisor in planning both term-by-term schedules and in fulfilling the total program requirements. Students with academic problems must contact their advisor at the earliest opportunity.

PCC offers the following forms of recognition:

- One-year Certificate of Completion: 67 credit hours, including all communications and General Education courses, as indicated in the first 4 terms.
- Associate of Applied Science Degree: 94 credit hours, including 18 credit hours of General Education courses.

First Term
EL 170 DC Fundamentals 4
EL 171 AC Fundamentals 4
EL 176 Digital Fundamentals I 3
CST 101 Software Applications for Technicians 3
Approved Elective 3

Second Term
EL 173 Diode and Power Supply Circuits 4
EL 177 Digital Fundamentals II 3
CST 106 DOS for Technicians 3
WR 121 English Composition 3
General Education 3

Third Term
EL 174 Solid State Circuits 4
EL 175 Advanced Circuits 4
EL 178 Microcomputer Systems Servicing 3
PHY 101 Fundamentals of Physics 4
General Education 3

Fourth Term
EL 278 Audio and Electromechanical Systems 3
EL 281 Audio Frequency Systems 3
EL 279 Advanced Microcomputer Systems 3
EL 280B CE: Electronics Service Technology - Seminar 1
PSY 101 Psychology and Human Relations 3
General Education 3

Fifth Term
EL 283 RF Communications 4
EL 284 Advanced Communications 4
EL 282 Instrumentation and Control 4
EL 280A CE: Electronics Service Tech variable credit

Sixth Term
EL 285 Video and Imaging Systems I 4
EL 286 Video and Imaging Systems II 4
EL 287 FCC License Review 1
EL 280A CE: Electronics Service Tech variable credit
General Education 3

1Approved Elective: Consult an EST faculty advisor for courses satisfying this requirement. It may be desirable to take this elective during a later term. In such a case, it is recommended that a General Education course be taken during term 1.

218 credits of General Education are required for the AAS degree. Each of the 3 areas listed below must be covered and suggested courses are listed. A maximum of 9 credits is allowed in any one area. (AAS) indicates courses required for the AAS degree.

Arts and Humanities
SP 100, Introduction to Speech Communication
Social Science
PSY 101, Psychology and Human Relations (AAS)
Mathematics, Natural and Physical Sciences
PHY 101, Fundamentals of Physics (AAS)

Confirm that your selections are on PCC's General Education course list.

WR 121 is a comprehensive graduation requirement. It is not on PCC's list of approved General Education courses.
Emergency Dispatch Operator 9-1-1

Cascade Campus
Terrell Hall, 4B
244-6111, ext. 5424

Career Description: An Emergency Telecommunications Dispatcher receives information from the public and from emergency services personnel (police/fire/medical), at a public safety answering point (PSAP), commonly referred to as a "9-1-1 center". The job involves operation of complex communications equipment including two-way radios, multi-line telephone systems and computers. Both emergency and non-emergency calls are handled and field personnel are dispatched to a wide variety of calls. The dispatcher must not only have a thorough knowledge of local geography but also an understanding of manpower needs and equipment and be able to work within the constraints of departmental policy and procedures. Dispatchers must keep accurate records of communications received and transmitted, maintain a constant status of all field operations and be able to perform simultaneous functions.

Course of Study: The PCC 9-1-1 Emergency Dispatch Operator program is located at the Cascade Campus, 705 N. Killingsworth, Portland, Oregon. This is a nine month (three terms, full-time) intensive training program for students interested in a career in emergency communications. A maximum of 30 students are accepted annually. The curriculum includes skills, knowledge, and abilities that have been identified as critical for career entry by 9-1-1 center directors, the PCC 9-1-1 Advisory Committee, and professional telecommunications organizations. The three term telecommunications sequence follows the national 40 hour Telecommunicator Training Program developed by the Associated Public Safety Communications Officers, Inc. Field experience and simulator training are required during all three terms of the certificate program. Full-time enrollment is required.

PCC offers the following form of recognition:
- One-year Certificate of Completion - 51 credit hours of required courses, certification by Associated Public Safety Communications Officers, Inc., certification in the Law Enforcement Data System (State of Oregon) computer, and state approved certification in Emergency Medical Dispatch (including CPR and Basic First-Aid), and Hazardous Materials Awareness.

Some course work within the Emergency Dispatch Operator 9-1-1 Program can be applied toward an Associate of General Studies Degree. Students wishing to apply for a General Studies Degree should consult an academic advisor.

Program Objectives: The 9-1-1 Emergency Dispatch Operator training program is supported by local 9-1-1 centers and private agencies. This nine month program is designed to teach the technical skills needed to perform successfully in emergency telecommunications.

The college certificate program has been developed cooperatively with the 9-1-1 dispatch centers in the Portland metropolitan area. The program is supported by an advisory committee made up of emergency services managers, supervisors, dispatchers and former students.

Classes are taught by professionals in the field of emergency services and public safety communications. Students observe working dispatchers throughout the training program as part of a cooperative work experience requirement. The students may have an opportunity to actually perform tasks and be evaluated in a 9-1-1 center.

Qualifications and Selection for the Program: The 9-1-1 Emergency Dispatch Operator Program (EDO) is open to all high school graduates (or equivalent) who meet the standards for employment in the 9-1-1 field, including good physical condition and high moral standards. Reading and writing skills are also important. Each fall term 30 students are selected for enrollment in the program.

Students planning to apply for the Emergency Dispatch Operator 9-1-1 Program should contact the Program Coordinator for specific eligibility requirements and an appointment for a program advising session. Because of the unique responsibilities involved in public safety emergency communications, the Emergency Dispatch Operator 9-1-1 Program reserves the right to require that a student who appears to the department unsuited for emergency communications training and cooperative education activities be counseled into another area of study.

The Selection Process: In order to be selected into the EDO program the following process must be successfully completed:

1. Application - An application form is available during Spring term for the following academic year. The application form is available at the Student Center, Room 115 and the Business and Government division office, Terrell Hall, Room 4B, Cascade campus. Return completed application form to the 9-1-1 Program Coordinator by the announced deadline date.

2. Testing - Candidates who are applying for admission to the program should have a minimum typing skill of 20 words per minute. Those who have completed and submitted the application form by the specified date will be invited to complete a battery of tests. These tests will be taken by all applicants on specified dates after the close of the application phase. The testing consists of:
   - Written English, reading and computation tests (these are standard college placement tests).
   - Written 9-1-1 Test - An adaptation of a test that is used by communications centers to screen job applicants.

3. Oral Interview - Those who score highest on the tests will be invited to interview. The interview is similar to interviews used for applicant screening for entry level jobs. The interview panel will be made up of professionals from the emergency services or emergency communications field, who have experience in interviewing and hiring. The panel will rate each candidate on their presentation and responses to standard prepared questions.

4. Criminal Background Check - The top 50 applicants (according to the combined scores for the written test and oral interview) are asked to submit a fingerprint card and letter requesting criminal history information to the Oregon State Police. The cost of this background check is $12.00, which is paid by the applicant. Fingerprint cards and form letters to the state police will be supplied by the college.
Upon successful completion of all phases of the selection process, the top 30 applicants will be invited to register in the program. This letter of acceptance does not guarantee a place in the EDO program. Registration must be completed one week prior to the first day of classes, in order to hold a slot in the class. Any unfilled slots will be opened up to selected alternates during the week prior to the beginning of classes.

Required Core Courses: The following courses are required of all students enrolled in the emergency dispatch operator 9-1-1 program and are open to dispatchers and to other professionals working in fields related to 9-1-1 dispatch. This is subject to course availability, class size and departmental permission. In addition, public sector organizations such as local 9-1-1 dispatch centers may contact the department for professional in-service courses and seminars for their professional staff.

EDO 101 Introduction to Criminal Justice System - Police 3
EDO 103 Introduction to Criminal Law 3
EDO 105 Crisis Intervention 3
EDO 109 Public Safety Emergency Telecommunications I 3
EDO 110 Public Safety Emergency Telecommunications II 3
EDO 111 Public Safety Emergency Telecommunications III 3
EDO 120 Emergency Medical Service: First Responder 3
EDO 227 Communication Center Operations I 2 1
EDO 228 Communication Center Operations II 2
FP 101 Intro to Fire Protection 3
EDO 280ACE 9-1-1 Seminar variable credit
EDO 280BCE: 9-1-1 Seminar
1 Prerequisite: Completion of Public Safety Telecommunications I.
2 Student must register for 1 credit Cooperative Education Seminar for each Cooperative Education activity section. Four credits of Cooperative Education activities (160 hours) and 3 seminars are required for a one-year certificate.

Other required courses in addition to the 35 core credits:
PSY 101 Psychology and Human Relations 3
WR 121 English Composition 3
SP 100 Introduction to Speech Communication 3
BT 124 Keyboard for Speed & Accuracy 2 3
GIS 120 Computer Concepts 1 4
3 Prerequisite: Basic knowledge of keyboard by touch.

Recommended Elective Courses: The following courses are recommended to enhance student skills but are not required for the one-year certificate:
BT 121A Beginning Keyboarding 1
EDO 108 Transcription for Telecommunicators 1
CG 144 Intro to Assertiveness 1
CG 145 Stress Management 1
Or
PSY 190 Stress Management 3
SPA 101 First Year Spanish 4

Emergency Medical Technician

Open Campus/Southeast Center
2850 S.E. 82nd Avenue/Room B10
244-6111, ext. 6205

Career Description: Emergency Medical Technicians (EMTs) respond to medical and traumatic emergencies, provide immediate care and transportation to the ill or injured. Those successfully completing EMT training will be eligible for state examinations and certification and will qualify to fill a variety of occupations involved in public and private sector organizations needing personnel with both basic life support skills and knowledge.

Program Prerequisites: 1) Minimum education: High school graduate, or GED; 2) Minimum age of 18; 3) Above average physical condition; 4) Currently enrolled or having passing grade in WR 121; or Writing placement exam (minimum score 27); 5) Currently enrolled or have passing grade in MTH 60, or Math placement exam (minimum score 26); 6) Currently enrolled, or have passing grade in RD 115, or Reading placement exam (minimum score 21).

For testing office information, see “Student Services” in PCC schedule or catalog, “Graded” college transcripts showing equivalence will also be accepted.

Students must have adequate documentation of the following: 7) A recent TB Tine test, (within the last 12 months) and results of that test; 8) if born after 1957, MMR (Measles) immunity; 9) Tetanus (or DT), (within the last 5 to 10 years); and 10) Hepatitis B (1st vaccination required prior to application within the last 2 years).

PCC Program: The EMT Program is operated district wide. Students considering a career as an EMT/Paramedic must meet the Oregon Health Division certification requirements. The Board of Medical Examiners sets the scope of practice for all levels of prehospital care.

EMT 100 Int Emer Med Service 3
EMT 101 EMT I Refresher/Recertification 3
EMT 120 Emergency Medical Service: First Responder 3
EMT 110 EMT I (Basic) 10
EMT 111 EMT 2/2D-Intermediate 9
EMT 112 EMT 3/4 (Paramedic I) 9
EMT 113 EMT 3/4 (Paramedic 2) 9
EMT 114 EMT 3/4 (Paramedic 3) 9
EMT 115 EMT 3/4 (Paramedic 4) 9
EMT 116 Intro Prehospital Doc 2
EMT 117 Emer Communnicat/Tran 4
EMT 118 EMT Medical Terminology 3
Environmental, Safety, & Hazardous Materials

Cascade Campus
Peninsula Hall, Room 202a
244-6111, ext. 5628 or 5317

Career Description: The Environmental, Safety, and Hazardous Materials program will prepare students for employment in private industry and careers in areas that are concerns for private business and government agencies. The environmental technician or manager deals with the compliance and control of pollution; in the use, handling, storage, transportation, remediation, management and regulation of hazardous materials and wastes. A safety manager works to ensure a safe and healthy workplace for employees. Employers that hire environmental technicians and managers involve governmental agencies; environmental and safety engineering and consulting companies; manufacturing; waste transportation, treatment, and disposal companies; laboratories, and universities. Safety technicians and managers are needed in private industry and state and local government.

If you are already employed in an area of Environmental, Safety, or Hazardous Materials, PCC has a program to refine your expertise. If you have no previous job experience, PCC's program will enable you to obtain your Environmental, Safety, and Hazardous Materials Certificate.

Pollution abatement, occupational safety and health, and the management and disposal of hazardous materials are significant problems facing our world today. Thus, employment and advancement opportunities should continue to increase for some time.

Due to the unique responsibilities involved in the practice of Environmental, Safety, and Hazardous Materials, the ESHM department reserves the right to require that a student who appears to the department unsuited for this science be counseled into another area of study.

Program Prerequisites: It is highly recommended that students complete the required math, English, and chemistry courses prior to enrolling in this program. Chemistry must be completed prior to enrolling in Industrial/Environmental Engineering and Properties of Hazardous Materials.

Required Core Courses:
- ESHM 100 OSHA 1910.120 (40 Hr Training) 4
- ESHM 101 Hazardous Materials Regs 3
- ESHM 110 Properties of Hazardous Mtrls 3
- ESHM 258 Safety Laws and Standards 3
- ESHM 281 Elements of Industrial Hygiene 3
- CH 104 General Chemistry 5
- CIS 120 Computer Concepts I 4
- MTH 95 Intermediate Algebra 4
- PSY 101 Psychology and Human Relations 3
- WR 121 English Composition 3

Safety & Regulations Electives:
- (Select 3 courses: 9 credits are required)
  - ESHM 121 Plan for Haz Mtrls Incident 3
  - ESHM 219 Industrial/Environ Toxicology 3
  - ESHM 220 Env. Compliance Documentation 3
  - ESHM 257 Site Characteristics & Remediation 3

Science & Technology Electives:
- (Select 2 courses: 6 credits are required)
  - ESHM 230 Source Reduction & Waste Min 4
  - ESHM 244 Intro to Environmental Engr 3
  - ESHM 254 Environ Sampling and Analysis 4

PCC offers the following form of recognition:
- A certificate in Environmental, Safety, and Hazardous Materials (ESHM). The 50-credit certificate in ESHM provides a clear understanding of the regulations, planning, and testing of items in the ESHM area. This certificate is suited to individuals with a strong background in math and science.

Students who want to complete an Associate Degree may transfer to Mt. Hood Community College to finish the required course work. The associate degree program can be completed by taking general college requirements and 24 additional credits at Mt. Hood Community College. This degree provides the necessary scientific and technical background for either an entry-level or mid-management position in the ESHM field.

Fire Protection Technology

Training East
N.E. 192nd and San Rafael
492-6910

Those training in the Fire Protection Technology program are preparing for occupations and advancement in fire suppression, investigation, prevention, emergency medical and rescue services, hazardous materials technology, college transfer, and other educational programs.

Program Prerequisites:
1. High school completion or GED test scores of 50 or above in all five subject areas;
2. Placement into WR 115, Introduction to Expository Writing or higher level;
3. Placement into MTH 70;
4. Completion of Fire Science department application package and criminal background check;
5. Passing score on Fire Science program physical fitness entrance test.

Applications are accepted beginning in January of each year and are taken until classes are filled for entry the following September. Program prerequisite items 1 through 4 must be completed prior to the end of August each year to qualify to take the physical fitness entrance test during the first week of September. A waiting list will be established for students that do not meet program entry deadlines.
Due to the unique responsibilities involved in the practical application of fire science and emergency response during lab periods and cooperative education assignments, the Fire Science Department reserves the right to counsel students that demonstrate unsuitable characteristics (unsafe, unethical or immoral behavior or that physically are unable to perform standard job duties) into another area of study.

Students enrolled in Fire Science courses will be required to use equipment designed to protect the respiratory system from the products of combustion and hazardous chemicals. This equipment includes, but is not limited to: Self Contained Breathing Apparatus (SCBA), Respirators and Filter Mask. Students that have a health, physical, or psychological problem which may effect or be affected by the use of protective breathing equipment should contact the Department prior to entering the Program.

Course of Study: The PCC program is designed to correlate classroom, laboratory and field experience in public and private sector fire organizations. The program that follows is designed for students wishing to enter the fire service (pre-service) and professional firefighters who wish to obtain an AAS degree or meet specific State of Oregon Fire Standards and Accreditation Board (FSAB) certification requirements.

PCC offers the following form of recognition:

- Associate of Applied Science Degree Fire Protection Technology: 97 credit hours; includes 67 credit hours of required fire science courses, 18 credit hours of General Education, and 12 credit hours of approved electives. Students should contact a department advisor for help in planning a course of study.

Certificates of Completion:

Department certificates are available in the following courses of study. Contact the Fire Science department for course requirements.

1. Fire Prevention/Investigation Certificate: 33 Credits
2. Fire Officer Certificate (FSAB FO II Equiv.): 31 Credits
3. Fire Fighter Certificate (FSAB FF II Equiv.): 56 Credits
4. Emergency Service Rescue Certificate: 30 Credits

All candidates for a degree must demonstrate competency in basic mathematics and writing skills; see Academic Regulations.

Recommended Sequence:

**First Term**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MTH 95</td>
<td>Intermediate Algebra</td>
<td>4</td>
</tr>
<tr>
<td>FP 101</td>
<td>Intro to Fire Protection</td>
<td>3</td>
</tr>
<tr>
<td>FP 111</td>
<td>Firefighting Skills I</td>
<td>5</td>
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<tr>
<td></td>
<td>Writing Competency requirement</td>
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**Second Term**

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<tbody>
<tr>
<td>FP 112</td>
<td>Firefighting Skills II</td>
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<tr>
<td>FP 132</td>
<td>Fire App/Pump Construction Operation and Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>FP 121</td>
<td>Fire Science I</td>
<td>3</td>
</tr>
<tr>
<td>SP 111</td>
<td>Fundamentals of Speech</td>
<td>3</td>
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<td></td>
<td>General Education</td>
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**Third Term**

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<td>Firefighting Skills III</td>
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<td>FP 122</td>
<td>Fundamentals of Fire Prevention</td>
<td>3</td>
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<tr>
<td>FP 201</td>
<td>Emergency Service Rescue</td>
<td>4</td>
</tr>
<tr>
<td>FP 211</td>
<td>Bldg Constr for Firefighters</td>
<td>3</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Psychology and Human Relations</td>
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**Fourth Term**

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<th>Course Title</th>
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<tbody>
<tr>
<td>FP 123</td>
<td>Hazardous Materials Technician I</td>
<td>3</td>
</tr>
<tr>
<td>FP 202</td>
<td>Fixed Systems and Extinguishers</td>
<td>3</td>
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**Fifth Term**

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>FP 212</td>
<td>Fire Investigation (Cause Determination)</td>
<td>3</td>
</tr>
<tr>
<td>FP 133</td>
<td>Natural Cover/Forest Firefighting</td>
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<tr>
<td></td>
<td>General Education</td>
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<td>Approved Fire Protection Elective</td>
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**Sixth Term**

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<tr>
<td>FP 203A</td>
<td>Intro to Firefighting Tactics &amp; Strategy</td>
<td>3</td>
</tr>
<tr>
<td>FP 213</td>
<td>Principles of Supervision for Firefighters</td>
<td>3</td>
</tr>
<tr>
<td>FP 280A</td>
<td>CE: Fire Science variable credit</td>
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</tr>
<tr>
<td>FP 242</td>
<td>Flammable, Explosive, And Toxic Materials</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Firefighting Skills I, II, & III classes are offered in sequence beginning Fall Term of each year. Students enrolling after Fall Term in the Fire Protection Program should contact a department advisor for assistance.

General Education courses must be taken from the college General Education course list and meet the requirements of the Academic Regulations.

Courses requiring a prerequisite are identified in the course description section of this catalog and in the term schedule of classes.

Fire Protection and Emergency Medical Technician courses not currently required for the AAS Degree in Fire Protection Technology are approved for use as electives. Course work in Criminal Justice and General Education may also meet the requirements. Approval for electives must be granted by a Fire Protection department advisor.

**Graphic Design**

Sylvania Campus

Communications Technology Bldg B-5e

244-6111, ext. 4760, 4264, 4277

Career Description: This program is intended to train students for entry-level graphic design positions in the fields of advertising, graphic production, computer graphics, desktop publishing, and other visual communications industries.

Program Prerequisites: Submission of portfolio or approval of instructor and/or successful completion of GD 120 Introduction to Graphic Tools required for first year program entry. Students who successfully complete the first year may proceed into the second year of the program. It is recommended that students have some beginning drawing, painting, two-dimensional design, and/or three-dimensional experience before beginning the program. It is also recommended that incoming students qualify for WR 115 or above on the English placement test and MTH 20 or above on the math placement test.

Course of Study: The program approach combines applied design and printing technology with fine arts courses. Principles and practices used to carry an idea from thumbnail sketches through layouts, mechanicals and the production processes are covered in both hands-on and computer-generated exercises. Both two and three dimensional design problem solving concepts are explored. Contact the Graphic Design office for information about how to enter the program which begins in the fall of each academic year.
PCC offers the following form of recognition:

- Associate of Applied Science Degree - 110 credit hours:
  includes 85 credit hours of required courses; 18 credit hours of General Education courses plus completion of MTH 65 (4CR) and WR 121 (3 CR). College graduation requirements. Specific information on program requirements is available by contacting the Graphic Design program office.

Fall Term

- GD 120 Graphic Tools and Layout Techniques 3
- ART 115 Basic Design 3
- ART 218 Lettering Calligraphy I 2
- ART 131 Introduction to Drawing 3
- PT 120 Typesetting 2
  General Education - Recommended ART 101 3

Winter Term

- GD 122 Layout and Mechanics 3
- GD 224 Designing with Type 3
- ART 116 Basic Design 3
- ART 231 Drawing 3
- PT 136 Electronic Layout 3
- ART 102 Introduction to Art 3

Spring Term

- GD 124 Graphic Production 3
- ART 117 Basic Design 3
- ART 237 Life Drawing 3
- ART 284 Watercolor I 3
- ART 103 Introduction to Art 3
  Elective 3

Note: Successful completion of first year of program, MTH 65, WR 121, or elective required for placement into second year.

1 Lab fees assessed to cover materials provided to students in class.

2 Recommended: ART 281 Painting I, ART 284 Watercolor I or ART 287 Watercolor II.

Fall Term

- GD 221 Graphic Design I 3
- GD 237 B & W Illustration Techniques 3
- GD 240 Computer Graphics I 3
- PT 114 Camera/Prep I 2
- PT 108 Litho Press I 2
  General Education 3

Winter Term

- GD 222 Graphic Design II 3
- GD 238 Color Illustration Techniques 3
- GD 241 Computer Graphics II 3
- ART 141 Introduction to Photography (Non-darkroom) 3
- PT 205 Papers and Inks 2
  General Education 3

Note: CWE internships arranged by instructor.

Spring Term

- GD 223 Graphic Design III 3
- GD 228 Professional Studio Practices 3
- GD 239 Illustration for Publication 3
- GD 242 Computer Graphics III 3
  Elective - Media Choice 3
  General Education 3

Lab fees assessed to cover materials provided to students in class.

Note: Media Choice includes following recommended electives:

- ART 181 Introduction to Painting 3
- ART 277 Life Painting 3
- ART 281 Painting 3
- ART 287 Watercolor II 3
- ART 293 Sculpture 3
- ART 221 Computer Graphics in Arts I 4
- ART 224 Computer Graphics in Arts II 4
- ART 142 Introduction to Photography (Darkroom) 3
- PT 206 Estimating 2
- PT 116 Camera/Prep 2 6

Interior Design

Sylvania Campus
Health Technology Bldg D-8e
244-6111, ext. 4217, 4218

Programs
- Interior Furnishings
- Interior Design

PCC offers the following form of recognition:

- Interior Furnishings Certificate
- Associate of General Studies Degree with an area of concentration in Interior Design
- Interior Furnishings Certificate

Career Description: This program prepares the student for an entry-level position in an occupation involved with wholesale/retail sales of interior furnishings. Emphasis is on the planning of aesthetic interiors and on special skills for merchandising interiors and interior products.

Not all courses are offered every term.

Program Prerequisites: College level reading and writing skills, and basic math skills are required. Individual courses may have prerequisites which are included in the course description.

Course of Study: An Interior Furnishings Certificate program of 38 credit hours is offered at PCC.

PCC offers the following form of recognition:

- Interior Furnishings Certificate

Certificate in Interior Furnishings includes:

- ID 131 Introduction to Interiors 3
- ID 132 Planning Interiors 3
- HEC 250 Textiles 4
- ID 133 Space Planning and Design 3
- ID 120 Interior Products/Materials I 3
- ID 121 Interior Products/Materials II 3
- ID 122 History of Furniture-Ancient to 1800 3
- ID 123 History of Furniture-1800 to Present 3
- ID 135 Professional Practice/Interior 3
- ART 131 Introduction to Drawing 3
- BA 238 Sales 3
- CIS 120 Computer Concepts I 4

Associate of General Studies Degree with an area of concentration in Interior Design
Career Description: This concentration prepares the student for an entry-level position as an assistant to interior designers or for more advanced placement in the wholesale/retail sales business. Emphasis is placed on a broad scope of courses which are application-oriented.

Prerequisites: Students finish the Interior Furnishings Certificate before or concurrently with this option. College level reading and writing skills, and basic math skills are required. Individual courses may have prerequisites which are included in the course description.

Course of Study: An Associate of General Studies Degree with an area of concentration in Interior Design includes a total of 72 credit hours within the major, WR 121 and WR 122 or WR 123 and 18 credit hours of General Education as required by the institution for graduation for a total of 90 credit hours.

Core Classes:
- ID 234 Advanced Interiors 3
- ID 236 Lighting Design 3
- ART 115 Basic Design 3
- ART 116 Basic Design 3
- ID 240 Interior Design Internship 3
- DRF 254 Drafting Design and Problem Solution 4
- ADT 111 Working Drawings I 2
- MSD 105 Interpersonal Communication 3
- ART 101 Introduction to Art 3

Electives:
- Choose any nine credits from the following areas:
  - Interior Design Assistant Emphasis
  - DRF 126 Introduction to AutoCAD 2
  - ADT 121 Structural Systems I 2
  - DRF 127 Shading & Rendering Techniques 2
  - ADT 155 1 & 2 Family Structural Code 3
  - CG 209 Job Finding Skills 1
  - Retail Sales/Business Emphasis
  - MSD 117 Customer Relations 3
  - BA 114 Introduction to Buying 3
  - BA 249 Retailing 3
  - MSD 130 Creative Problem Solving 3
  - CG 209 Job Finding Skills 1
  - General Education 18
  - Total Program Credits 90

Other coursework offered includes:
- ID 299 Special Topics in Interiors 3

Landscape Technology

Rock Creek Campus
Building 2 Room 209
244-6111, ext 7255, 7256

Programs:
- Landscape Services Technician
- Landscape Technology

Employment opportunities in the landscape field include working with wholesale plant growers, landscape contractors, retail nurseries including design, and positions in landscape maintenance and gardening. Landscape work involves the design, installation and maintenance of landscapes. In addition, sales and maintenance jobs are available at wholesale and retail nurseries.

The first year of the Landscape Technology program offers a basic core consisting of plant care, plant identification, soils, irrigation systems and landscape construction practices. Students successfully completing the first-year core curriculum may receive a one-year Landscape Services Technician Certificate or enter the second-year option in Landscape Technology.

Landscape Services Technician

Career Description: The Landscape Services Technician works in sales or maintenance at wholesale and retail nurseries and on landscape installation and maintenance crews.

Program Prerequisites: Recommend MTH 60 or instructor approval. Individual courses have prerequisites listed in the course descriptions section of this catalog.

Course of Study: The first-year core of classes is designed to develop knowledge and skills in plant care, plant identification, soils, irrigation systems and landscape construction practices. Students successfully completing the first-year core curriculum may seek entry-level employment as landscape services technicians or may enter the Landscape Technology second-year program.

PCC offers the following form of recognition:
- One-year Certificate - 39 credit hours of required landscape courses. Certificate students are not required to take General Education classes.

First Term
- HOR 226 Plant Materials - Deciduous 4
- LAT 104 Pesticides 3
- LAT 106 Basic Horticulture 4
- LAT 111 Landscape Construction Practices 3
- General Education 3

Second Term
- HOR 227 Plant Materials - Evergreens 4
- CSS 200 Soils and Plant Nutrition 3
- LAT 108 Landscape Irrigation I 3
- LAT 236 Landscape Math Tutorial 3
- General Education 3

Third Term
- HOR 228 Plant Materials - Flowering Trees and Shrubs 4
- LAT 110 Grounds Maintenance 5
- HOR 290 Intro to Landscape Design 3
- General Education 3

General education is not required for the One-year Certificate. Consult a program advisor for assistance in planning general education classes.

Landscape Technology

Career Description: Landscape students are prepared for entry-level work in landscape construction and design and/or landscape management. In the construction area students work with contractors on installation of landscapes. Those that specialize in management work primarily in maintenance landscapes both private and public. With proper licensing, many students establish their own businesses in both design and construction.

Program Prerequisites: Successful completion of the first year Landscape curriculum or instructor's approval. Please check the appropriate course description for individual prerequisites.


**Course of Study:** This program is located at the Rock Creek Campus. The curriculum consists of a series of 33 credits of required courses that have information and skills needed in all phases of landscaping and a series of elective courses with 12 credit hours required that allow students to better prepare themselves for the segment of the landscape industry they are most interested in.

**PCC offers the following form of recognition:**

- Associate of Applied Science Degree in Landscape Technology - 103 credit hours including 84 hours of required courses and 18 hours of general education. Consult a departmental advisor with respect to program planning.

**Landscape Technology - AAS Degree Program**

In addition to department requirements/electives, students who are working for the AAS degree are required to take 18 hours of general education in the two year sequence. Degree candidates must complete the comprehensive requirements for writing, WR 121 and math, MTH 65. Consult a program advisor for assistance in planning general education classes.

Cooperative Education experiences (on-the-job learning) may be taken on a variable credit basis. Six (6) credit hours of Cooperative Education are required and the student may take an additional three (3) credit hours as electives.

**Required Course:**

LAT 280A CE: Landscape

1 See course description.

**Electives**

- HOR 112 Landscape Industry - Orientation
- HOR 255 Plant Materials - Annuals and Perennials
- LAT 109 Plant Propagation
- HOR 291 Landscape Design Process
- LAT 214 Plant Composition I
- LAT 218 Landscape Design: Small Properties
- LAT 220 Landscape Construction Details
- LAT 221 Landscape Design Problems
- LAT 232 Landscape Irrigation II
- LAT 235 Tree Care I
- LAT 236 Landscape Math Tutorial
- LAT 240 Tree Care II
- LAT 250 Plant Diseases, Insects and Weed Identification
- LAT 262 Native Plants of Oregon
- LAT 263 Bonsai-Saikei
- LAT 268 Wetlands
- LAT 299 Special Topics - Landscape
- LAT 980 I Nursery Certification

1 Student must complete 12 credit hours of electives; check the current quarter’s schedule for offerings.

2 Upgrade Course

**Fourth Term**

**Required:**

- LAT 217 Landscape Drafting
- LAT 223 Site Surveying and Analysis
- LAT 233 Turfgrass Identification
- General Education

**Fifth Term**

**Required:**

- LAT 241 Turfgrass Cultural Practices
- LAT 243 Landscape Business Operations
- LAT 222 Landscape Site Grading
- General Education

**Sixth Term**

**Required:**

- LAT 264 Landscape Estimating and Bidding
- HOR 255 Plant Materials - Annuals and Perennials
- General Education

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**Legal Assistant**

Cascade Campus
Terrell Hall, 4B
244-6111, ext. 5212

**Career Description:** The legal assistant is a trained paraprofessional who assists the attorney in delivery of legal services to the client. Legal Assistant tasks include: client interviews, document preparation, organization of case materials and data prior to litigation, investigation, research, and file management. The Legal Assistant performs these tasks under the supervision of an attorney.

**Program Prerequisites:** Program advising is required. Students planning to enroll in the Legal Assistant program should contact the Legal Assistant department for specific eligibility requirements and program advising.

Because of the responsibilities involved in the practice of law, the Legal Assistant department reserves the right to require that a student who appears to be unsuited or unprepared for the program or the practice be counselled into another or preparatory area of study.

**Course of Study:** Portland Community College offers an educational program taught mainly evenings at Lincoln High School, with some day and Saturday classes held at other locations. Both a certificate and an associate of applied science degree are offered. While completing the required core courses, students may select from among electives listed which provide an opportunity for specialization. Note the areas of concentration following the listing of electives. Contact the Legal Assistant Department for further information.

**Transferability of Courses:** Students in the PCC legal assistant degree program may transfer up to 45 legal assistant credits to Portland State University toward a bachelor of science degree in General Studies. Students must also meet the general university requirements at Portland State University which include WR 121 and WR 323 (WR 323 must be taken at Portland State University) and HPE 295. However, PCC students should check with the Portland State University Office of Admissions to ensure that legal assistant courses meet current Portland State University requirements which are specified in their catalog. For a B.A. or B.S. major in General Studies students should check the specific requirements at Portland State University.
PCC offers the following forms of recognition:
- Certificate of Completion - 45 credit hours; includes 18 credit hours of required Legal Assistant core courses and 27 credit hours of elective Legal Assistant courses.
- Associate of Applied Science Degree - 90 credit hours; includes 18 credit hours of required Legal Assistant core courses, 27 credit hours of elective Legal Assistant courses, 18 credit hours of General Education, 27 credit hours of other elective courses. Consult a program advisor and the legal assistant department for help in program planning.

### Required Core courses (18 credit hours):
- LA 101 Intro to Law - Fundamentals 3
- LA 102 Intro to Law - Substantive Areas 3
- LA 103 Intro to Law - Ethics and Problems 3
- LA 107 Techniques of Interview 3
- LA 124 Law Office Management 3
- LA 203 Legal Research and Library Use 3

### Listing of Legal Assistant electives (Including core courses):
- LA 101 Intro to Law - Fundamentals 3
- LA 102 Intro to Law - Substantive Areas 3
- LA 103 Intro to Law - Ethics and Problems 3
- LA 104 Investigation Techniques for Legal Assistants 3
- LA 105 Litigation I 3
- LA 106 Intro to Computer Assisted Legal Research 2
- LA 107 Techniques of Interview 3
- LA 109 Estate Planning 3
- LA 111 Probate Practice 3
- LA 113 Income Tax Law 3
- LA 116 Real Property Law I 3
- LA 128 Legal Correspondence and Forms 3
- LA 208 Family Law 3
- LA 217 Real Property Law II 3
- LA 219 Consumer Law 3
- LA 221 Bankruptcy Law 3

### Suggested Areas of Concentration for program planning:

#### Family Law
- LA 105 Litigation I 3
- LA 106 Intro to Computer Assisted Legal Research 2
- LA 109 Estate Planning 3
- LA 111 Probate Practice 3
- LA 113 Income Tax Law 3
- LA 116 Real Property Law I 3
- LA 128 Legal Correspondence and Forms 3
- LA 208 Family Law 3
- LA 217 Real Property Law II 3
- LA 219 Consumer Law 3
- LA 221 Bankruptcy Law 3

#### Probate and Estate Planning
- LA 109 Estate Planning 3
- LA 111 Probate Practice 3
- LA 113 Income Tax Law 3
- LA 116 Real Property Law I 3
- LA 128 Legal Correspondence and Forms 3
- LA 208 Family Law 3
- LA 210 Advanced Estate Planning 3
- LA 214 Fiduciary Tax & Accounting 3
- LA 217 Real Property Law II 3
- LA 222 Corporate Law Practice 3

#### Civil Litigation
- LA 104 Investigation Techniques for Legal Assistants 3
- LA 105 Litigation I 3
- LA 106 Intro to Computer Assisted Legal Research 2
- LA 113 Income Tax Law 3
- LA 116 Real Property Law I 3
- LA 128 Legal Correspondence and Forms 3
- LA 208 Family Law 3
- LA 217 Real Property Law II 3
- LA 222 Corporate Law Practice 3

#### Criminal Justice
- CJA 112 Introduction to Criminal Justice System - Courts 3
- LA 104 Investigation Techniques for Legal Assistants 3
- LA 106 Intro to Computer Assisted Legal Research 2
- LA 128 Legal Correspondence and Forms 3
- LA 226 Criminal Law for Legal Ass 3

#### Property
- LA 109 Estate Planning 3
- LA 111 Probate Practice 3
- LA 113 Income Tax Law 3
- LA 116 Real Property Law I 3
- LA 217 Real Property Law II 3
- LA 219 Consumer Law 3
- LA 221 Bankruptcy Law 3

#### Office Management
- BA 131 Computers in Business 4
- BA 212 Principles of Accounting II 3
- BA 226 Business Law I 3
- BA 228 Computer Accounting Applications 3
- LA 106 Intro to Computer Assisted Legal Research 2
- LA 129 Legal Correspondence and Forms 3
- LA 215 Employee Benefits Programs 3
- LA 220 Worker's Compensation 3
- LA 225 Advanced Law Office Management 3
- MTH 30 Business Mathematics I 4

Required core courses: no prerequisites required.

2Required core courses. Prerequisites required. See course descriptions.

3Prerequisites required. See course descriptions.
Business Law
LA 105 Litigation I 3
LA 113 Income Tax Law 3
LA 116 Real Property Law I 3
LA 215 Employee Benefits Programs 3
LA 217 Real Property Law II 3
LA 219 Consumer Law 3
LA 220 Worker's Compensation 3
LA 221 Bankruptcy Law 3
LA 222 Corporate Law Practice 3

Taxation
LA 109 Estate Planning 3
LA 113 Income Tax Law 3
LA 116 Real Property Law II 3
LA 210 Advanced Estate Planning 3
LA 214 Fiduciary Tax & Accounting 3
LA 217 Real Property Law III 3
LA 221 Bankruptcy Law 3
LA 222 Corporate Law Practice 3

Machine Manufacturing Technology
Sylvania Campus
Automotive Metals Building A8
244-6111, ext 4604

Career Description: Machinists operate various types of metal removing equipment such as lathes, drill presses, milling machines, grinders, computer numerical controlled machines, and computer aided manufacturing. Machinists may specialize in the operation of one type of machine or may work in a shop where they are required to perform equally well on several different machines.

Program Prerequisites: Successful completion of the program requires the ability to read and understand technical manuals and a functional understanding of basic mathematics including decimals and fractions.

PCC Program: The machining curriculum offers training in preparation for entry-level employment in the machine trades industry. Students have the opportunity to study basic machining processes including operation of the engine lathe, milling machine, sensitive drill press, surface grinder, tracer lathe, radial drill press and tool and cutter grinding. Also, students receive training in basic metallurgy, blueprint reading, shop mathematics, and related aspects of the craft. Students will learn the manual data input and the computer aided manufacturing processes, utilized by computer numerical controlled equipment. Students enrolled in machine manufacturing technology will spend 25 hours per week in machining and related machine theory classes.

PCC offers the following forms of recognition:

- Associate of Applied Science Degree - 108 credit hours; completion of requirements for two-year certificate plus 18 credit hours of General Education. Consult a program advisor for help in planning General Education classes.

Day Program
MCH 110 Basic Machine Technology I 15
MCH 120 Basic Machine Technology II 15
MCH 130 Basic Machine Technology III 15
MCH 234 Project Machine Technology 10
MCH 240 Advanced Machine Technology IV 15
MCH 250 Advanced Machine Technology V-N/C-CN.C 15
MCH 260 Advanced Machine Technology VI C.A.M. 15

Taxation
LA 109 Estate Planning 3
LA 113 Income Tax Law 3
LA 116 Real Property Law I 3
LA 210 Advanced Estate Planning 3
LA 214 Fiduciary Tax & Accounting 3
LA 217 Real Property Law II 3
LA 221 Bankruptcy Law 3
LA 222 Corporate Law Practice 3

Night Program
Term I Equivalent
MCH 111 Basic Machine Technology I-A 6
MCH 112 Basic Machine Technology I-B 6
MCH 113 Basic Machine Technology I-C 3

Term II Equivalent
MCH 121 Basic Machine Technology II-A 6
MCH 122 Basic Machine Technology II-B 6
MCH 123 Basic Machine Technology II-C 3

Term III Equivalent
MCH 131 Basic Machine Technology III-A 6
MCH 132 Basic Machine Technology III-B 6
MCH 133 Basic Machine Technology III-C 3

Term IV Equivalent
MCH 241 Advanced Machine Technology IV-A 6
MCH 242 Advanced Machine Technology IV-B 6
MCH 243 Advanced Machine Technology IV-C 3

Term V Equivalent
MCH 251 Advanced Machine Technology V-A N/C-CN.C 5
MCH 252 Advanced Machine Technology V-B N/C-CN.C 5
MCH 253 Advanced Machine Technology V-C N/C-CN.C 5

Term VI Equivalent
MCH 261 Advanced Machine Technology VI A C.A.M. 5
MCH 262 Advanced Machine Technology VI B C.A.M. 5
MCH 263 Advanced Machine Technology VI C C.A.M. 5

All night courses at the Term IV, V and VI equivalent levels are offered only when requested by sufficient numbers of students.

Prerequisite: Working knowledge of milling practice and basic trigonometry.

Lettered courses (A, B, C) are evening equivalents to day offerings and are offered (depending on class size) in a sequence that enables students to progress through the curriculum as quickly as possible.
Management and Professional Development

Ross Island Center C-12
244-6111, ext. 2818

Programs:
Management/Supervisory Development
Productivity and Operations Management
World Trade and Transportation

Management/Supervisory Development

Career Description: The Management/Supervisory Development program provides a comprehensive offering for those desiring either to enter or to continue private or public sector managerial or supervisory careers. By interacting with currently practicing managers and supervisors, the participant develops a practical knowledge of applicable concepts and techniques. This helps the individual develop a personalized managerial style for future growth.

This is not intended primarily as a transfer program. Bachelor Degree articulation agreements are in place with Marylhurst College and Warner Pacific College. If you wish to transfer this program to other institutions, contact the college of your choice.

Program Prerequisites: There are no program prerequisites. However, it is strongly advised that students interested in the certificate or degree program take placement exams in math and English.

Course of Study: The Management/Supervisory Development courses are offered throughout the Portland Community College district both on and off campus. For specific information on transferability or for program information, contact the Institute for Management and Professional Development.

PCC offers the following forms of recognition:
- Certificate in Management/Supervisory Development—18 credit hours of Management/Supervisory Development courses are required: six credit hours of core courses, MSD 101, and MSD 111, and 12 credit hours from other MSD offerings.
- Certificate in Total Quality Management—18 credit hours to include MSD 285A, MSD 117, MSD 199, MSD 279, and 6 hours of selected MSD credit.
- Advanced Certificate in Management/Supervisory Development — A minimum of 45 credit hours is required. Of this total, 36 credit hours from the Management/Supervisory Development course areas, including MSD 101, MSD 111, MSD 115, MSD 200 and MSD 216. In addition to these 36 credit hours, nine credit hours must be selected from the restricted elective course list. This must include BA 211 Principles of Accounting I and CIS 120 Computer Concepts I.
- Associate of Applied Science Degree in Management/Supervisory Development — A minimum of 90 credit hours is required. Of this total, 45 credit hours of Management/Supervisory Development courses must be taken including MSD 101, MSD 111, MSD 115, MSD 200, MSD 216. Also 27 credit hours must be taken from the restricted elective course list, including BA 211 Principles of Accounting I and CIS 120 Computer Concepts I, and 18 credit hours from the General Education course list. In addition, WR 121 and either MTH 56, MTH 63, or MTH 65 must be completed with a "C" grade or better within five years prior to receiving the Associate of Applied Science degree.

Course Categories

Core
MSD 101 Principles of Management/Supervision 3
MSD 111 Corresponding Effectively At Work 3

Human Behavior
MSD 105 Interpersonal Communication 3
MSD 106 Effective Meeting Management 3
MSD 107 Organizations & People 3
MSD 115 Improving Work Relations 3
MSD 117 Customer Relations 3
MSD 121 Leadership Skill Development 3
MSD 130 Creative Problem Solving 3
MSD 200 Organizations and Social Responsibility 3

Specialty
MSD 109 Power Reading & Thinking 3
MSD 199B Management Effectiveness 3
MSD 199C Management Effectiveness 2
MSD 201 Productivity Management 3
MSD 202 Training the Employee 3
MSD 204 Labor - Management Relations 3
MSD 206 The Troubled Employee 3
MSD 210 Public Relations 3
MSD 212 Work Analysis and Improvement 3
MSD 214 Safety and Security Management 3
MSD 216 Budgeting for Managers 3
MSD 218 Intro to Manufacturing Control 3
MSD 222 Human Resource Management; Personnel 3
MSD 223 HR Mgt; Performance and Compensation 3
MSD 240 Strategic Planning 3
MSD 260 Management Information Systems/Data Analysis 3
MSD 280ACE: Management/Supervisory Development - Seminar 1
MSD 289 Fund for Transforming Industry 3
MSD 298 Trends in Management/Supervision 6

Productivity and Operations Management
MSD 265 Fund of Production and Inventory Mgmt 4
MSD 267 Material Requirements Planning 3
MSD 269 Inventory Management 3
MSD 271 Master Planning 3
MSD 273 Capacity Management 3
MSD 277 Just in Time 3
MSD 279 Project Management 3
MSD 281 New Product Introduction 3
MSD 283 Bills of Material 3
MSD 285 Fund Total Quality Management 4
MSD 285A Fund Total Quality Management 4
MSD 287 Data Analysis for Quality Improvement 3

World Trade and Transportation
MSD 9204 Introduction to Transportation 3
MSD 9250 Introduction to International Trade & Transportation 3
MSD 9252 Introduction to Exporting 3
MSD 9254 Basic Importing 3
MSD 9258 Survey of International Trade Law 3
MSD 9260 International Trade & Banking 3
MSD 9296 Trends in Trade & Transportation 3
MSD 9298 Trade and Transportation Workshops 1
### Business Administration

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>BA 101</td>
<td>Introduction to Business</td>
<td>4</td>
</tr>
<tr>
<td>BA 131</td>
<td>Computers in Business</td>
<td>4</td>
</tr>
<tr>
<td>BA 211</td>
<td>Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>BA 212</td>
<td>Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>BA 213</td>
<td>Principles of Accounting III</td>
<td>3</td>
</tr>
<tr>
<td>BA 222</td>
<td>Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 223</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BA 226</td>
<td>Business Law I</td>
<td>3</td>
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<tr>
<td>BA 238</td>
<td>Sales</td>
<td>3</td>
</tr>
<tr>
<td>BA 102</td>
<td>Introduction to Accounting</td>
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</tbody>
</table>

Any other BA or BT classes will be accepted.

### Economics

<table>
<thead>
<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>EC 200</td>
<td>Principles of Economics: Intro, Institutions &amp; Philosophies</td>
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<tr>
<td>EC 201</td>
<td>Principles of Economics: Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>EC 202</td>
<td>Principles of Economics: Macroeconomics</td>
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### Microcomputers

<table>
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<tbody>
<tr>
<td>CIS 120</td>
<td>Computer Concepts I</td>
<td>4</td>
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<tr>
<td>CIS 121</td>
<td>Computer Concepts II</td>
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### Sociology

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>SOC 240</td>
<td>Sociology of Work &amp; Leisure</td>
<td>3</td>
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</tbody>
</table>

*Highly recommended.

Or any other computer class will be accepted.

For further information regarding management and business related courses, please contact the Institute for Management and Professional Development.

### Productivity and Operations Management

**Career Description:** This program is designed to provide participants with knowledge and skills in Productivity and Operations (Quality) Management. Examples of topics covered are Quality Assurance, Materials Handling, Inventory Control, Master Planning, Project Management and Forecasting.

**Program Prerequisites:** College entry-level competencies in computational and grammatical skills. Additional prerequisites are listed in the course descriptions for each course.

**Course of Study:** This program is designed to provide participants with knowledge and skills in Productivity and Operations (Quality) Management. Examples of topics covered are Quality Assurance, Materials Handling, Inventory Control, Master Planning, Project Management and Forecasting.

### Manufacturing Enterprises Technology

**Career Description:** Manufacturing Enterprises Technology students will possess an understanding of the business functions of a World Class Manufacturing Enterprise. Manufacturing Enterprises Technologists work under the supervision of engineers. Tasks may include sampling, data collection, testing, computation, written and graphical presentations of results, layout of processes according to plans and process monitoring.

**Program Prerequisites:** Students new to this program must complete an application and receive department advising and placement prior to registration. Placement into MTH 70 and WR 121 is required.

**Course of Study:** Students have a choice of five specialty areas within Manufacturing Enterprises Technology. Instruction covers all aspects of a World Class Manufacturing Enterprise operation and its various business functions. In addition, manufacturing operations skills, manufacturing technology skills, teamwork, problem solving, organizational and people skills, information resources skills, speaking and writing will be developed.

**PCC offers the following form of recognition:**

- Associate of Applied Science Degree: 103 credit hours; includes 85 credit hours of required courses plus 18 credit hours of General Education. Consult with a program advisor for help in planning General Education classes.

#### First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 70</td>
<td>Introduction to Intermediate Algebra</td>
<td>4</td>
</tr>
<tr>
<td>BA 131</td>
<td>Computers in Business</td>
<td>4</td>
</tr>
<tr>
<td>SP 130</td>
<td>Business &amp; Professional Speech Communication</td>
<td>3</td>
</tr>
<tr>
<td>WR 121</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>MFG 101</td>
<td>Mfg Enterprise Functions</td>
<td>4</td>
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</table>

#### Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 101</td>
<td>Fundamentals of Physics</td>
<td>4</td>
</tr>
<tr>
<td>WR 214</td>
<td>Business Communications</td>
<td>3</td>
</tr>
<tr>
<td>MFG 103</td>
<td>Computers in Mfg</td>
<td>4</td>
</tr>
<tr>
<td>CIM 100</td>
<td>CIM I</td>
<td>3</td>
</tr>
<tr>
<td></td>
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### Third Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR 227</td>
<td>Technical Writing I</td>
<td>3</td>
</tr>
<tr>
<td>MFG 105</td>
<td>Team Build/Prob Solve</td>
<td>3</td>
</tr>
<tr>
<td>MFG 107</td>
<td>Industrial Health and Safety</td>
<td>3</td>
</tr>
<tr>
<td>CIM 101</td>
<td>CIM II</td>
<td>3</td>
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<td>General Education</td>
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### Fourth Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MFG 209</td>
<td>Total Quality Mgmt</td>
<td>2</td>
</tr>
<tr>
<td>MFG 211</td>
<td>Operational Performance Assessment</td>
<td>2</td>
</tr>
<tr>
<td>MFG 213</td>
<td>World Class Manufacturing</td>
<td>2</td>
</tr>
<tr>
<td>MFG 215</td>
<td>Mfg Cost Management</td>
<td>3</td>
</tr>
<tr>
<td>CIM 102</td>
<td>CIM II</td>
<td>3</td>
</tr>
<tr>
<td>MFG 280ACE</td>
<td>Manufacturing Tech</td>
<td>variable credit</td>
</tr>
<tr>
<td></td>
<td>General Education</td>
<td>3</td>
</tr>
</tbody>
</table>

### Fifth Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MFG 217</td>
<td>Mlg Standards</td>
<td>3</td>
</tr>
<tr>
<td>MFG 219</td>
<td>Intro Mfg Resource Pln</td>
<td>3</td>
</tr>
<tr>
<td>MFG 221</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>MFG 280ACE</td>
<td>Manufacturing Tech</td>
<td>variable credit</td>
</tr>
<tr>
<td></td>
<td>General Education</td>
<td>3</td>
</tr>
</tbody>
</table>

### Specialty Area:

- **Product Development Specialty**
  - MFG 223 New Product Intro

- **Engineering Planning Specialty**
  - MFG 223 New Product Intro

- **Material Management/Logistics Specialty**
  - BA 160 Purchasing I

- **Manufacturing Operations Specialty**
  - MFG 225 Mfg Process Technology

- **Manufacturing Information Resources Specialty**
  - MFG 227 Mfg Application Software

### Sixth Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product Development Specialty</td>
<td></td>
</tr>
<tr>
<td>MFG 229</td>
<td>Design Assembly/Mfg</td>
<td>3</td>
</tr>
<tr>
<td>MFG 231</td>
<td>CAD Tools</td>
<td>4</td>
</tr>
<tr>
<td>MFG 233</td>
<td>Design Document Control</td>
<td>3</td>
</tr>
<tr>
<td>MFG 225</td>
<td>Mfg Process Technology</td>
<td>3</td>
</tr>
<tr>
<td>MFG 280ACE</td>
<td>Manufacturing Tech</td>
<td>variable credit</td>
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</table>

### Manufacturing Operations Specialty

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MFG 235</td>
<td>Computer Aided Mfg</td>
<td>5</td>
</tr>
<tr>
<td>MFG 237</td>
<td>Mfg Process Analy/Planning</td>
<td>3</td>
</tr>
<tr>
<td>MFG 239</td>
<td>NC/CNC Programming</td>
<td>3</td>
</tr>
<tr>
<td>MFG 229</td>
<td>Design Assembly/Mfg</td>
<td>3</td>
</tr>
<tr>
<td>MFG 280ACE</td>
<td>Manufacturing Tech</td>
<td>variable credit</td>
</tr>
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</table>

### Material Management/Logistics Specialty

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFG 249</td>
<td>Intro to MRP II</td>
<td>4</td>
</tr>
<tr>
<td>BA 161</td>
<td>Purchasing II</td>
<td>3</td>
</tr>
<tr>
<td>MFG 223</td>
<td>New Product Intro</td>
<td>3</td>
</tr>
<tr>
<td>MFG 243</td>
<td>Mfg Control/Planning</td>
<td>3</td>
</tr>
<tr>
<td>MFG 280ACE</td>
<td>Manufacturing Tech</td>
<td>variable credit</td>
</tr>
</tbody>
</table>

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## Manufacturing Information

### Professional Technical Programs Fall Term 1994 — Summer Term 1995

<table>
<thead>
<tr>
<th>Specialty Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Information Resources Specialty</td>
<td>3</td>
</tr>
<tr>
<td>MFG 255 Comm Networks</td>
<td></td>
</tr>
<tr>
<td>MFG 257 Mfg Database Design</td>
<td>4</td>
</tr>
<tr>
<td>MFG 259 Mfg Information Center</td>
<td>3</td>
</tr>
<tr>
<td>MFG 261 Computer System Integration</td>
<td>4</td>
</tr>
<tr>
<td>MFG 280ACE Manufacturing Tech</td>
<td>variable credit</td>
</tr>
</tbody>
</table>

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### Mechanical Engineering Technology

Sylvania Campus  
Science Technology Bldg B-8  
244-6111, ext 4163

#### Career Description:

Mechanical engineering technicians assist mechanical engineers in planning, design, and production related to energy management systems, environmental protection facilities, machinery, and manufacturing plants.

#### Program Prerequisites:

All students must have an advising interview with a Mechanical Engineering Technology (MET) faculty advisor. Students must place in WR 115 and have completed MTH 60 or equivalent. High school courses in chemistry and physics are helpful, but not required. Skill in keyboarding is highly recommended.

For students not meeting these requirements, advising is available to assist in preparing for entrance into the program and to earn credits which will apply toward the certificate or degree once accepted into the program.

#### Application and Admission:

Full-time students: MET is a limited enrollment program for students seeking a certificate or degree. Qualified applicants are accepted in the order in which the application process is completed. Program starts in the Fall and Winter terms - see a department advisor for other term starts.

#### Job-upgrade students:

Students must meet individual course prerequisites and complete an advising interview with a MET faculty advisor prior to enrollment. Admission may be granted on a space-available basis after the needs of the full-time students have been met.

#### Continuing Education:

Students of this program may transfer to Oregon Institute of Technology to pursue a BS degree in Mechanical Engineering Technology or Industrial Management. Faculty advisors will provide assistance in the selection of additional course work appropriate for each student's goals.

### PCC offers the following forms of recognition:

- One-year Certicication of Completion: 73 credit hours, including Communications and General Education courses, as shown in the first 4 terms.
- Associate of Applied Science Degree: 107 credit hours, including 18 credit hours of General Education courses.

### First Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MET 110</td>
<td>Statics</td>
<td>4</td>
</tr>
<tr>
<td>MET 111</td>
<td>Engineering Technology Orientation</td>
<td>4</td>
</tr>
<tr>
<td>MET 112</td>
<td>Technical Algebra/Trigonometry</td>
<td>4</td>
</tr>
<tr>
<td>MET 113</td>
<td>Engineering Technology Graphics</td>
<td>3</td>
</tr>
</tbody>
</table>

### General Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
</table>

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Fall Term 1994 — Summer Term 1995

Professional / Technical Programs

Second Term
MET 121 Strength of Materials  4
MET 122 Technical Engineering Physics  4
MET 123 Technical Algebra with Analytic Geometry  4
MET 124 Technical Chemistry  3
General Education  3

Third Term
MET 131 Applied Calculus  8
CET 132 Plane Surveying  3
MET 133 Materials Technology  1
CIS 120 Computer Concepts I  4
WR 121 English Composition  3

Fourth Term
MET 214 Manufacturing/Robotics  3
CET 211 Water Quality  3
MET 212 Fundamentals of Thermodynamics  4
MET 213 Fluid Mechanics  3
DRF 126 Introduction to AutoCAD  2
Communications Course  3

Fifth Term
MET 226 Dynamics  3
CET 221 Hydrology and Hazardous Waste  3
MET 222 Thermodynamics: Heat Engines  3
MET 223 Project Management  3
MET 224 Computer Aided Design II  2
General Education  3

Sixth Term
MET 235 Machine Design  3
MET 232 Thermodynamics: HVAC  3
CET 231 Reinforced Concrete Technology  3
MET 233 Computer Aided Design III  2
MET 280A CE: Mechanical Engineering Tech/  3
General Education  6

WR 227, Technical Writing I, is highly recommended to all students and required by OIT. WR 122 or WR 214 must be taken prior to WR 227.

Optional cooperative education work experience placements are available. For more information, see an advisor.

Medical Assisting
Cascade Campus
Jackson Hall Room 117
244-6111, ext. 5663

Those training in the Medical Assisting program will find occupations involved with both administrative and clinical aspects of health care in clinics and physician’s offices. The program is designed to correlate classroom and laboratory experience with practical experience in ambulatory medical facilities. Clinical experience is scheduled during day and/or evening hours. Students may consult with a Medical Assisting program advisor about alternate approaches to completing portions of the Medical Assisting program curriculum.

Program Prerequisites:
1. High school completion or GED:
2. Satisfactory scores in basic math, English usage and typing placement tests;
3. Two statements of recommendation from a recent employer, teacher or counselor;
4. Program advising session with a Medical Assisting advisor.

Program advising session with a Medical Assisting advisor.

Program prerequisites may be obtained from the Medical Programs Technical Specialist at the Cascade campus. Qualified applicants are accepted in the order in which the application process is completed. Applications are accepted October 1 to July 1 or until program is filled. Application documents should be sent to the attention of:
Medical Programs Technical Specialist
Cascade Campus
Portland Community College
Post Office Box 19000
Portland, OR 97280-0990

Career Description: The medical assistant performs a variety of clinical and administrative duties. Clinical duties may include: assisting physician and preparing patients for examinations and treatments; taking and recording vital signs and medical histories; performing certain diagnostic tests; preparing, administering and documenting medications; collecting and processing specimens; maintaining instruments and equipment. Administrative duties may include: scheduling and receiving patients; maintaining medical records; handling telephone calls; correspondence and reports; insurance matters, office accounts, fees and collections.

Course of Study: Students are prepared to function under the supervision of a licensed physician. The program is accredited by the American Medical Association Committee on Allied Health Education and Accreditation in collaboration with the
American Association of Medical Assistants. Graduates are eligible to take the national certifying examination given through the American Association of Medical Assistants.

**PCC offers the following form of recognition:**
- Certificate of Completion - 43 credit hours of required Medical Office courses. For requirements for an Associate of General Studies degree, refer to Academic Regulations within this catalog.
  - MOA 111 Medical Terminology 4
  - BI 55 Human Biology 4
  - MOA 112 Medical Office Assistant Seminar I 1
  - MOA 113 Medical Office Administrative Procedures 5
  - MOA 114 Medical Office Administrative Procedure (Lab) 2
  - MOA 121 Medical Legal Aspects 2
  - MOA 123 Medical Office Clinical Procedures 3
  - MOA 124 Medical Office Clinical Procedure (Lab) 2
  - MOA 125 Administrative Directed Practice 2
  - MLT 100 Medical Office Lab Orientation 3
  - MOA 122 Medical Office Assistant Seminar II 1
  - HE 112 First Aid and Emergency Care 1
  - MOA 131 Introduction to Medical Science 3
  - MOA 132 Medical Office Assistant Seminar III 1
  - MOA 133 Clinical Directed Practice 2
  - MOA 134 Health Record Transcription (Lab) 2
  - MOA 135 Transcription Office Procedures 1
  - MOA 136 Medications: Medical Office Assistants 2
  - MOA 147 Specialty Directed Practice 2

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**Medical Laboratory Technology**

Cascade Campus
Health Professions Admissions
Jackson Hall 218
244-6111, ext. 5209

**Career Description:** The medical laboratory technician performs routine clinical laboratory testing procedures to provide scientific information needed in diagnosis, prognosis and treatment of disease. Examples include: Identification of normal and abnormal blood cells such as those seen in anemias and leukemias; determination of diabetic and hypoglycemic blood-glucose levels and identification of bacterial, fungal and parasitic infectious agents. Technicians use sophisticated instrumentation for these evaluations which encompass quantitative and qualitative chemical and biological analyses of body specimens. The course combines on-campus instruction in fundamental principles with clinical experiences gained through rotation in clinical laboratories. Students enrolled in the MLT program will be required to use medical devices and follow safety precautions of the clinical laboratory. Those who have a health, physical or psychological problem which may affect them should contact the department prior to entering the program. The graduates are eligible to sit for national examination for certification given by several agencies.

**PCC offers the following form of recognition:**
- Associate of Applied Science Degree - 110 credit hours includes 92 credit hours of required MLT courses and 18 credit hours of General Education. Consult a program advisor for help in planning General Education courses.
- Only those students who have officially accepted into the first year of the MLT Program may enroll in MLT 111, MLT 112, and MLT 113.

**First Term**
- BI 231 Anatomy & Physiology I 4
- CH 101 Inorganic Chemistry Principles 5
- MLT 111 Medical Technology I 4
- General Education 3

**Second Term**
- BI 232 Anatomy & Physiology II 4
- CH 102 Organic Chemistry Principles 5
- MLT 112 Medical Technology II 4
- General Education 3

**Third Term**
- BI 233 Anatomy and Physiology III 4
- MLT 113 Medical Technology III 4
- General Education 6

Only those students who have completed the first year requirements and have been officially accepted into the second year of the MLT Program may enroll in the courses listed below.

It is strongly recommended that applicants have completed high school chemistry, biology, algebra and English at the high school level.
**Fourth Term**
MLT 221 Clinical Chemistry I 3  
MLT 250 Hematology 4  
MLT 261 Bacteriology I 4  
MLT 241 Immunohematology I 3  
MLT 271 Clinical Laboratory Practice I 3

**Fifth Term**
MLT 222 Clinical Chemistry II 4  
MLT 262 Bacteriology II 3  
MLT 242 Immunohematology II 4  
MLT 272 Clinical Laboratory Practice II 3  
General Education 3

**Sixth Term**
MLT 223 Clinical Chemistry III 3  
MLT 263 Medical Parasitology 3  
MLT 264 Medical Mycology 3  
MLT 230 Body Fluids 2  
MLT 273 Clinical Laboratory Practice III 3  
General Education 3

**Seventh Term**
MLT 281 Clinical Seminar 4  
MLT 274 Clinical Laboratory Practice IV 8

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**Medical Record Technology**
Cascade Campus  
Jackson Hall Room 117  
244-6111, ext. 5663

Career Description: Those training in the Medical Record Technology program will find occupations involved in the maintenance of patient information systems in health-care facilities such as clinics, hospitals, nursing homes and physician's offices. The Medical Record Technician reviews medical documents, compiles health statistics, assists medical staff and may supervise a medical record department. Duties include reviewing medical records for completeness and accuracy, coding diseases and operations, retention or retrieval of medical records, release of information to third parties, compiling statistics, preparing special studies, tabulating data from records for research by the medical staff, quality assurance and supervising the day-to-day operation of a medical record department.

Program Prerequisites:
1. High school completion or GED;  
2. Satisfactory scores in basic math and English usage tests;  
3. Keyboarding placement test;  
4. Two statements of recommendation from a recent employer, teacher or counselor; and  
5. Program advising session with a Medical Record Technology program advisor.

Students will receive provisional acceptance pending receipt of evidence of immunity to measles. Students must also have transportation to clinical facilities throughout the Portland metropolitan area. To advance to the next term standing, a student must successfully complete ("C" grade or better) the prior terms.

Admission instructions may be obtained from the Medical Programs Technical Specialist at 244-6111, ext. 5661. Qualified applicants are accepted in the order in which the application process is completed. Applications are accepted October 1 to July 1 or until program is filled. Application documents should be sent to the attention of:
Medical Programs Technical Specialist  
Cascade Campus  
Portland Community College  
Post Office Box 19000  
Portland, OR 97280-0990

Course of Study: The program is designed to correlate classroom and laboratory experience with practical experience in health care facilities. Clinical experience is scheduled during day and/or evening hours. Students may consult with a Medical Record Technology program faculty advisor about alternate approaches to completing portions of the Medical Record program curricula.

This program prepares students to function under administrative supervision. The program is accredited by the Committee on Allied Health Education and Accreditation (CAHEA), or its successor, in cooperation with the American Health Information Management Association's (AHIMA) Council on Accreditation. Graduates are eligible to take the national certification examination given through the American Health Information Management Association.

PCC offers the following forms of recognition:
• Associate of Applied Science Degree - minimum of 93 credit hours: Students must meet college graduation requirements including General Education, math and English competencies. Consult a program advisor for help in planning General Education classes.

**First Term**
BA 131 Computers in Business 4  
MOA 111 Medical Terminology 4  
MRT 103 Health Information Procedures I 3  
MRT 106 Health Information Procedures Lab I 1  
MRT 110 Health Information Seminar I 1  
General Education 3

**Second Term**
BI 121 Human Anatomy and Physiology I 4  
MRT 104 Health Information Procedures 2 3  
MRT 107 Health Information Procedures Lab 2 1  
MRT 111 Health Information Seminar 2 1  
General Education 6

**Third Term**
BI 122 Human Anatomy and Physiology II 4  
MRT 109 Health Information Directed Practice I 2  
MRT 182 Health Care Delivery Systems 3  
MRT 185 Medical Legal Aspects 3  
MRT 183 Health Information Seminar 3 1  
WR 121 English Composition 3

**Fourth Term**
MRT 205 Health Information Procedures 3 2  
MRT 208 Health Information Procedures Lab 3 2  
MRT 212 Intro to Medical Science 4  
MRT 270 Classification Systems I 5  
MRT 292 Health Information Directed Practice 2 1  
MRT 295 Health Information Seminar 4 1
Microelectronics Technology

Sylvania Campus
Science Technology, Bldg. B-8
244-6111, ext. 4163

Career Description: Semiconductor manufacturing technicians work in cleanroom environments to process wafers, maintain equipment, and monitor manufacturing processes. Technicians must wear cleanroom suits and follow procedures to reduce particle count in the manufacturing environment and safety procedures when handling process chemicals and gases. Technicians for this fast moving industry must have a broad range of skills and knowledge including strong background in math, chemistry, and physics and strong communications skills to work in a team environment.

Potential employers of program graduates include Intel Corporation, Oregon’s largest high-tech employer, Fujitsu Microelectronics, OKI Semiconductor, and Sharp Microelectronics. Employment prospects are excellent at this time and PCC’s Microelectronics Technology program is the only program of its type in the Portland metropolitan area.

Program Prerequisites: Students new to the program must take the college’s placement examination for math and English prior to departmental advising and registration. Students must place in MTH 95 and WR 121 before registering for first term microelectronics, electronics, and chemistry classes. Department advising and placement is required before registration.

Application and Admission: Qualified applicants are accepted in the order in which the application process is completed. Accepted applicants must attend the program orientation prior to the start of the first term.

Course of Study: The first year of the associate degree program will be offered on campus. The curriculum lays a solid foundation in mathematics, chemistry, written communication, and electronics. Students will then apply for cooperative education positions with local semiconductor manufacturing companies. Those students accepted into cooperative education positions will then take second year courses through a combination of campus and worksite-based courses to complete the associate degree program. Students not accepted into cooperative education positions can take all second year courses except the microelectronics (MT) courses and can reapply for future cooperative education positions.

Continuing Education: Students completing the Associate of Applied Science Degree in microelectronics technology may transfer to Oregon Institute of Technology to pursue a BS degree in Manufacturing Engineering Technology. Upper-division courses will be offered at OIT/Metro Campus in Portland.

PCC offers the following form of recognition:

Associate of Applied Science Degree: 105 credit hours, including 18 hours of General Education courses.

First Term
- MT 110 Introduction to Microelectronics 3
- EET 111 Electronic Circuits and Devices I 4
- CH 201 General Chemistry 4
- MTH 95 Intermediate Algebra 4
- WR 121 English Composition 3

Second Term
- EET 112 Electronic Circuits and Devices II 4
- CH 202 General Chemistry 4
- MTH 111 College Algebra 4
- WR 122 English Composition 3
- SP 105 Listening 3

Third Term
- CH 203 General Chemistry 4
- CIS 120 Computer Concepts I 4
- MTH 243 Statistics I 4
- WR 227 Technical Writing I 3
- EET 112 Digital Systems I 4

Fourth Term
- PHY 201 General Physics 4
- MT 225 Advanced Microelectronics 4
- MT 200 Photolithography 4
- EET 122 Digital Systems II 4
- SP 130 Business & Professional Speech Communication 3

Fifth Term
- PHY 202 General Physics 4
- MT 224 Electro-Mechanical Systems 3
- SP 215 Small Group Communication: Process & Theory 3
- General Education 6
Sixth Term
PHY 203 General Physics 4
MT 222 Vacuum Technology 3
or
MT 240 RF Energy 3
MT 227 Pneumatics & Robotics 3
General Education 6

1 These courses may contain proprietary industry information and must be completed on-site at a participating SWC company. See a departmental advisor for details.

Music (Professional) Program
Cascade Campus
Cascade Hall B-7
244-6111 Ext. 5226, 5225, or ext. 5317

Professional music is a one-year program in music performance and music writing.

Career Description: Graduates may pursue jobs as a private teacher of music, instrumental musician, composer, arranger, or orchestrator.

Program Prerequisites: Students must submit an application to the Professional Music Department. After the application is submitted, an appointment will be scheduled for an interview with a music instructor. Students will receive guidelines for a resume they must bring to the interview. If the resume and interview documents the student's qualifications, a performance, or writing audition/test will be scheduled and scored. Upon successful completion of the audition/test, students will be placed on a waiting list for entrance at the beginning of fall term. A sample of the application, resume, written test and the audition may be obtained from the Music Department on the Cascade Campus.

Each student must develop a course of study with a program advisor.

PCC Program: This program is designed for the occupationally-oriented music student whose career goals can best be reached by improving skills in music performance or music writing in a combination of courses in these areas.

PCC offers the following form of recognition:
Certificate of Completion 48 credit hours; includes 37 credit hours of required professional music courses, 8 credit hours of elective professional music courses and 3 credits of writing (WR 115 or above).

The following core of professional music courses will be required of all program students. All sequential courses must be taken and passed in sequence.

MUS 120 Sight Singing and Ear Training I 1
MUS 120B Sight Singing and Ear Training II 1
MUS 120C Sight Singing and Ear Training III 1
MUS 130A Rhythm Training I 1
MUS 130B Rhythm Training II 1
MUS 130C Rhythm Training III 1
MUS 140A Group Piano I 1
MUS 143 Group Percussion 1
MUS 145A Group Guitar/Bass I 2
MUS 150A Keyboard Harmony I 1
MUS 150B Keyboard Harmony II 1
MUS 150C Keyboard Harmony III 1
MUS 164 Survey of the Music Industry 1
MUS 165 Business for the Musician 1
MUS 234 Income Tax Preparation for Musicians 1
MUS 235 Business Law for Musicians 1
MUS 280A: CE Vocational Music 3
MUS 280B: CE Vocational Music - Seminar 1

Students must take either MUS 152A, MUS 152B and MUS 152C or MUS 101, MUS 102 and MUS 103.

Students may select from among the following courses to make up the number of credit hours required for the Certificate. It is possible to concentrate on music writing or performance.

MUS 123 Electronic Media I 2
MUS 124 Electronic Media II 2
MUS 125 Electronic Media III 2
MUS 142 Group Woodwinds 2
MUS 144 Group Voice 2
MUS 145B Group Guitar/Bass II 2
MUS 145C Group Guitar/Bass III 2
MUS 153 Show Band (Large) 2
MUS 154 Show Band (Small) 2
MUS 155A Improvisation I 2
MUS 155B Improvisation II 2
MUS 155C Improvisation III 2
MUS 156A Applied Brass I 1
MUS 156B Applied Brass II 1
MUS 156C Applied Brass III 1
MUS 157A Applied Woodwind I 1
MUS 157B Applied Woodwind II 1
MUS 157C Applied Woodwind III 1
MUS 159A Applied Percussion I 1
MUS 159B Applied Percussion II 1
MUS 159C Applied Percussion III 1
MUS 160A Applied Vocal I 1
MUS 160B Applied Vocal II 1
MUS 160C Applied Vocal III 1
MUS 161A Applied Piano I 1
MUS 161B Applied Piano II 1
MUS 161C Applied Piano III 1
MUS 162A Applied Bass I 1
MUS 162B Applied Bass II 1
MUS 162C Applied Bass III 1
MUS 163A Applied Guitar I 1
MUS 163B Applied Guitar II 1
MUS 163C Applied Guitar III 1

1 Students receive individual instruction in piano, organ, voice and instruments of the band and orchestra.

Required writing course for the Professional Music program
WR 115 Introduction to Expository Writing 3
Nursing

Sylvania Campus
Health Technology Building CBd
244-6111, ext. 4466, 4908 (Admissions)

Career Description: This program is designed to prepare the student with entry level skills that are needed to assume the role of the registered nurse and qualifies the graduate to sit for the licensure examination for registered nurses. RN’s deliver nursing care in a variety of health care settings.

Course of Study: The Nursing program is based upon a model that emphasizes the concept that the student moves from a concept of care for another to application of self-care concepts in the role of an RN, and provides professional nursing care for clients with a variety of health deviations.

Students enrolled in the Nursing program will work with clients who have a variety of health deviations that may require special precautions in relation to their body fluids; applicants who have concerns about this issue may contact the Department Chairperson for more information prior to filing an application for entry into the program.

Entrance Criteria: Persons applying to the nursing program must have:

a) a high school diploma or equivalent
b) satisfactory completion ("C" or above) of prerequisite coursework including WR 121, MTH 65 or 66, and a reading score of 43 on the ASSET. These criteria are described more fully in the nursing program admission packet.

BI 234 Microbiology 5 credits
BI 235 Microbiology 4 credits
CH 100 Fundamentals of Chemistry 4 credits
PSY 215 Human Development 3 credits

Any college level chemistry with a lab is acceptable.

Post Program Acceptance: After being accepted into the program, the applicant must show evidence of the following prior to September 1:

a) immunity to measles and other childhood diseases and negative TB test or chest x-ray
b) completion of the Hepatitis B vaccination series
c) current CPR certificate (Level C, or BLS for Health Care Professionals)

These criteria are described more fully in the nursing admission packet.

Legal Limitations for RN Licensure: Applicants should be aware that the following questions are asked on the registered nurse licensure exam application by the Oregon State Board of Nursing:

Do you have any physical handicaps?
Have you had any major physical or mental illness during the past five years?
Have you ever been convicted of any criminal offense other than minor traffic violations?

Individuals that may have a past history of chemical abuse, felonies, or believe that past history circumstances may interfere with their ability to sit for the licensure examination should contact the OSBN for recommendations. Applicants may also confer with the Nursing Department Chairperson regarding concerns with any of these questions.

Applications for the nursing program are accepted on October 1 and are taken until the class is filled each year for entry the following September. Contact the Health Professions Admissions Office at the Sylvania campus for information and admission instructions.

Health Professions Admissions Office (HT B5e)
Portland Community College, Sylvania Campus
PO Box 19000
Portland, OR 97280-0990
(244-6111, ext. 4908)

Students requesting transfer from another nursing program must submit a written request to the Nursing Department accompanied by transcripts, nursing course descriptions, and a letter of reference from their current school. Following completion of entrance criteria, transfer students are accepted at the appropriate course level on a space available basis.

Nursing Student Success Program: A student success program has been established to provide an entry point into nursing for ethnic students. Students are encouraged to enter this program one year prior to beginning nursing coursework. For more information contact the SSP coordinator:

SSP Coordinator
HT DBk, Sylvania Campus
244-6111, ext. 4430

Program Transfer or Advanced Placement: The Nursing department works with individual transfer students and LPN’s who are requesting advanced placement.

Program Progression: To advance from term to term, students must have successfully completed ALL of the previous term’s coursework by receiving a grade of “Pass” or “C” or above. For example, all courses listed for first term must be completed prior to being allowed to progress to second term.

PCC Nursing Program Accreditation: National League for Nursing (Voluntary); Oregon State Board of Nursing (Required).

PCC offers the following form of recognition:

Associate of Applied Science Degree: 98-99 credit hours, including 48 credit hours of required Nursing courses, and 50-51 credit hours of support courses. ALL students must have completed 98-99 credit hours to receive an AASD. (Curriculum requirements are subject to change when indicated to maintain a quality program.)

Required Sequence

BI 234 Microbiology 5
PSY 215 Human Development 3
CH 100 Fundamentals for Chemistry 4
BI 235 is offered for nursing for four (4) credits.

1Any one-term college level chemistry that includes similar content may be substituted.

NUR 106 Foundations for Nursing 8
PSY 214 Introduction to Personality 3
BI 231 Anatomy & Physiology 1 4
Ophthalmic Medical Technology

Cascade Campus
Jackson Hall, Room 117
244-6111, ext. 5666, 5661 (Admissions)

Career Description: Those training in the Ophthalmic Medical Technology program will develop skills to perform ophthalmic procedures under the supervision of a licensed physician. These procedures include: medical histories, diagnostic tests, refractometry, anatomical and functional ocular measurements and tests, administration of topical ophthalmic and oral medications, instructing patients, maintaining equipment, sterilizing surgical instruments, assisting in ophthalmic surgery, assisting fitting of contact lenses, adjustments and minor repairs on spectacles. Ophthalmic Medical Technology is a rapidly expanding field in which a growing demand exists for technicians.

Program Prerequisites:
1. High school completion or GED;
2. Satisfactory scores in math, English usage placement tests;
3. Students will receive provisional acceptance pending receipt of satisfactory physical examination, evidence of immunity to measles and evidence of initiating the immunization series to Hepatitis B, or sign a waiver;
4. Two statements of recommendation from a recent employer, teacher or counselor;
5. Program advising session with an Ophthalmic Medical Technology program faculty advisor.

Students must also have transportation to practicum facilities throughout the Portland metropolitan area and surrounding communities.

To advance to the next term standing, a student must successfully complete (letter grade "C" or better in each course) the prior terms. Admission instructions may be obtained from the Medical Programs Technical Specialist at 244-6111, ext. 5661. Applications are accepted until July 1 or until filled. The program is limited to 24 students.

Application documents should be sent to the attention of:
Medical Programs Technical Specialist
Cascade Campus JH 117
Portland, OR 97280-0990

Course of Study: This program is designed to correlate classroom and laboratory experiences with clinical experience in ophthalmic offices and clinics and prepares students to function under the supervision of a licensed physician. The program will seek accreditation by the American Medical Association Committee on Allied Health Education and Accreditation in collaboration with the Joint Commission On Allied Health Personnel in Ophthalmology as soon as it meets the application criteria. Graduates of accredited programs are eligible for certification as an ophthalmic technician. Students may consult with faculty advisor about alternative approaches to completing portions of the Ophthalmic Medical Technology curricula.

PCC offers the following form of recognition:
- Associate of Applied Science Degree - minimum of 91 credits. Students must meet college graduation requirements including General Education math and English competencies.
- Only those students who have been officially admitted to the Ophthalmic Medical Technology program may enroll in OMT courses. Professionals in the field may be admitted on a space available basis.

First Term (Fall Term)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 121 Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>OMT 9405 General Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>OMT 153 Geometric Optics I</td>
<td>3</td>
</tr>
<tr>
<td>OMT 150 Optical Math I</td>
<td>1</td>
</tr>
<tr>
<td>OMT 163 A &amp; P of the Eye</td>
<td>1</td>
</tr>
<tr>
<td>OMT 112 Intro to Ophthalmics</td>
<td>1</td>
</tr>
<tr>
<td>PSY 101 Psychology and Human Relations</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Term (Winter Term)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 122 Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>OMT 151 Optical Math II</td>
<td>1</td>
</tr>
<tr>
<td>OMT 104 Ophthalmic Office Procedures</td>
<td>3</td>
</tr>
<tr>
<td>OMT 154 Geometric Optics II</td>
<td>1</td>
</tr>
<tr>
<td>OMT 105 Instrumentation</td>
<td>1</td>
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<td>General Education</td>
<td>3</td>
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</tbody>
</table>

Third Term (Spring Term)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMT 101 Pathophysiology</td>
<td>3</td>
</tr>
<tr>
<td>OMT 102 Pharmacology/Eye Disease</td>
<td>2</td>
</tr>
<tr>
<td>OMT 208 Ocular Motility/Binocular Vision</td>
<td>2</td>
</tr>
<tr>
<td>OMT 231 Seminar</td>
<td>1</td>
</tr>
<tr>
<td>OMT 121 Practicum I</td>
<td>1</td>
</tr>
<tr>
<td>OMT 152 Optical Math III</td>
<td>1</td>
</tr>
<tr>
<td>General Education</td>
<td>6</td>
</tr>
</tbody>
</table>

Only those students who have completed the first year requirements and have been officially accepted into the second year of the Ophthalmic Technology Program may enroll in the courses listed below.
Professional / Technical Programs

Fall Term 1994 — Summer Term 1995

Fourth Term (Fall Term)

OMT 155 Intro to Contact Lenses 2 1
OMT 206 Diagnostic Procedures I 4
OMT 232 Seminar II 2
OMT 282 Ophthalmic Optics I 2 1
OMT 222 Practicum II 4
General Education 3

Fifth Term (Winter Term)

OMT 223 Practicum III 4
OMT 156 Contact Lens 2 2
OMT 283 Ophthalmic Optics II 2
OMT 233 Seminar III 2
OMT 207 Diagnostic Procedures II 4
HE 112 First Aid and Emergency Care 1

Sixth Term (Spring Term)

OMT 224 Practicum IV 4
OMT 234 Seminar IV 2
OMT 210 Therapeutic Assisting Procedures 4
OMT 209 Surgical Assisting Procedures 4 1

*Core curriculum courses for OMT and Opticianry

Entry into the second year of the program requires completion of all first-year courses with a grade of ‘C’ or better in each course, or demonstrate equivalent proficiency. Success in this field is partly dependent upon manual dexterity, visual ability and ability to work with numerical calculations.

Course of Study: This program will be offered starting each September as daytime classes. Students wishing to enroll must contact the Opticianry department since space is limited. The Opticianry program teaches all phases of Opticianry. Some of the skills studied include prescription analysis, spectacle lens and rigid contact lens design and fitting philosophies, retail dispensing, and measuring and evaluation of contact lenses. Also included are instructions in optical mathematics, geometric optics, the use of precision measuring and evaluation instruments, lenssurfing, finishing, the assembly of eyeglasses into frames and mounting, and frame repair. Anatomy and physiology of the eye is included as well as a survey of the industry as a whole. Business-related courses are included in the program, as well as a cooperative program for on-site experience.

PCC offers the following form of recognition:

*Associate of Applied Science Degree - 93 credit hours including at least 12 credit hours of business, 6 credit hours of cooperative experience, WR 121, and 18 hours of General Education courses. Consult a program advisor for help in planning General Education classes.

Professional Upgrading: PCC Opticianry program courses are open as upgrade courses to all opticians currently practicing their profession.

First Term

OT 150 Optical Math I 1
OT 153 Geometric Optics I 2
OT 159 Finishing I 3
OT 162 Introduction to Ophthalmics 2
OT 155 Introduction to Contact Lenses 2
OT 186 Ophthalmic Terminology 1
OT 163 Anatomy & Physiology of the Eye 1
General Education 3

Second Term

OT 151 Optical Math II 1
OT 154 Geometric Optics II 2
OT 156 Surfacing 3
OT 160 Finishing II 3
OT 165 Contact Lenses II 2
General Education 3

Third Term

OT 152 Optical Math III 1
OT 161 Finishing III 3
OT 176 Contact Lenses III 2
OT 164 Introduction to Dispensing 2
BA 131 Computers in Business 4 1
General Education 3

Fourth Term

OT 270 Advanced Fabrication I 3
OT 277 Contact Lenses IV 3
OT 280B CE: Opticianry - Seminar 1
OT 280A CE: Opticianry variable credit 2
OT 282 Ophthalmic Optics I 2
BA 101 Introduction to Business 4 1
General Education 3

Career Description: About one-half of the people in the United States under the age of 45 and virtually 100 percent of the population over 45 require at least part-time vision corrective devices. Workers in a variety of occupations are involved in providing vision care. Ophthalmologists diagnose medical and refractive problems, optometrists diagnose refractive errors and both may prescribe optical devices to correct visual anomalies. Those who fill the doctor’s prescriptions are called opticians. Opticians are classified in a variety of career positions - three of which are dispensing optician, ophthalmic laboratory technician and contact lens optician. Opticians work in various settings including wholesale and retail sales, and laboratories.

There are growing demands and excellent job opportunities for opticians who have an Associate’s Degree in Opticianry as more and more states adopt licensing mandates for this profession. Statistics show that the middle-aged and elderly population is growing. As people grow older, vision undergoes physiological changes requiring corrective lenses. Increasing public awareness of the importance of good eyesight has also increased the demand for trained opticians, as have industrial safety precautions and demands for sports and fashion eyewear.

PCC’s Opticianry program is accredited by the Commission on Opticianry accreditation (COA).

Program Prerequisites: Prior to acceptance into the program, students must visit the Opticianry program site. Full-time students must demonstrate algebra-level math computation ability to enter all first-year classes. Competency in mathematics can be demonstrated by passing a placement test showing competency through MTH 65 or by completing MTH 60 with a "C" or higher.

Opticianry

Cascade Campus
Terrell Hall, Room 101
244-6111, ext. 5264 or 5265

OT 153 Geometric Optics I 2
### Fall Term 1994 — Summer Term 1995

#### Professional / Technical Programs

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fifth Term</td>
<td>OT 271</td>
<td>Advanced Fabrication 2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>OT 278</td>
<td>Contact Lenses 5</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>OT 280B</td>
<td>CE: Opticianry - Seminar</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>OT 280A CE:</td>
<td>Opticianry</td>
<td>variable credit</td>
</tr>
<tr>
<td></td>
<td>OT 281</td>
<td>Ophthalmic Optics 2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>BA 285</td>
<td>Human Relations-Organizations</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>General Education</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sixth Term</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OT 272</td>
<td>Advanced Fabrication 3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>OT 279</td>
<td>Contact Lenses 6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>OT 280B</td>
<td>CE: Opticianry - Seminar</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>OT 280A CE:</td>
<td>Opticianry</td>
<td>variable credit</td>
</tr>
<tr>
<td></td>
<td>OT 285</td>
<td>Review for National and State Exams:</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>BA 249</td>
<td>Retailing</td>
<td>3</td>
</tr>
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<td></td>
<td></td>
<td>General Education</td>
<td>3</td>
</tr>
</tbody>
</table>

1. Substitution possible
2. Field experience takes place in appropriate on-the-job learning environment. Seminar supplements the field experience portion of the course through feedback sessions, instruction in job-related areas and linkages to the student's on-campus program. Students prepare resumes, job descriptions and plans for training objectives with employer's and teacher/coordinator's approval. Prerequisite: employment in an approved career related position. A minimum of 6 credits of OT 280A are required in the co-operative work experience. Three (3) credits of OT 280B (Seminar courses) are required for an Associate Degree of Applied Science in Opticianry.

### Printing Technology

Sylvania Campus
Communications Technology Bldg B-5e
244-6111, ext. 4790, 4264, 4277

**Career Description:** The fields of printing and graphic reproduction include opportunities in estimating, electronic layout, camera and image assembly, platemaking, press operation, and screen printing.

**Program Prerequisites:** Qualify for WR 115, or above on the English placement test and qualify for MTH 20, or above on the math placement test.

**Course of Study:** Printing Technology is a three to six term program. It is divided into a camera/prep option and a litho press option to give students job-entry skills with emphasis in a particular phase of printing technology. The first year is the same for both options so that students develop a broad understanding of the graphics industry. During the first year, students should work with an instructor or advisor to select the area that is best suited to their interests and abilities. More concentrated study and training will be arranged in this chosen area. The program emphasizes development of manual skills and an understanding of the many technical variables that affect print production.

PCC offers the following forms of recognition:
- One-year Vocational Certificate - Printing Technology - 48 credit hours; including 37 credit hours of required graphics courses, two hours of electives and 11 hours of transfer and General Education.
- Associate of Applied Science Degree Camera/Prep - 95 credit hours; includes 59 credit hours of required graphics courses, 11 credit hours of electives and 20 credit hours of General Education courses. Graduation requires completion of MTH 56 or MTH 65 and WR 121.
- Associate of Applied Science Degree Litho Press - 95 credit hours; includes 59 credit hours of required graphics courses, 11 credit hours of electives and 20 credit hours of transfer and General Education courses. Graduation requires completion of MTH 56 or MTH 65 and WR 121.

Consult a program advisor for help in planning General Education and elective courses.

#### One-year Vocational Certificate - Printing Technology

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Term</td>
<td>PT 100</td>
<td>Introduction to Graphic Reproduction</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PT 108</td>
<td>Litho Press 1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PT 114</td>
<td>Camera/Prep 1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PT 170</td>
<td>Screen Printing 1</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td>Electives</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td>General Education</td>
<td>4</td>
</tr>
<tr>
<td>Second Term</td>
<td>PT 110</td>
<td>Litho Press 2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>PT 116</td>
<td>Camera/Prep 2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>PT 136</td>
<td>Electronic Layout</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>General Education</td>
<td>2</td>
</tr>
<tr>
<td>Third Term</td>
<td>PT 112</td>
<td>Litho Press 3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>PT 118</td>
<td>Camera/Prep 3</td>
<td>6</td>
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<tr>
<td></td>
<td>CG 209</td>
<td>Job Finding Skills *</td>
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<tr>
<td></td>
<td></td>
<td>General Education</td>
<td>5</td>
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</table>

#### Two-year associate of applied science degree - Camera/Prep

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Fourth Term</td>
<td>PT 205</td>
<td>Papers and Inks</td>
<td>2</td>
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<tr>
<td></td>
<td>PT 250</td>
<td>Camera/Prep 4</td>
<td>6</td>
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<tr>
<td></td>
<td>WR 121</td>
<td>English Composition</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>Electives</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>General Education</td>
<td>3</td>
</tr>
<tr>
<td>Fifth Term</td>
<td>PT 206</td>
<td>Estimating</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PT 252</td>
<td>Camera/Prep 5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>MTH 56</td>
<td>Applied Math 2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>or MTH 65</td>
<td>Elementary Algebra - Second Term</td>
<td>4</td>
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<tr>
<td></td>
<td></td>
<td>Electives</td>
<td>2</td>
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<tr>
<td>Sixth Term</td>
<td>PT 254</td>
<td>Camera/Prep 6</td>
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<tr>
<td></td>
<td></td>
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</table>

#### Two-year associate of applied science degree - Litho Press

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Fourth Term</td>
<td>PT 205</td>
<td>Papers and Inks</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PT 206</td>
<td>Estimating</td>
<td>2</td>
</tr>
</tbody>
</table>
or
PT 281 Adv Litho-Press Lab 1 3
PT 284 ALP: Multiple Color Presses 1
PT 285 ALP: Bearer Presses 1
PT 291 ALP: Printshop Safety 1
WR 121 English Composition 3
Electives 3
General Education 3

Fifth Term
PT 206 Estimating 2
PT 282 Adv Litho-Press Lab 2 3
PT 287 ALP: 4-color Process 1
PT 288 ALP: Coatings 1
PT 290 ALP: Pressroom Maintenance 1
MTH 56 Applied Math 2 4
or
MTH 65 Elementary Algebra - Second Term 4
Electives 2
General Education 6

Sixth Term
PT 283 Adv Litho-Press Lab 3 3
PT 286 ALP: Environmental Compliance 1
PT 289 ALP: Quality Management 1
PT 292 ALP: Product Evaluation 1
Electives 3
General Education 3

Students should select electives from the areas of art, business, chemistry or physics, computers, or other areas as approved by your program advisor.

Professional Skills Training
Ross Island Center
Room C-9
244-6111, ext 2817

Career Description: Professional Skills Training is a unique off-campus educational program providing individuals the opportunity to develop marketable job skills. It is "custom designed" training tailored to an individual's abilities, skills and interests.

Program Prerequisites: An interview with a Professional Skills representative is required to determine an individual's career goals and to determine if a suitable training site is available. Some training programs require basic skills of reading, interpreting and understanding technical manuals as well as basic math and writing skills.

Professional Skills Training is an approved program for state worker's compensation clients, disabled veterans and state vocational rehabilitation clients.

Course of Study: Students train at off-campus sites under the supervision of a skilled trainer. Students train with the skilled person for 40 hours per week with no breaks for traditional school vacations. Length of the program depends on the skill being taught. The students receive no wages for time spent in training and do not replace regular employees.

Descriptions of some of the professional skills training opportunities are listed below.

Jewelry Manufacturing and Design: This course covers the repair, design and manufacture of jewelry. The course prepares the student for entry level employment, however, it should not be construed that the student would be a journeyman in jewelry upon completion of the six terms of training. Tools and supplies are required.

Shoe Repair: This course covers jack work, shoe disassembling, heel installation, sanding, beveling, preparation for half soles, finish work, machine operation, hand stitching and customer relations. Tools are required.

Other Skills: Professional skills programs provide training in a variety of skilled areas. Length of these programs depends on the particular skill being taught. Examples of other skill areas include, but are not limited to, auto upholstery, appliance repair, floral design, gunsmithing, business machine repair, furniture making, saddle making, vending machine repair, prosthetic manufacturing, pharmacy technology and waste water treatment.

Students interested should contact the Professional Skills Department at Ross Island Center, 049 SW Porter, 244-6111, ext. 2817.

PCC offers the following forms of recognition:

One-year Certificate of Completion - 64 credit hours; this consists of 52 weeks, 8 hours per day, with a professional skills trainer.

Two-year Certificate of Completion - 96 credit hours; this includes 78 weeks, 8 hours per day, with a professional skills trainer. The two-year certificate is available only in Jewelry Manufacturing and Design.

Associate of Applied Science Degree - 114 credit hours; includes 96 credit hours of required jewelry instruction plus 18 credit hours of General Education. Consult a program advisor for help in planning General Education classes. The A.A.S. degree is only available in jewelry manufacturing and design.

A maximum of 24 credit hours of professional skills credit may be applied to an Associate of General Studies Degree.

Radiography

Sylvania Campus
Health Professions Admissions
Health Technology Building B Level
244-6111, ext. 4908

Career Description: This program is designed to prepare the student for certification as a registered Radiographer (R.T.R.). Radiographers are important members of the health care team and work in close relationship with physicians and particularly, with radiologists.

The radiographer is primarily concerned with providing diagnostic radiographic images of disease and injury and assisting in patient care.

The radiographer may be employed in hospitals, clinics and medical offices.

For information regarding additional professional employment responsibilities and opportunities contact the Radiological Sciences department.
Program Prerequisites: All program applicants must possess a high school diploma (minimum GPA 2.00) or a GED certificate (minimum score 46 in all areas). In addition, all applicants will be required to have satisfactorily (“C” grade minimum) completed WR 121, MTH 111, BI 231, 232 and 233, MRT 9405, or the equivalent, score a minimum of 46 on PCC’s reading comprehension test, and be computer literate prior to program admission. Students need to read degree requirements for Associate of Applied Science degree in the “Academic Regulations” section of this catalog. Faculty advisors will provide information regarding options to those students needing preparatory work.

Indications of probable success in the Radiography program are satisfactory completion of courses in math, science, English, human anatomy & physiology, medical terminology and computer literacy (“C” grade minimum).

Applicants are encouraged to gain health care experience by volunteering or working in the health care industry, preferably in a hospital setting and “shadowing” a Radiographer to gain knowledge of professional duties and responsibilities.

Students planning to enroll in the Radiography program must contact the Health Professions Admission office at Sylvania Campus for specific application procedures. Applications are accepted October 1 through April 1. Course numbers, credit hours and term sequencing are continually reviewed in order to best serve the needs of the community and are subject to change as circumstances may require.

Course of Study: Students begin the program only in September. The Radiography program is eight terms in length (24 consecutive months). The program combines campus instruction with clinical education at 10 affiliated hospitals in the Portland area.

PCC’s program is approved by the American Medical Association’s Committee on Allied Health Education and Accreditation. Graduates are eligible to take the national certification examination offered by the American Registry of Radiologic Technologists and for licensure as a Radiographer in the state of Oregon. Students are required to satisfactorily complete the course of study with a minimum “C” grade or higher in each required course and must maintain an overall grade point average of 2.00 for graduation.

In the Radiography program students will be working with ionizing radiation, processing chemicals and will provide patient care to patients that may have contagious diseases. Special immunization required.

PCC offers the following form of recognition:
• Associate of Applied Science degree: 98 credit hours; includes 80 credit hours of required Radiography courses and 18 credit hours of General Education. Consult a program advisor for help in planning General Education classes or preparatory courses needed for admission.

First Term
RAD 100 Intro to Radiology 2
RAD 101 Radiographic Positioning I 3
RAD 105 Methods of Patient Care 3
RAD 106 Radiologic Physics I 4
RAD 110 Radiographic Clinic I 2

Second Term
RAD 102 Radiographic Positioning II 3
RAD 107 Radiologic Physics II 4
RAD 115 Principles of Exposure I 3
RAD 120 Radiographic Clinic II 2
RAD 122 Radiation Protection - Biology 3

Third Term
RAD 103 Radiographic Positioning III 3
RAD 130 Radiographic Clinic III 2
RAD 132 Film and Processing 3
RAD 209 Advanced Radiological Procedures 4
General Education 3

Fourth Term
RAD 140 Radiographic Clinic IV 5
General Education 3

Fifth Term
RAD 108 Radiologic Physics III 4
RAD 204 Radiographic Positioning IV 3
RAD 206 Survey and Medical Imaging Diseases 3
RAD 210 Radiographic Clinic V 3
General Education 3

Sixth Term
RAD 205 Radiographic Positioning V 3
RAD 215 Principles of Exposure II 3
RAD 220 Radiographic Clinic VI 4
General Education 3

Seventh Term
RAD 230 Radiographic Clinic VII 4

Eighth Term
RAD 240 Radiographic Clinic VIII 5

Real Estate
Sylvania Campus
Social Science Bldg B-7b
244-6111, ext. 4287 or 3406

Career Options:
Real Estate Sales
Real Estate Broker
Real Estate Appraisal
Real Estate Property Management
Associate of Applied Science Degree in Real Estate

Career Description: A real estate salesperson or broker may secure listings of properties for sale or rent, interview prospective buyers and renters, quote purchase prices, discuss conditions of sales or terms of leases and draw up earnest money receipts and loan applications. An appraiser interviews persons familiar with property being appraised, inspects the property, searches public records of sales, leases, assessments and other transactions to determine property value, compiles materials and sets a correct, definite rate, and submits reports to corroborate value as established. A property manager is responsible for overseeing the management of real property, such as duplexes, apartments, or condominiums, and applies the principles of Landlord/Tenant, and Anti-Discrimination laws, and Fair Credit Reporting procedures in managing those properties.
Course of Study: In conjunction with the Oregon State Real Estate Agency, PCC offers classes which prepare individuals to take license exams for the Oregon Real Estate Sales, Broker and Property Manager licenses. In conjunction with the Oregon Appraiser Certification & Licensure Board, PCC offers classes which prepare individuals to take the license exam for Real Estate Appraisers.

Real Estate Sales Agent Preparation Courses:
- RE 110 Real Estate Practices
- RE 112 Real Estate Law
- RE 116 Real Estate Finance

Real Estate Broker Preparation Courses:
- RE 110 Real Estate Practices
- RE 112 Real Estate Law
- RE 116 Real Estate Finance
- RE 241 Real Estate Office Management
- RE 252 Property Management

Real Estate Property Management Preparation Courses:
- RE 112 Real Estate Law
- RE 252 Real Estate Property Management

For Appraiser licensing and certification, call 244-6111, ext. 4297 for further information.

PCC offers the following forms of recognition:
- Associate of Applied Science Degree - 90-91 credit hours; includes 66-67 credit hours of required courses, 6 credit hours of approved electives, and 18 credit hours of General Education. Consult a program advisor for assistance in planning General Education courses.

First Term
- RE 110 Real Estate Practices 3
- RE 112 Real Estate Law I 3
- RE 116 Real Estate Finance I 3
- BA 102 Introduction to Accounting 3
- General Education 3

Second Term
- RE 226 Real Estate Finance II 3
- MTH 95 Intermediate Algebra 4
- WR 121 English Composition 3
- General Education 3

Third Term
- RE 252 Property Management 3
- RE 250 Real Estate Investments I 3
- BA 238 Sales 3
- Computer Class Elective 3
- General Education 3

Fourth Term
- RE 210 RE Foundations 3
- BA 226 Business Law I 3
- Department Elective 3
- General Education 3

Fifth Term
- RE 211 Single Family Residences 3
- BA 211 Principles of Accounting I 3
- BA 227 Business Law II 3
- RE 241 RE Ofc Mgtn/Sup of Sales Pers 3
- EC 202 Principles of Economics: Macroeconomics 3

Sixth Term
- RE 212 Standards of Professional Practice 3
- EC 201 Principles of Economics: Microeconomics 3
- General Education 3

Choose one of the following philosophy courses
- PHL 201 Introduction to Philosophy: Philosophical Problems 3
- PHL 209 Business Ethics 3

1 If student possesses full-charge bookkeeping experience, 1 year of high school bookkeeping, or equivalent, he/she may substitute a department elective for BA 102
2 Prerequisites are listed in the course description sections for Business Administration and Real Estate.
3 May be waived on basis of PCC Math Placement Examination. If waived, substitute a department elective.
4 Complete one from each of the following parentheticals:
   - (BT 100, BT 101, BT 102), (BT 201A, BT 207A, BT 213A, BT 216A, BT 219A), (BT 170A, BT 172A, BT 174A, BT 176A, BT 177A, BT 179A), (BT 140A)
   or
   - one from the following parenthetical
     - (BT 132, BT 133, BT 134)
   or
     - BA 131.

3 See list of Department Electives below.

Recommended Department Electives (4 credits required):
- BA 285 Human Relations-Organizations 3
- BA 247 Advanced Sales 3
- BA 228 Computer Accounting Applications 3
- BA 239 Advertising 3
- BA 256 Income Tax 3

or any course with an RE, BA, BT, or MSD prefix (workshops excluded)

Refrigeration / HVAC / Trade Related

Southeast Center
244-6111, ext. 6205, 6905

Career Description: This field is usually divided into three industries, domestic, commercial and industrial. The domestic field covers home refrigerators, freezers and window air conditioners. The commercial field includes small automatic systems for stores, supermarkets, central air conditioning, water coolers, beverage coolers and truck refrigeration systems. The industrial field includes the large processing systems and air conditioning systems, packing plants, cold storage and ice rinks. These systems require the attention of a refrigeration operating engineer.

Program Prerequisites: Refrigeration/HVAC have individual course prerequisites. Example: Refrigeration I is required before Refrigeration II, etc. It is also required that a student test into the MTH 20 Basic Math and WR 115 Expository Writing.

Courses: The program is designed to prepare students for semi-skilled positions in the Refrigeration/HVAC industry and for the changing jobs which are occurring in the Refrigeration/HVAC industry. Training is varied and students may enter at different levels, depending on their backgrounds. Students may also enter any term.
PCC awards a successful completion document for each course.

### Refrigeration/HVAC
- TE 9114 Transport Refrigeration I (Thermo-king) 2
- TE 9115 Transport Refrigeration II (Thermo-king) 2
- TE 9151 Pneumatic Controls 2
- TE 9153 Refrigeration Ammonia Systems 2
- TE 9161 Introduction to Boilers 2
- TE 9163 Boilers: Electrical Control Systems 2
- TE 9233 Advanced Oil Burners 2
- TE 9234 Oil Furnace Service 2
- TE 9237 Refrigeration Electrical I 2
- TE 9238 Refrigeration Electrical II 2
- TE 9239 Refrigeration Electrical III 2
- TE 9240 Refrigeration Electrical IV 2
- TE 9241 Refrigeration Electrical V 2
- TE 9242 Refrigeration I 2
- TE 9243 Refrigeration II 2
- TE 9244 Refrigeration III 2
- TE 9245 Refrigeration IV 2
- TE 9246 Refrigeration V - HVAC 2
- TE 9247 Refrigeration VI - HVAC 2
- TE 9248 Shop - Commercial Refrigeration I 2
- TE 9249 Shop - Industrial Refrigeration I 2
- TE 9250 Shop - Light Commercial/Refrigeration I 2
- TE 9251 Refrigeration Compressor Operation & Service 2
- TE 9252 Heat Pumps 2
- TE 9253 Natural Gas Equipment I 2
- TE 9254 Natural Gas Equipment II 2
- TE 9255 HVAC/R Piping 2

### Trade Related
- TE 9139 Residential/Commercial Building Maintenance 2
- TE 9155 Basic Lock Service and Repair 2
- TE 9156 Commercial Lock Service and Repair 2

*Refidential Service Engineers Society (RSES) is a non-profit educational association which has been in existence for over 50 years for the sole purpose of providing continuing industry education. Each year approximately 6,000 members enroll for one or more of the 300 plus training classes conducted by RSES chapters throughout the world. RSES currently offers 12 training programs. Any RSES member in good standing, who meets the requirements of the Multnomah Chapter Educational Committee, may enroll in the following classes. Contact RSES at (503) 242-1929 for more information.*

### Career Description:
An interpreter is a person who receives a message in one language and relays that message as accurately as possible in another language. The primary role of the interpreter is to provide communication between two people who do not share a common language and culture. When interpreting between Deaf and hearing people, the interpreter relays a signed message into a spoken language and a spoken message into a signed language or system taking into consideration the difference between Deaf and hearing cultures.

Professional interpreters work in a variety of settings such as education, social service, religion, government, business, performing arts, mental health, medical, legal and law enforcement. Interpreters may specialize in one area or may freelance in a variety of settings. The majority of graduates from this program are hired into entry level positions in educational settings. New program requirements will qualify students to provide entry-level interpretation services in the private and public sectors.

Currently, the demand for services exceeds the supply of interpreters nation-wide. This provides an opportunity for people to relocate upon successful completion of this program.

### Program Prerequisites:
1. Attend an Orientation session provided by the Sign Language Interpretation program.
2. Submit an application.
3. Submit a copy of scores from the ASSET test documenting readiness to take WR 121, English Composition.
4. Successfully complete ITP 130, Current Issues in Deafness.

### Deadlines:
Two deadlines for entrance Fall 1994 will be observed: The early deadline is June 20, 1994. Candidates will be awarded seats in the program if they score at the advanced level for ASL and the superior level for English on the language videotape. Candidates submitting their file for the early deadline but who do not score at that level will be put into the pool of candidates completing files for the regular deadline. The regular deadline is August 8, 1994. Candidates will be awarded seats in the program if they score at the intermediate level for ASL and the superior level for English on the language videotape. Candidates with higher language competencies will be awarded seats before those with lower language competencies.

### Prerequisite Courses:
Current Issues in Deafness, ITP 130, is a lecture course available to Sign Language Studies students to give them information about the people with whom they will communicate using sign language.
**Course of Study:** This is a full-time two-year (six term) program for students interested in sign language interpretation as a career. A maximum of 30 students will be accepted annually into the Fall term. The program focuses on the acquisition of bi-cultural and bi-lingual abilities and on both transliteration and interpretation skills. The coursework is distributed among theory (22%), skill development (50%) and application (28%). There are five practicum courses which place students in contact with deaf people and professional interpreters. Students must pass a qualifying exam before being accepted into an internship. Graduation is dependent upon entrance into and successful completion of an internship under the direction of a professional interpreter who acts as a mentor. Students complete the program with minimum entry level skills. Students may retake courses which will assist them in developing exit competencies.

**Note:** Custom designed courses and workshops can be provided to agencies and institutions wishing professional upgrading for their staff.

**PCC offers the following forms of recognition:**
- Two-year Certificate of Completion - 86 credit hours of required SLIP courses.
- Two-year Associate of Applied Science Degree - 86 credit hours of required SLIP courses, 15 credit hours of General Education elective courses and exit literacy in English and math.

Consult a program advisor for assistance in planning General Education electives.

**Required Program Sequence:** The following courses are required of all students accepted into the SLIP. Students must receive passing grades as determined by program policy in all courses to maintain student status in the program.

**Note:** All courses within the SLIP are open to individual professional interpreters and to other professionals working in fields serving Deaf persons. This invitation is subject to course availability, class size and departmental permission based on prerequisite skill and/or knowledge. In addition, groups and organizations such as school districts may contract with the SLIP for special in-service training for their interpreting staff.

**First Term (Fall term)**
- ITP 112 American Sign Language II 5
- ITP 131 Deaf Culture 4
- ITP 240 Process Management 3
- ITP 260 Interpreting Theory I 4

**Second Term (Winter term)**
- ITP 113 American Sign Language III 5
- ITP 150 American Sign Language Linguistics I 3
- ITP 120 Fingerspelling I 2
- ITP 180 Field Experience 1
- ITP 270 Interpreting Process I: Text Analysis 4

**Third Term (Spring term)**
- ITP 211 American Sign Language IV 3
- ITP 275 Specialized Discourse I 3
- ITP 151 American Sign Language Linguistics II 2
- ITP 271 Interpreting Process II 4
- ITP 281 Mock Interpreting I 1

**Fourth Term (Fall term)**
- ITP 212 American Sign Language V 3
- ITP 276 Specialized Discourse II 3
- ITP 272 Interpreting Process III 6
- ITP 282 Mock Interpreting II 2
- ITP 262 Interpreting Theory III 4

**Fifth Term (Winter term)**
- ITP 121 Fingerspelling II 2
- ITP 261 Interpreting Theory II 3
- ITP 274 Interpreting Process V: Children 4
- ITP 283 Community Interpreting Internship 3
- HEC 226 Child Development 3
- or
- PSY 215 Human Development 3

**Sixth Term (Spring term)**
- ITP 273 Interpreting Process IV 6
- ITP 284 Educational Interpreting Internship 3

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**Sonography**

Sylvania Campus
Health Professions Admissions
Health Technology Building - B Level
244-6111 ext. 4908

**Career Description:** This program is designed to prepare the student for certification as a registered diagnostic medical sonographer (R.D.M.S.).

Sonographers provide patient services using diagnostic ultrasound under the direction of a physician of medicine who is responsible for the use and interpretation of ultrasound procedures. The Sonographer assists the physicians in obtaining sonographic data/images necessary to diagnosis.

The Sonographer provides services in a variety of medical settings (hospitals, clinics, offices). The Sonographer integrates patient history and clinical data to facilitate optimum diagnostic results; performs appropriate procedures and records anatomical pathology/physiology data for interpretation by the physician; exercises discretion and judgement in the performance of sonographic services; provides patient education related to medical ultrasound and promotes principles of good health.

Diagnostic medical sonographers are employed in hospitals, clinics, private offices and industry. Additionally, there is a need for qualified administrators, educators, and researchers. The demand for qualified Sonographers continues.

For more information regarding program admission contact the Radiological Sciences Department or the Health Professions Admissions. It is recommended applicants “shadow” a registered Sonographer, preferably in a hospital environment, to gain insight of the professional responsibilities and duties required of a Sonographer.

**Program Prerequisites:** All program applicants must be a graduate of a 2 year accredited allied health program with certification in that discipline or possess a Baccalaureate degree with work experience in health care. In addition they must have successfully completed (“C” or higher) WR 121, Math 111, BI 231,
### Technical and Professional Writing

**Fourth Term**
- SON 210 Sonographic Clinic IV
- SON 211 Sonographic Critique/Pathology III
- SON 215 Obstetrical/Gynecologic Sonography II
- SON 217 Vascular/Cardio Sonography
- PHL 205 Contemporary Moral Problems: Biomedical Ethics

**Fifth Term**
- SON 220 Sonographic Clinic V
- SON 221 Sonographic Critique/Pathology IV

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**Career Description:** Technical and Professional Writing is a career that combines communications skills with skills from the fields of business, industry, science, or technology. Technical and professional writers interpret and communicate specialized information for practical use. Their responsibilities include project planning, working as a member of a team, researching, interviewing, writing, designing, rewriting, and editing. Depending on the area of specialization, the types and complexity of the writer’s tasks vary greatly but will likely include writing one or more of the following: instructions, policies and procedures, computer documentation, newsletters, training materials, reports and brochures.

**Program Prerequisites:** Students in the Technical and Professional Writing program should be working or studying in their technical or professional field. The student must take the writing placement examination and score at the level required for entry into WR 121.

**Course of Study:** The Technical and Professional Writing program is an evening program designed to accommodate individuals working or studying in technical and professional areas who wish to become technical and professional writers or who wish to acquire or improve their writing skills to meet requirements of their jobs. The program prepares students to work as technical and professional communication specialists in such businesses and industries as automotive service, electronics, engineering, banking, government, and medicine.

The program consists of five three-credit hour courses that are offered during the evening. In addition to evening sections, some of the program courses are also offered in day sections. Consult the schedule of classes for further information. The program includes a cooperative education option for on-the-job training. The certificate program can be completed in three to five terms. Refer to the course descriptions for further explanations.

**PCC offers the following form of recognition:**
- Certificate of Completion - completion of 15 - 21 credit hours of Technical and Professional Writing courses with a “B” grade or better in each class.
### Sequence of Courses
- **WR 185**: English Grammar 3
- **GD 120**: Graphic Tools and Layout Techniques 3
- **WR 227**: Technical Writing I 3
- **WR 9600**: Technical and Professional Writing II 3
- **WR 9601**: Graphics for Technical and Professional Writers 3

### Optional Courses
- **WR 280ACE**: Technical Writing 1

This is a variable credit course. See the course description for further explanation.

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### Telecommunications Administration

#### Certificate Program
Cascade Campus  
244-6111, ext. 5317

**Career Description:** Since the divestiture of the telephone company in 1984, most businesses and government agencies have assumed responsibility for their own systems for voice, data, and image communication. Telecommunications managers, analysts and administrators are hired to operate those systems. These professionals may be involved in planning communication support for the company’s marketing and delivery strategies. In addition, they may design communication and network facilities, provide training for system users, provide troubleshooting, and monitor traffic and transmission quality. They usually support changes to the communications systems, which occur with the movement of personnel or growth of the organization. They may also perform financial control functions, such as budgeting and monitoring telecommunications billings and expenses, and may handle administrative functions such as publishing the telephone directory.

Effective support of telecommunications system operations requires a general technical knowledge of the systems and of the public telephone network. Most job functions, however, do not require the in-depth knowledge of a technician. In addition, specific jobs may require a background in management, customer service, accounting, data processing, electronic engineering technology, or utility regulation.

**Course of Study:** The PCC Telecommunications Administration courses are designed to provide the student with the general knowledge of telecommunications systems which is necessary to support their daily operation and to plan for their growth and change.

The mission of the Telecommunications Administration Program at Portland Community College is to provide a common knowledge base of the broad spectrum of telecommunications within a systems administration context for the professional development of those in the field.

The program comprises two major tracks; after completion of the initial course **TEL 200** Survey of Telecommunications Industry, the student may pursue these tracks separately or concurrently.

One track is a series in Telecommunications Administration aimed at developing management skills for application in a telecommunications environment. Classes in this track include:

- **TEL 251**: Legal Basics for Tele Pro
- **TEL 252**: Vendor Relations
- **TEL 256**: Planning & Project Management
- **TEL 257**: Telecommunication Sys Op/Mg

The other is a series in Systems Technology which studies current and emerging technologies in voice, data, and image communications.

- **TEL 261**: Voice Communications
- **TEL 262**: Data Communications
- **TEL 266**: Adv Data Communications & LANs
- **TEL 267**: Integrated Network Systems

Completion of all nine classes leads to the Certificate in Telecommunications Administration. Many of these courses also articulate to Marylhurst College.

**PCC offers the following form of recognition:**
- Certificate of Completion: Successful completion of the 27 credit hours of Telecommunications Administration courses.

**Telecommunications Administration courses:** Consult the term schedule of classes for the times and locations of telecommunications administration courses.

**TEL 200 or equivalent knowledge is a prerequisite for all other courses.**

- **TEL 251**: Survey of Telecommunications Industry 3
- **TEL 252**: Vendor Relations 3
- **TEL 256**: Planning & Project Management 3
- **TEL 257**: Telecommunication Systems Op/Mg 3
- **TEL 261**: Voice Communications 3
- **TEL 262**: Data Communications 3
- **TEL 266**: Advanced Data Communications and LANs 3
- **TEL 267**: Integrated Network Systems 3

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### Veterinary Technology

**Rock Creek Campus**  
Building 3, Room 111  
244-6111, ext. 7330

**Career Description:** The veterinary technician is an assistant to the veterinarian, and is skilled and knowledgeable in the practical application of aspects involved in the care and handling of animals, clinical laboratory procedures, animal nutrition, pharmacology, radiography, anesthesiology, and medical and surgical assistance.

**Program Prerequisites:** Because of limited space available for laboratory and clinical procedures courses, as well as the need for individualized instruction, the program has a limited enrollment. Admission to the first year of the program is based on high school and college grades (college courses helpful, but not an admission requirement), a math placement test, a letter of recommendation, and an interview. Forty hours of observation with a veterinarian is also required. This may be done as a paid employee or on a volunteer basis. This is a seven-term program. Continuation into the second year is contingent upon satisfactory performance in the first year. Contact the Veterinary Technology Department for specific eligibility requirements. (Note: Only those students who have been officially accepted into the Veterinary Technology program or who have department approval may enroll in program courses.)
**Course of Study:** This program is accredited by the Committee on Veterinary Technician Education and Activities of the American Veterinary Medical Association. It is designed to help students develop the technical skills needed to perform in a veterinary medicine environment. Graduates are prepared to do entry-level work as technicians in small and large animal hospitals and clinics, laboratory animal research facilities, educational institutions, military service and commercial firms. Graduates of this program are eligible to take the Oregon Board of Veterinary Medical Examiners certification examination for veterinary technicians and may also travel to other states to take their licensing examination.

**PCC offers the following form of recognition:**
- Associate of Applied Science Degree - minimum of 106 credit hours; includes 82 credit hours of veterinary technology courses and 18 credit hours of General Education. Consult a program advisor for assistance in planning General Education classes. (Course work from other colleges may substitute for the General Education requirement)

<table>
<thead>
<tr>
<th>Term (Fall)</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>VS 100</td>
<td>Intro to Veterinary Technology</td>
<td>2</td>
<td></td>
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<tr>
<td>VS 102</td>
<td>Veterinary Medical Terminology</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>VS 121</td>
<td>Basic Animal Science</td>
<td>4</td>
<td></td>
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<tr>
<td>CH 100</td>
<td>Fundamentals for Chemistry</td>
<td>4</td>
<td></td>
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<tr>
<td>BI 101</td>
<td>Biology</td>
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<th>Term (Winter)</th>
<th>Course Code</th>
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<tbody>
<tr>
<td>VS 101</td>
<td>Animal Nursing and Restraint</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>VS 105</td>
<td>Comparative Veterinary Anatomy and Physiology</td>
<td>3</td>
<td></td>
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<tr>
<td>VS 116</td>
<td>Veterinary Parasitology</td>
<td>3</td>
<td></td>
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<tr>
<td>VS 119</td>
<td>Pharmaceutical Mathematics</td>
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<tr>
<td>BI 102</td>
<td>Biology</td>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>VS 106</td>
<td>Comparative Veterinary Anatomy and Physiology</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>VS 115</td>
<td>Animal Health Record Systems</td>
<td>3</td>
<td></td>
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<tr>
<td>VS 122</td>
<td>Hematology and Urinalysis</td>
<td>5</td>
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<tr>
<td>VS 123</td>
<td>Specimen Collection Laboratory</td>
<td>1</td>
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<tr>
<td>WR 121</td>
<td>English Composition</td>
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<tbody>
<tr>
<td>VS 217</td>
<td>Radiation Safety</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>VS 224</td>
<td>Clinical Laboratory Procedures</td>
<td>5</td>
<td></td>
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<tr>
<td>VS 225</td>
<td>Veterinary Microbiology</td>
<td>3</td>
<td></td>
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<tr>
<td>VS 280A</td>
<td>CE: Clinic I</td>
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<tbody>
<tr>
<td>VS 201</td>
<td>Anesthesiology, Surgical and Medical Nursing I</td>
<td>3</td>
<td></td>
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<tr>
<td>VS 209</td>
<td>Veterinary Pharmacology</td>
<td>4</td>
<td></td>
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<tr>
<td>VS 211</td>
<td>Applied Radiography</td>
<td>3</td>
<td></td>
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<tr>
<td>PSY 101</td>
<td>Psychology and Human Relations</td>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>VS 202</td>
<td>Anesthesiology, Surgical and Medical Nursing II</td>
<td>4</td>
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<tr>
<td>VS 207</td>
<td>Public Health and Sanitation</td>
<td>2</td>
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<tr>
<td>VS 208</td>
<td>Small Animal Diseases</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>VS 280B</td>
<td>CE: Clinic II</td>
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<th>Term (Spring)</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>VS 203</td>
<td>Veterinary Procedures Seminar</td>
<td>3</td>
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</tr>
<tr>
<td>VS 210</td>
<td>Animal Nutrition</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>VS 213</td>
<td>Large Animal Diseases</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>VS 280C</td>
<td>CE: Clinic III</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**(VS 280D may be substituted for VS 280C)**

**General Education**

Career Description: This performance based certificate program gives self-directed students a unique three-term experience in video production. Interns work in various production positions, taking progressively more responsible roles. Numerous course activities will involve students in a variety of television productions, including live classes transmitted over local cable and microwave systems and projects focusing on the orientation, promotional and training needs of PCC clients. A non-traditional student/teacher relationship requires commitment and self direction on the part of the interns.

Program Prerequisites: Admittance to this program requires demonstrated commitment to the study of television and video by those selected. Potential interns should already have a basic working knowledge of video production and have played a significant role in producing one or more programs. PCC's television studio and telecommunications facilities provide an educational production house environment for a limited number of dedicated interns. The selection process for the VPI program includes submission of an application with references and demonstrated writing competence (equivalent to completion of WR 121 with a "C" or better). Students who are finalists for admission into the program will be interviewed and given a test to determine subject matter knowledge level.

Course of Study: Classes and productions will be scheduled during daytime hours. However, students might be asked infrequently to attend meetings or work on productions during evening hours.

Students will work the first term as a technical assistant, the second term as a production assistant and the third term as a producer. The minimum skill criteria for each job must be satisfactorily achieved prior to beginning the next level of video production responsibilities. Graduates of the program will be well suited for television production positions in industrial in-house facilities and production companies. Also, graduates will be provided with a videotape of their best production which will be of tremendous assistance when demonstrating production skills to potential employers.

For further information and program application, contact the Coordinator of Television Services or the instructor.

**PCC offers the following form of recognition:**
- Certificate of Completion - 36 credit hours; requires the successful completion of the technical assistant, production assistant and producer portions of the video production internship and nine hours of General Education courses. General Education courses must be in speech, English, writing and/or related
approved courses. Students may be given credit for General Education courses taken prior to enrolling in this internship.  
IVP 280A CE: Video Production 1  
IVP 280B CE: Video Production - Seminar 1  
IVP 101 Video Production I 9  
IVP 102 Video Production II 9  
IVP 103 Video Production III 9  
General Education 9  
1Also available for 1, 2, 3, and 4 credits.  
These courses must be taken and successfully completed in sequence. Each course description is written in a job description format.

Welding

Rock Creek Campus  
Building 2 Room 131  
244-6111, ext. 7226, 7501, 7502 or 7246

Career Description: Welding is a skill used by many trades: sheet metal workers, ironworkers, boilermakers, carpenters, repair and maintenance personnel in applications ranging from the home hobbyist to heavy fabrication of bridges, ships and many other projects. A variety of welding processes are used to join units of metal.

Course of Study: The PCC welding technology program provides training in S.M.A.W. (Shielded metal arc welding), G.T.A.W. (Gas tungsten arc welding), G.M.A.W. (Gas metal arc welding), F.C.A.W. (Flux-cored arc welding), O.A.W. (Oxy-acetylene welding), O.A.C. (Oxy-acetylene cutting), and basic fabrication. Lecture portions of the program include blueprint reading, welding principles, welding metallurgy, and welding inspection and quality control.

The welding technology program offers flexibility in scheduling which allows a student to register for full-time, part-time, open entry-open exit formats.

PCC offers the following forms of recognition:

1. One-year certificate of completion - minimum of 44 credit hours of welding courses. The courses listed below are required for the one-year certificate:

First Term  
WLD 111 Shielded Metal Arc Welding (E7018) 3  
WLD 112 Shielded Metal Arc Welding: Mild Steel IV (E7018) 3  
WLD 113 Shielded Metal Arc Welding: Mild Steel V (E7018) 3  
WLD 151 SMAW Certification Practice: Unlimited Thickness Mild Steel 3  
WLD 101 Welding Principles 4

Second Term  
WLD 142 Flux-Cored Arc Welding II (Self Shielding) 3  
WLD 141 Flux-Cored Arc Welding I (Gas Shielded) 6  
WLD 131 Gas Metal Arc Welding 3  
WLD 102 Blueprint Reading 4

Third Term  
WLD 152 Wire Welding Certification Practice 3  
WLD 114 Shielded Metal Arc Welding: Mild Steel I (E6010 & E6011) 3

WLD 115 Shielded Metal Arc Welding: Mild Steel II (E6010 & E6011) 3

WLD 121 Gas Tungsten Arc Welding: Mild Steel 3

2. Two year certificate of completion - minimum of 81 credit hours of welding courses, includes three (3) terms of the above listed courses, plus one-fourth term of the additional required courses listed below, and a minimum of 27 credits from the following list of elective welding courses.

Fourth Term  
WLD 222 Gas Tungsten Arc Welding: Aluminum 3  
WLD 223 Gas Tungsten Arc Welding: Stainless Steel 3  
WLD 201 Welding Metallurgy I 4  
One Elective from list below 3

Fifth Term  
Elective 3  
Elective 3  
Elective 3  
Elective 3

Sixth Term  
Elective 3  
Elective 3  
Elective 3  
Elective 3

Electives  
WLD 216 Miscellaneous Electrodes & Advanced Positions 3  
WLD 224 Gas Tungsten Arc Welding: Mild Steel Pipe I 3  
WLD 225 Gas Tungsten Arc Welding: Mild Steel Pipe II 3  
WLD 253 SMAW Certification Practice 3/8" Mild Steel (E6011) 3  
WLD 254 SMAW Certification Practice 3/8" Mild Steel (E7018) 3  
WLD 256 Preparation for Pipe Certification I 3  
WLD 257 Preparation for Pipe Certification II 3  
WLD 261 Basic Fabrication I 3  
WLD 262 Basic Fabrication II 3  
WLD 271 Oxy-acetylene Welding Projects 3  
WLD 202 Welding Inspection and Quality Control 4  
WLD 217 Diesel Welding 3  
WLD 280ACE: Welding variable credit 1  
WLD 280BCE: Welding - Seminar 1  
1Cooperative education is a variable credit course up to a maximum of four credit hours. The student must have departmental approval prior to enrolling.  
2The seminar is optional.

1. Associate of Applied Science Degree: 99 credit hours; includes 81 credit hours of welding courses as per two-year certificate, and 18 credit hours of General Education. Degree candidates must meet the comprehensive requirements for writing, WR I,1 and mathematics, MTH 65. Consult a program advisor for help in planning General Education classes.

Individualized Course Offerings:  
These courses are designed to upgrade or develop specific welding skills based on the individual needs of the student. These courses do not apply toward the certificates of completion or Associate of Applied Science degree.

WLD 9910 Shielded Metal Arc Welding (Stick) 2  
WLD 9930 Wire Welding 2  
WLD 9920 Gas Tungsten Arc Welding (Heliarc) 2
TRANSFER COURSES AND PROGRAMS

Liberal Arts and Sciences

PCC offers a wide variety of transfer courses and programs for students wishing to transfer to a four-year college or university, as well as for students pursuing special interests or career upgrading. In addition, transfer courses are a vital component of career programs in meeting specific program requirements or General Education elective requirements for Associate of Applied Science and Associate of General Studies degrees. Credits for transfer courses are accepted by most public and private colleges and universities. Students are advised to consult a counselor or department advisor concerning the degree requirements of particular colleges or universities and the transferability of PCC courses.

Degree requirements for Associate of Arts and Associate of Science

The Associate of Arts Oregon Transfer degree and the Associate of Science degree are primarily designed for students planning to transfer credits to a four-year institution. (Up to 108 quarter hours may be transferable in the Oregon State System of Higher Education.)

Students should consult a PCC counselor or advisor with respect to selecting appropriate courses and meeting any additional requirements at four-year colleges and universities. Unless transfer programs are specifically designed by PCC departments, program or discipline titles will not appear on Associate of Arts Oregon Transfer or Associate of Science diplomas. Please read the Academic Regulations portion of this catalog for a detailed explanation of degree requirements.

Transferability of Courses and Programs

PCC transfer course credit is accepted by most public and private colleges and universities throughout the United States. Students are advised to consult a counselor or advisor concerning the degree requirements of particular colleges or universities and the transferability of PCC courses.

The Oregon Transfer Degree will satisfy all lower-division university or college requirements at Oregon public colleges and universities. For more information, see "Associate of Arts, Oregon Transfer Degree: Specific Requirements" in the Academic Regulations section of this catalog.

The Oregon State System of Higher Education (OSSHE), which consists of eight colleges and universities, publishes a Recommended Transfer Programs Guide which outlines the course requirements for various B.A. and B.S. programs. PCC counselors and advisors use this "Transfer Guide," plus information from individual contacts with OSSHE institutions (when appropriate) to help students select an appropriate sequence of PCC courses for their selected transfer major. The OSSHE includes the following colleges and universities:

- Eastern Oregon College (EOC)
- Oregon Health Sciences University (OHSU)
- Oregon Institute of Technology (OIT)
- Oregon State University (OSU)
- Portland State University (PSU)
- Southern Oregon State College (SOSC)
- University of Oregon (UO)
- Western Oregon State College (WOSC)

An advisor or counselor will provide assistance in obtaining program information from the selected institution and in planning the appropriate sequence of courses to take at PCC.

OSSHE General Transfer Policy

The State System's eight colleges and universities will accept up to 108 quarter hours of transferable collegiate course work completed at an accredited college. Some institutions limit the credit transferred from a community college to the first 108 quarter hours of course work completed toward the institution's baccalaureate degree.

Several of the institutions will accept a limited number of Career (vocational/technical) education courses as part of the above-stated 108 hours. Oregon Institute of Technology accepts completed work leading to an associate degree in a field of technology in which OIT offers a bachelor of technology program.

Some college transfer work beyond the 108-quarter-hour limit may be accepted through special arrangements with the individual accepting department within the college or university. Students are cautioned that all arrangements for the acceptance of the credit as specified by the accepting institution should be completed and approved in writing before the student enrolls in the course. Students should check individual institutional statements for specific policies of the institutions with respect to transfer credit from community and other four-year colleges and regarding any block transfer agreements between OSSHE colleges/universities and PCC.

If a problem occurs in transfer of community college courses to a college or university, first try to resolve it with your advisor. If the problem cannot easily be solved, call the Transfer Problem hotline at the Oregon Department of Education, 378-8609. There will be immediate follow-through with the college and a response to your questions. You may directly contact the Oregon State System of Higher Education at 696-5727. This assistance is arranged at the request of the Community Colleges of Oregon Student Association and Commissions (CCOSAC) with agreement by State Superintendent of Instruction and Vice Chancellor of Academic Affairs.

Art

Description: The art curriculum at PCC includes instruction in the Oregon State System of Higher Education. However, some institutions may vary in basic design, a survey of the visual arts, art history and a variety of studio art courses. A sequence of transfer photography courses (ART 141, 142 and 143) is offered.

Program Prerequisites: There are no specific Art prerequisites. However, individual Art courses may have prerequisites. See the course description to see if specific courses have prerequisites.

Art Courses:

- ART 101 Introduction to Art
- ART 102 Introduction to Art

3
## Business Transfer

The business transfer program may be found in the Business program description in the Professional/Technical Programs section of this catalog.

## Computer Science Transfer

Rock Creek Campus  
Building 2/235  
244-6111, ext. 3466, 7235, or 7246

Sylvania Campus  
Social Science Building B17  
244-6111, ext. 4393, or 4287

### Description:
Computer science is a profession concerned with both theoretical investigations and practical developments in computer technology and applications. The computer scientist in the field is concerned with the representation and storage of information; accessing, examining and transforming information; using programming languages; and designing and implementing hardware and software processors to execute algorithms. The computer field has a broad base of industrial and governmental jobs suitable for the bachelor of science graduate.

### Fields of Employment:
A Computer Science graduate would generally find employment in the high tech or scientific areas. Students interested in computer fields related to accounting or banking applications should contact the Computer Information Systems department.

### Program prerequisites:
Contact the Computer Science Department or advising for application information and advising. Options will be discussed with applicants who do not meet the computer science or math course prerequisites.

### Course of Study:
The intent of the program is to provide many of the same freshman and sophomore computer science courses that are offered at four-year colleges and universities. Students should check the specific requirements of the four-year institution to which they plan to transfer prior to finalizing their course of study at PCC.

### PCC offers the following form of recognition:
Two year Associate of Science Degree Program: 96 credit hours. The student must complete all required computer science courses and take at least one computer science elective course. All required mathematics courses must be completed. PCC's general associate degree requirements must also be met.

#### First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 161</td>
<td>Computer Science I</td>
<td>4</td>
</tr>
<tr>
<td>MTH 116</td>
<td>Calculus Preparation</td>
<td>4</td>
</tr>
<tr>
<td>WR 121</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>SP 114</td>
<td>Social Science Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Science Elective Arts &amp; Humanities Elective</td>
</tr>
</tbody>
</table>

#### Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 162</td>
<td>Computer Science II</td>
<td>4</td>
</tr>
<tr>
<td>MTH 251</td>
<td>Calculus I (Differential Calculus)</td>
<td>4</td>
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<tr>
<td>SP 114</td>
<td>Fundamentals of Speech</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Science Elective Arts &amp; Humanities Elective</td>
</tr>
</tbody>
</table>

#### Third Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 260</td>
<td>Data Structures</td>
<td>4</td>
</tr>
<tr>
<td>MTH 252</td>
<td>Calculus II (Integral Calculus)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Science Elective</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physical Science Elective</td>
</tr>
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</table>
**Fall Term 1994 — Summer Term 1995**

<table>
<thead>
<tr>
<th>Transfer Courses and Programs</th>
</tr>
</thead>
</table>

**Fourth Term**
- CS 171 Assembler Language I 4
- MTH 253 Calculus III (Infinite Series and Sequences) 4
- CS 252 Computational Structures 4
- Physical Science Elective 4

**Fifth Term**
- CS 264 Assembler Language II 4
- MTH 254 Vector Calculus I
  - (Intro to Vectors and Multidimensional Calculus) 4
- CS 251 Logical Structures 4
- Physical Science Elective 4

**Sixth Term**
- Computer Science Elective 4
- HPE 295 Health and Fitness for Life 3
- General Education 3
- Arts & Humanities Elective 3

1. These courses must come from the Social Science section of the General Education Course List.
2. EC 201, EC 202, and EC 203 are recommended.
3. These courses must come from the General Education Course List.
4. These courses must come from the Computer Science elective list.

**Computer Science Elective List:**
- CS 133F Intro to Fortran Programming 4
- CS 252 Computational Structures 4
- CS 233U C Programming 4
- CS 248U Advanced UNIX and C 4

**Required Computer Science Courses:**
- CS 161 Computer Science I 4
- CS 162 Computer Science II 4
- CS 260 Data Structures 4
- CS 171 Assembler Language I 4
- CS 264 Assembler Language II 4
- CS 250 Discrete Structures 4
- CS 251 Logical Structures 4
- CS 252 Computational Structures 4

**Dance**

**Description:** The Performing Arts Department offers various dance technique and related courses designed for students interested in exploring dance at the beginning through intermediate level. All technique courses emphasize correct alignment and movement principles, improved kinesthetic sense and awareness of dance as a performing art. Performance opportunities for dance students may include class presentations or participation in dance or musical theater productions.

Dance classes may be transferable to four-year institutions as dance or elective credit. Students should check transferability of specific dance courses with the institution to which they are planning to transfer.

Although a physical exam is not required, students are advised to seek approval from their personal physician before entering into a regular program of vigorous physical activity as is found in dance courses.

It is the student’s responsibility to advise the dance faculty of any health condition which may limit or affect a student’s ability to participate safely or successfully in the course. In some instances an instructor may recommend an alternative activity program/class or a statement from the student’s physician.

**Program Prerequisites:** Individual course prerequisites may be found in the course descriptions section.

**Special Fees:** Students will pay one $5 service fee per term for classes requiring showers/towels/lockers. Locks and towels must be turned in at the end of the term. If these items are lost, students will be charged $4 for the locks.

**Program:**
- D 150 Jazz Dance I 2
- D 151 Jazz Dance II 2
- D 152 Jazz Dance III 2
- D 169 Musical Theater Dance 2
- D 175A Tap Dance I 2
- D 192A Ballet I 2
- D 192B Ballet II 2
- D 192C Dance Lab: Modern I 2
- D 192D Dance Lab: Modern II 2
- D 209A Dance Performance 3
- D 209B Dance Performance 2
- D 209C Dance Performance 1
- D 251 Intro to Dance - Dance History 3
- D 260 Dance Improvisation & Choreography 2
- D 292 Ballet III 2

Contact the Physical Education, Fitness, and Dance Department for additional dance classes.

**Engineering**

Sylvania Campus
Science Technology Bldg. B-8
244-6111, ext. 4163

**Programs:**
- Chemical
- Civil
- Computer
- Electrical
- Industrial
- Manufacturing
- Mechanical
- Other (e.g., Aeronautical, Nuclear, Systems)

**Engineering Career Description:** Engineering is a profession in which knowledge of mathematics and natural sciences gained through study and experience is applied for the benefit of society. Engineers solve technical problems as members of project teams or as individual specialists. Work may involve research, development, planning, design, construction, manufacturing, supervision and management. Engineering is a licensed profession in all states.
Program Prerequisites: All students must have an advising interview with an Engineering (GE) faculty advisor. Students must place in WR 121, English Composition, and MTH 251, Calculus I (Differential Calculus). High school courses in chemistry, physics, and microcomputer literacy are highly recommended. Students lacking the necessary prerequisites may upgrade their skills by taking writing, mathematics, science, and microcomputer literacy courses or by completing the first year of one of PCC's two-year engineering technology programs (civil, computer software, electronic, or mechanical). See an engineering program advisor for information.

The use of a scientific, programmable, graphing calculator is required for several engineering courses as indicated in the course descriptions. A Hewlett-Packard calculator is suggested and GE 105, HP Programming, is a course available to assist students in the use of the HP calculator.

PCC offers the following form of recognition:

- Associate of Science Degree: Refer to the Academic Regulations section of this catalog for information concerning the granting of degrees.

Course of Study: PCC offers curricula equivalent to the first two years of study in chemical*, civil, computer, electrical, industrial*, manufacturing and mechanical engineering at Oregon State University, Portland State University and the University of Portland. Equivalent first and second year courses are also available for students interested in other majors or universities.

OSU only

Advising guides outlining which engineering, mathematics, science, and General Education courses to take for the disciplines listed above have been prepared in cooperation with OSU, PSU, and UP. Following these advising guides will prepare students to transfer to universities for their upper division studies. It is recommended that students prepare for transfer by selecting courses that meet lower division university requirements rather than by seeking the Associate of Science degree.

The following engineering courses are offered at PCC.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE 105</td>
<td>HP Programming</td>
<td>1</td>
</tr>
<tr>
<td>GE 110</td>
<td>Engineering Orientation - Introduction</td>
<td>4</td>
</tr>
<tr>
<td>GE 112</td>
<td>Engineering Orientation - FORTRAN</td>
<td>3</td>
</tr>
<tr>
<td>GE 113</td>
<td>Engineering Orientation - Pascal</td>
<td>4</td>
</tr>
<tr>
<td>GE 115</td>
<td>Engineering Graphics</td>
<td>2</td>
</tr>
<tr>
<td>GE 116</td>
<td>Introduction to CAD</td>
<td>2</td>
</tr>
<tr>
<td>GE 171</td>
<td>Introduction to Logic Design</td>
<td>5</td>
</tr>
<tr>
<td>GE 211</td>
<td>Statics</td>
<td>4</td>
</tr>
<tr>
<td>GE 212</td>
<td>Dynamics</td>
<td>4</td>
</tr>
<tr>
<td>GE 213</td>
<td>Strength of Materials</td>
<td>4</td>
</tr>
<tr>
<td>GE 221</td>
<td>Electrical Circuits I</td>
<td>5</td>
</tr>
<tr>
<td>GE 222</td>
<td>Electrical Circuits II</td>
<td>5</td>
</tr>
<tr>
<td>GE 223</td>
<td>Feedback and Control</td>
<td>4</td>
</tr>
<tr>
<td>GE 226</td>
<td>Plane Surveying</td>
<td>4</td>
</tr>
<tr>
<td>GE 231</td>
<td>Material Science</td>
<td>4</td>
</tr>
<tr>
<td>GE 262</td>
<td>Manufacturing Processes</td>
<td>3</td>
</tr>
<tr>
<td>GE 271</td>
<td>Digital Systems</td>
<td>5</td>
</tr>
<tr>
<td>GE 275</td>
<td>Microprocessor Systems</td>
<td>4</td>
</tr>
<tr>
<td>GE 280A</td>
<td>CE: Engineering -</td>
<td>Credit hours by arrangement</td>
</tr>
</tbody>
</table>

Transfer Courses and Programs Fall Term 1994 — Summer Term 1995

Journalism

Description: Journalism courses are designed to give students an introduction to the field of journalism.

Program Prerequisites: Students must take the writing placement exam and score at the prerequisite level for WR 121 English Composition, successfully complete WR 115 Introduction to Expository Writing or demonstrate equivalent skills.

The classes are offered at the Sylvania Campus. The Journalism curriculum includes gathering and writing news for newspapers, copy editing, and makeup. Students may gain on-the-job experience with the college newspaper, The Bridge.

The college or university to which transfer is desired should be consulted with respect to appropriate course selection.

Life Sciences

Programs:

Anatomy
Biology
Botany
Health

Description: Life sciences at Portland Community College comprise five areas of study: anatomy, biology, botany, microbiology, and health.

Work in the sciences is an important part of many college programs. Courses at PCC are organized to present basic principles and to provide a coordinated overview of the sciences as they relate to living systems.

Program Prerequisites: See the course descriptions section for specific course prerequisites.

Anatomy
Bl 231 Anatomy & Physiology I 4
Bl 232 Anatomy & Physiology II 4
Bl 233 Anatomy & Physiology III 4
Bl 121 Human Anatomy and Physiology I 4
Bl 122 Human Anatomy and Physiology II 4

Biology
Bl 40 Basic General Biology 4
Bl 101 Biology 4
Bl 102 Biology 4
Bl 133 Biology 4
Bl 141 Habitats: Life of the Forest 4
Bl 142 Habitats: Marine Biology 4
Bl 143 Habitats: Fresh Water Biology 4
Bl 163 Organic Gardening 3
Bl 160 Ecology/Field Biology: Coast 1
Bl 161 Ecology/Field Biology: Malheur 1
Bl 170 Environmental Science 4
Bl 211 Principles of Biology 5
Bl 212 Principles of Biology 5
Bl 213 Principles of Biology 5
Bl 222 Human Genetics 3
Bl 234 Microbiology 5
Bl 241 Pathophysiology 3
Literature

The prerequisite for PCC literature courses is placement into WR 121 or ASSET scores in Reading and Writing for placement into WR 121 or a score of 24 on the CGP English Placement Test.

All PCC literature courses are transferable to four-year institutions and fulfill the block transfer agreement for the humanities in the general educational requirement for an associates degree.

**Literature Courses:**

- **ENGL 104** Intro to Literature (Fiction) 3
- **ENGL 105** Intro to Literature (Drama) 3
- **ENGL 106** Intro to Literature (Poetry) 3
- **ENGL 107** World Literature - Western 3
- **ENGL 108** World Literature - Western 3
- **ENGL 109** World Literature - Western 3
- **ENGL 195** Film as Literature (Film as Art) 3
- **ENGL 196** Film as Literature (Great Directors) 3
- **ENGL 197** Film as Literature (Contemporary Cinema) 3
- **ENGL 201** Shakespeare 3
- **ENGL 202** Shakespeare 3
- **ENGL 203** Shakespeare 3
- **ENGL 204** Survey of English Literature 3
- **ENGL 205** Survey of English Literature 3
- **ENGL 206** Survey of English Literature 3
- **ENGL 207** World Literature - Asian 3
- **ENGL 208** World Literature - Asian 3
- **ENGL 209** World Literature - Asian 3
- **ENGL 211** Contemporary African Literature 3
- **ENGL 212** Biography 3
- **ENGL 214** Literature of the Northwest 3
- **ENGL 222** Images of Women in Literature 3
- **ENGL 240** Intro to Native American Literature 3
- **ENGL 250** Introduction to Folklore and Mythology 3
- **ENGL 253** Survey of American Literature 3
- **ENGL 254** Survey of American Literature 3
- **ENGL 255** Survey of American Literature 3
- **ENGL 256** African-American Literature 3
- **ENGL 260** Intro to Women Writers 3
- **ENGL 261** Literature of Science Fiction 3
- **ENGL 265** International Political Poetry 3
- **ENGL 275** Bible as Literature 3

*This course meets the diversity requirement for the block transfer agreement.*

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**Manufacturing Engineering Technology**

Sylvania Campus
Automotive Metals Bldg.
244-6111, ext. 4897

**Career Description:** Manufacturing Engineering Technology is the profession in which a knowledge of the applied mathematical and natural sciences gained by higher education, experience, and practice is devoted to application of engineering principles and the implementation of technological advances for the benefit of humanity.

**Program Prerequisites:** Students new to this program must complete an application and receive departmental advising and placement prior to registration. Placement into MTH 111, WR 121, CH 201, and completion of GE 105, GE 110 is required.

**Course of Study:** Manufacturing Engineering Technology focuses primarily on analyzing, applying, implementing, and improving existing technologies and is aimed at preparing graduates for the practice of engineering closest to the product improvement, manufacturing, and engineering operational functions.

Manufacturing Engineering Technology is structured to transfer to a four year institution for completion of a Bachelor of Science Degree in Manufacturing Engineering Technology.

PCC offers curricula equivalent to the first two years of study in Manufacturing Engineering Technology at Oregon Institute of Technology: 112 credit hours: includes 18 credits hours of General Education classes.

**First Term**

- **SP 130** Business & Professional Speech Communication 3
- **MTH 111** College Algebra 4
- **WR 121** English Composition 3
- **MTH 112** Intro to Joining and Welding 4
- **BA 131** Computers in Business 4

**Second Term**

- **MFG 107** Industrial Health and Safety 3
- **CH 201** General Chemistry 4
- **MTH 112** Elementary Functions 4
- **WR 122** English Composition 3
- **MFG 110** Intro to Machine Manufacturing 4

**Third Term**

- **CIS 122** Software Design 4
- **MTH 251** Calculus I (Differential Calculus) 4
- **MFG 220** Machine Tool Processes 4
- **MFG 222** Casting and Molding Processes 4
- **MFG 274** Introduction to CAD 2

**Fourth Term**

- **MFG 230** Introduction to Numerical Control 4
- **PSY 201** General Psychology 3
- **MTH 252** Calculus II (Integral Calculus) 4
- **WR 227** Technical Writing I 3
- **CIM 100** CIM 1 3
## Mathematics Transfer Courses and Programs

### Fall Term 1994 — Summer Term 1995

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 101</td>
<td>College Algebra</td>
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</tr>
<tr>
<td>MTH 102</td>
<td>Foundations of Elementary Math I</td>
<td>3</td>
</tr>
<tr>
<td>MTH 103</td>
<td>Int Graph Calculator</td>
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### Modern Languages

**Programs:**
- English as a Non-Native Language (ENL)
- French
- German
- Japanese
- Russian
- Spanish

**English as a Non-Native Language (ENL)**

**Description:** These courses are located throughout the PCC district. Consult a class schedule or a campus or center for specific information. English as a Non-Native Language is an intensive, multilevel language program designed to develop the student's competency in listening, speaking, reading and writing English at the college level.

**Placement testing in the testing center.**

**Program Prerequisites:** Students enroll in one to four credit hours per term on the basis of a placement test and advance to higher levels as they demonstrate mastery of material. In addition to class work, students practice under supervision in the ENL Tutoring Center. Students unable to place in the ENL program may enroll in preparatory classes in English as a Second Language. Each level of ENL is divided into writing, reading and speaking skill areas. See the course descriptions for individual course prerequisites.

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<td>Intermediate Vocabulary Building</td>
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<td>ENL 152</td>
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French

**Description:** The following applies to all French courses:

Students are encouraged, as part of their learning process, to guess, deduce, take risks, try out new structures and discover the language. The goal in all the courses is that French be learned. Students whose skill level exceeds the requirements for a given course will not be admitted to that course. Pronunciation and speaking are stressed at all levels, and regular attendance and participation are required. All courses are conducted entirely in French.

**Program Prerequisites:** There are no prerequisites for entry into the first term of first year French. However, the student should read the French course descriptions for the prerequisites for other French courses.

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1. **These courses provide the opportunity to complete one year of French (either first or second year) in two terms.
2. **These courses provide the opportunity to complete both first and second year French in three terms.

German

**Description:** The following general remarks pertain to all German courses:

All courses are performance oriented and conducted in German. Beginning with the first day of class, when essential materials are presented, regular attendance and participation are necessary for successful completion.

Students are encouraged to guess, experiment, deduce, take risks and to discover the language through active involvement.

**Program Prerequisites:** There are no prerequisites for first-term first-year German. Course descriptions detail any prerequisites for other German courses. Students whose skill level in German exceeds the requirements for the course will not be admitted. These students should consult with one of the German instructors for proper placement.

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1. **These courses provide the opportunity to complete one year of German (either first or second year) in two terms.
2. **These courses provide the opportunity to complete both first and second year French in three terms.
**Transfer Courses and Programs**

**Fall Term 1994 — Summer Term 1995**

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<tr>
<td>GER 262C</td>
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<tr>
<td>GER 270A</td>
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<tr>
<td>GER 290A</td>
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<td>GER 292C</td>
<td>German Composition</td>
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</tr>
</tbody>
</table>

1These courses provide the opportunity to complete one year of German (either first or second year) in two terms.

2These courses provide the opportunity to complete both first and second year German in three terms.

### Japanese

**Description:** The following general remarks apply to all Japanese courses.

Students are encouraged to guess, deduce, take risks and fully experience the language and culture. Since student learning rates differ, students need to be patient with their own and other students' progress.

These courses are performance oriented, and attendance (from the first day of the classes) as well as active participation is necessary for successful completion. All courses are conducted in Japanese.

**Program Prerequisites:** There are no prerequisites for entry into the first term of first year Japanese. However, the student should read the Japanese course descriptions for other Japanese courses. Students whose skill level in Japanese exceeds the requirements of a given course will not be admitted. These students should talk with the instructor for proper placement in Japanese courses.

- JPN 101 First Year Japanese
- JPN 102 First Year Japanese
- JPN 103 First Year Japanese
- JPN 111A First Year Japanese Conversation
- JPN 111B First Year Japanese Conversation
- JPN 111C First Year Japanese Conversation
- JPN 112A First Year Japanese Conversation
- JPN 112B First Year Japanese Conversation
- JPN 112C First Year Japanese Conversation
- JPN 113A First Year Japanese Conversation
- JPN 113B First Year Japanese Conversation
- JPN 113C First Year Japanese Conversation
- JPN 150 First Year Japanese
- JPN 151 First Year Japanese
- JPN 201 Second Year Japanese
- JPN 202 Second Year Japanese
- JPN 203 Second Year Japanese
- JPN 211A Intermediate Japanese Conversation
- JPN 211B Intermediate Japanese Conversation
- JPN 211C Intermediate Japanese Conversation
- JPN 212A Intermediate Japanese Conversation
- JPN 212B Intermediate Japanese Conversation
- JPN 212C Intermediate Japanese Conversation
- JPN 213A Intermediate Japanese Conversation
- JPN 213B Intermediate Japanese Conversation
- JPN 213C Intermediate Japanese Conversation
- JPN 250 Second Year Japanese
- JPN 251 Second Year Japanese
- JPN 260A Japanese Culture
- JPN 260B Japanese Culture
- JPN 260C Japanese Culture
- JPN 261A Japanese Culture
- JPN 261B Japanese Culture
- JPN 261C Japanese Culture
- JPN 262A Japanese Culture
- JPN 262B Japanese Culture
- JPN 262C Japanese Culture

1These courses provide the opportunity to complete one year of Japanese in two terms.
Russian

**Description:** The following general remarks pertain to all Russian courses.

Russian courses at PCC are performance oriented and regular attendance, beginning with the first day of class, during which essential materials are presented, and active participation in class are required for successful completion.

Students are actively involved in discovering the Russian language (which is used exclusively in class) and are expected to guess, experiment, deduce, take risks and eventually become independent learners.

**Program Prerequisites:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>RUS 101</td>
<td>First Year Russian</td>
<td>4</td>
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<tr>
<td>RUS 102</td>
<td>First Year Russian</td>
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<tr>
<td>RUS 103</td>
<td>First Year Russian</td>
<td>4</td>
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<tr>
<td>RUS 111A</td>
<td>First Year Russian Conversation</td>
<td>3</td>
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<tr>
<td>RUS 111B</td>
<td>First Year Russian Conversation</td>
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<tr>
<td>RUS 112A</td>
<td>First Year Russian Conversation</td>
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<td>RUS 112B</td>
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<tr>
<td>RUS 112C</td>
<td>First Year Russian Conversation</td>
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<tr>
<td>RUS 113A</td>
<td>First Year Russian Conversation</td>
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<tr>
<td>RUS 113B</td>
<td>First Year Russian Conversation</td>
<td>2</td>
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<tr>
<td>RUS 113C</td>
<td>First Year Russian Conversation</td>
<td>1</td>
</tr>
<tr>
<td>RUS 150</td>
<td>First Year Russian</td>
<td>6</td>
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<tr>
<td>RUS 151</td>
<td>First Year Russian</td>
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<tr>
<td>RUS 201</td>
<td>Second Year Russian</td>
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<tr>
<td>RUS 202</td>
<td>Second Year Russian</td>
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<tr>
<td>RUS 203</td>
<td>Second Year Russian</td>
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<tr>
<td>RUS 211A</td>
<td>Intermediate Russian Conversation</td>
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<td>RUS 213C</td>
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<tr>
<td>RUS 217</td>
<td>Russian for Native Speakers</td>
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<tr>
<td>RUS 218</td>
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<tr>
<td>RUS 270A</td>
<td>Readings in Russian</td>
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<td>RUS 270B</td>
<td>Readings in Russian</td>
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<td>RUS 270C</td>
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<tr>
<td>RUS 272C</td>
<td>Readings in Russian</td>
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</tbody>
</table>

*These courses provide the opportunity to complete one year of Russian in two terms.*

Spanish

**Description:** The following applies to all Spanish courses.

The objective of all Spanish courses is to help the student develop communicative competence and proficiency in understanding, pronouncing, speaking, reading and writing the language. Materials and activities are carefully selected to involve active student participation in the language and to stimulate personal growth in linguistic and cultural sense and awareness. Regular attendance and a desire to explore, experience and practice Spanish are required.

**Program Prerequisites:** There are none for entry into the first term of first year Spanish. The student should read the Spanish course descriptions for prerequisites for other Spanish courses. Students unsure of their placement are encouraged to consult a Spanish teacher.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
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<td>SPA 103</td>
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<td>SPA 111A</td>
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<td>SPA 111B</td>
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<tr>
<td>SPA 217</td>
<td>Spanish for Native Speakers</td>
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<td>SPA 270A</td>
<td>Readings in Spanish Literature (Hispanic)</td>
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<tr>
<td>SPA 271A</td>
<td>Readings in Spanish Literature (Women Writers)</td>
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</table>
MUS 21 IA Music Theory II
MUS 212A Music Theory II
MUS 213A Music Theory II
MUS 211B Music Theory II: Keyboard Harmony
MUS 212B Music Theory II: Keyboard Harmony
MUS 213B Music Theory II: Keyboard Harmony

Music Performance Courses:
MUS 131 Group Vocal
MUS 158 Chamber Ensemble
MUS 220 Chorus
MUS 221 Chamber Choir

Individual Instruction:
MUP 100 Applied Music (Individual instruction for non-majors)
MUP 171 - MUP 192 Applied Music (Private lessons - vocal and instrumental, first year)
MUP 271 - MUP 292 Applied Music (Private lessons - vocal and instrumental, second year)

Program Prerequisites:
Prerequisites for each course may be found in the course descriptions section.

Music Transfer Courses and Programs  
Fall Term 1994 — Summer Term 1995

SPA 271B Readings in Spanish Literature (Women Writers) 2
SPA 271C Readings in Spanish Literature (Women Writers) 1
SPA 272A Readings in Spanish Literature (Spain) 3
SPA 272B Readings in Spanish Literature (Spain) 2
SPA 272C Readings in Spanish Literature (Spain) 1
SPA 290A Spanish Composition 3
SPA 290B Spanish Composition 2
SPA 290C Spanish Composition 1
SPA 291A Spanish Composition 3
SPA 291B Spanish Composition 2
SPA 291C Spanish Composition 1
SPA 292A Spanish Composition 3
SPA 292B Spanish Composition 2
SPA 292C Spanish Composition 1

1 These courses provide the opportunity for students to complete one year of Spanish in two terms.

Music Transfer
Sylvania Campus
Communications Technology Building B-5e
244-6111, ext. 4264, 4277

Music Transfer:
The college transfer courses are designed to be of interest to all students and may include two years of music theory for the student who plans to major in music at the upper division level. For those who have no formal training in music but want to know something about it, general information courses are available to direct the student's attention to the theory of the art or toward the listening, appreciation and historical aspects of music as well as private instruction in applied performance. Consult the receiving institution and/or program advisor with respect to the transferability and applicability of credit.

Survey Courses for Non-Majors:
The following courses fall into the category of general interest courses and are designed to acquaint the student with the many varieties and styles of music which have contributed to our vast musical heritage. They are especially recommended as humanities electives:

MUS 105 Music Appreciation
MUS 106 Opera Appreciation

Music History Courses:
MUS 201, MUS 202, MUS 203 Introduction to Music and its Literature

Music Theory Courses:
The following courses are of interest to the generalist or the serious musician. They introduce basic musical skills:

MUS 110 Fundamentals of Music (Preparation for Music Theory I)
MUS 111 Music Theory I
MUS 112A Music Theory I
MUS 113 Music Theory I
MUS 111C Music Theory I: Sight Singing and Ear Training
MUS 112C Music Theory I: Sight Singing and Ear Training
MUS 113C Music Theory I: Sight Singing and Ear Training

1 These are transferable courses taught at Cascade campus and are required in the Vocational Music program.
**Physical Education, Fitness, Dance and Athletics**

**Description:** PCC's physical education program offers students the opportunity to improve physical and mental well-being through a variety of exciting well-based offerings. These courses may be used for credit and meet degree requirements. The program's courses will increase the individuals' fitness levels to better provide the students with the stamina to meet today's challenges in the workplace. Our classes not only provide students the skills, they also provide the knowledge to enable students to achieve lifelong fitness.

Descriptions of physical education instructional courses may be found in the Course Descriptions section of this catalog.

Dance instruction includes various dance technique classes. Dance courses may be found under “Dance” in the Transfer Courses and Programs section of this catalog. Athletic opportunities are available to students through intramural activities, club sports, and college athletic teams. (See the Student Activities section of this catalog.)

**Physical Examination:** Although a physical exam is not required, students are advised to seek approval from their personal physician before entering into a regular program of vigorous physical activity as is found in physical education courses.

It is the student's responsibility to advise the physical education faculty of any health condition which may limit or affect a student's ability to participate safely or successfully in the course. In some instances an instructor may recommend an alternative activity program/class or a statement from the student's physician.

**Special Fees:** Physical education fees are listed in the PE section of the Schedule of Classes. These fees are non-refundable. Regardless of the number of PE classes for which they are registered at one PCC location, students will pay one $5 service fee per term for classes requiring showers/towels/lockers. Another $5 fee is charged for each additional PCC site used.

**Course of Study:** PCC offers a wide variety of physical education activity and wellness classes; dance, and athletic opportunities to students of all ages and fitness levels. Students should consult a physical education advisor at any PCC campus for further information.

Oregon State System of Higher Education colleges and universities vary in their physical education requirements. All PE classes are accepted as elective transfer credit to any Oregon public four-year school regardless of its physical education requirement.

**Physical Education Instructional Courses:**

- **Health and Physical Education**
  - HPE 295 Health and Fitness for Life 3
  - HPE 296 Health and Fitness for Industry 2

  1. HPE 295 and HPE 296 lecture and lab must be taken concurrently. Students must successfully complete both courses in order to receive credit.

  Students who enter HPE labs will be expected to participate in initial assessments of general fitness level; then engage in a wide range of vigorous physical activities, such as walking, jogging, and weight training. During the initial assessments, some students may be found to have limitations or problems which place them at risk for injury during routine lab activities. These students may be asked to present a physician's statement, withdraw from HPE 295, or consider alternative class placement. A separate section of HPE lab for students with injuries or disabilities is available Fall, Winter and Spring terms at Sylvania campus and once per year at Rock Creek campus.

**Physical Education Activities Courses:**

- **PE 10** Physical Education Activity Program 1
- **PE 180 (A - J) Aquatics 1.0**
  A variety of courses including water exercise, all levels of learning and improving swim strokes, conditioning for strength and endurance, and water sports.
- **PE 181 (A - G) Weight Training 1.0**
  Includes beginning, intermediate and advanced weight training and coed circuit weight training 1, 2, and 3.
- **PE 182 (A - N) Fitness Classes 1.0**
  Classes include aerobic fitness, fitness and walking, jogging, triathlon training, adult fitness, ski conditioning, stress reduction, yoga, and lifetime weight management.
- **PE 182 N**
  Corrective Physical Education is individualized, self-paced exercise and swim programs supervised by a physical therapist for students with acute or chronic injuries or disabilities.
- **PE 183 (A - V) Individual Sports 1.0**
  Includes beginning, intermediate and some advanced levels of bowling, tennis, golf, badminton, pickleball, racquetball, table tennis, karate.
- **PE 184 (A - K) Skiing 1.0**
  Beginning, intermediate and advanced levels of Alpine (downhill), Nordic (cross-country), and snowboarding: beginning ski racing: and ski instructor training.
- **PE 185 (A - L) Team Sports 1.0**
  Classes include beginning, intermediate and advanced levels of basketball and volleyball: two levels of soccer: plus flag football and softball: athletic orientation to varsity sports.
- **PE 186 (A - N) Dance 1.0**
  These classes represent the various skill levels in ballet, jazz dance, modern dance, and tap, as well as ballroom dancing (including country-western and folk dancing.)

**Professional Courses:**

- **PE 291A** Lifeguard Training 2
- **PE 292A** Water Safety Instructor 3
- **PE 292B** Aquatics Practicum 1
- **PE 293A** Emergency Water Safety and Conditioning 2

**Recreation:** Sylvania Campus - Facilities and activities are available for student and employee recreational use when instructional classes are not in session. The availability schedule is posted on the door of each facility and in each locker room.

1. Enroll in any PCC class. Consult current schedule for procedure.
2. Enroll in PE 10, Physical Education Activities Program.
3. PCC staff members are welcome to use our facilities. You may request a lock and ribbon by presenting the PCC employee card to the attendant at the equipment issue window, HT 8 level hallway. Spouse and family members must pay the $5 fee at the Business Office in the CC Building.
Swimming Pool: Open Swim. Students must be at least 16 years old. This is lap swimming in three groups: beginning, intermediate, and advanced. The instructional lap pool is five feet deep.

Gymnasium: Times are available for Basketball only, and Volleyball only.

Weight Room, HT A-1b: This room has universal gyms, arm and leg machines and exercycles.

Consult current class schedule for open times in swimming pool, gymnasium and weight room.

Racquetball/Handball Courts: Call 452-4945 between 8-9:30 pm for reservations for the following day, or go to room HT-B3 to make reservations the same day.

Cascade and Rock Creek campuses provide recreational opportunities in their gymnasiums, weight rooms and walking/jogging routes. For specific procedures, contact the P.E. Department on these campuses.

Physical Science

Programs:
- Chemistry
- Geology
- General Science
- Physics

Description: Work in the physical sciences is an important part of many college programs. Courses at PCC comprise four areas of study: chemistry, geology, general science and physics and are organized to present basic principles and to provide a coordinated overview of the sciences as they relate to contemporary life.

Program Prerequisites: See the course descriptions for physical science for the requirements of individual courses.

Physical Science Courses

Chemistry
- CH 100 Fundamentals for Chemistry 4
- CH 101 Inorganic Chemistry Principles 5
- CH 102 Organic Chemistry Principles 5
- CH 104 General Chemistry 5
- CH 105 General Chemistry 5
- CH 106 General Chemistry 5
- CH 201 General Chemistry 4
- CH 202 General Chemistry 4
- CH 203 General Chemistry 4
- CH 221 General Chemistry 5
- CH 222 General Chemistry 5
- CH 223 General Chemistry 5
- CH 211 Introduction to Biochemistry 4
- CH 241 Organic Chemistry 5
- CH 242 Organic Chemistry 5
- CH 243 Organic Chemistry 5

For students wishing to satisfy the general science requirements in liberal arts programs.

3For students with prior science background. Recommended for chemistry majors and pre-professional majors in medicine, dentistry and other laboratory sciences. This sequence is also recommended for electrical engineering majors.

Geology
- G 201 Physical Geology 4
- G 202 Physical Geology 4
- G 203 Historical Geology 4
- G 207 Geology of the Pacific Northwest 3
- G 208 Volcanoes and Their Activity 3
- G 291 Elements of Rocks and Minerals 4

General Science

These courses provide a broad background in physical science for the non-science major. Students study and demonstrate proficiency in using basic vocabulary, identifying relationships and relating ideas in selected topics of physical science. Each course includes those topics of physics and chemistry which apply to the areas under study. The courses may be taken out of sequence.

GS 101 Survey of Astronomy 3
- GS 106 Physical Science (Geology) 4
- GS 107 Physical Science (Astronomy) 4
- GS 108 Physical Science (Oceanography) 4
- GS 109 Physical Science (Meteorology) 4
- GS 171 Environmental Sci:Bio Perspectives 4
- GS 172 Environmental Sci:Chem Perspectives 4
- GS 173 Environmental Sci:Geo Perspectives 4

GS 101 is a non-lab course offered via television that covers the same topics as GS 107.

Physics
- PHY 101 Fundamentals of Physics 4
- PHY 121 Elementary Astronomy 4
- PHY 122 Elementary Astronomy 4
- PHY 123 Elementary Astronomy 4
- PHY 201 General Physics 4
- PHY 202 General Physics 4
- PHY 203 General Physics 4
- PHY 211 General Physics (Calculus) 5
- PHY 212 General Physics (Calculus) 5
- PHY 213 General Physics (Calculus) 5

Introductory courses for pre-medical and pre-dental students and students in biology, geology and agriculture.

2These courses are suggested for students majoring in engineering, physics or chemistry.

Sign Language Studies

Sylvania Campus
Communications Technology Building B3
244-6111, ext. 4672 (V)
452-4951 (TTY/TDD)

Description: American Sign Language (ASL) is the language American Deaf people use when communicating with each other. Many American Deaf people are bilingual and also communicate using other sign systems and forms of English to accommodate hearing people who do not know their culture and preferred language. The Sign Language Studies courses are offered to people who are interested in studying American Sign
Language and American Deaf culture. The American Sign Language courses are offered for General Education credits as a modern language for students earning an Associate degree from Portland Community College.

These courses are intended for non-majors. ASL I is meant for people who do not know ASL. Only American Sign Language will be used in class; spoken English will not be allowed. The method of the courses involve the student in conversation using ASL. By the end of ASL V, students can function comfortably in a variety of situations in the Deaf community. No interpreting skills are included in this sequence; students will not be qualified to perform any interpreting services. Students will most likely continue their learning in the Deaf community, so it is important that students learn culturally sensitive behaviors which show awareness of and respect for Deaf people. Therefore, Deaf culture is included in the ASL curriculum through video taped presentations of native signers modeling appropriate language and cultural behaviors. This is reinforced by activities and readings. The required texts for these courses include video tapes which students are expected to view regularly. Video tape viewing equipment is available to students during posted hours in the Learning Resource Centers at each of the three campuses where these courses are offered.

Placement Services: Students who have prior sign language experience may complete a placement assessment to find out which course would be best for them before enrolling in courses more advanced than ITP 101. Sign Language Proficiency Interview (SLPI) assessments will be held just before and/or during registration. Call 244-6111 ext. 3221 for dates, times and locations of the next SLPI.

Sign Language Interpretation: For people interested in pursuing a career involving sign language, see the catalog description under Sign Language Interpretation (SLPI). One course listed below is required for entrance in the Sign Language Interpretation Program: ITP 130. Ability to use American Sign Language is also required before entering the SLPI. Successful completion of the Sign Language Studies courses may lead to the required ASL ability.

Course of Study:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITP 101</td>
<td>American Sign Language I</td>
<td>3</td>
</tr>
<tr>
<td>ITP 102</td>
<td>American Sign Language II</td>
<td>3</td>
</tr>
<tr>
<td>ITP 103</td>
<td>American Sign Language III</td>
<td>3</td>
</tr>
<tr>
<td>ITP 201</td>
<td>American Sign Language IV</td>
<td>3</td>
</tr>
<tr>
<td>ITP 202</td>
<td>American Sign Language V</td>
<td>3</td>
</tr>
<tr>
<td>ITP 130</td>
<td>Current Issues in Deafness</td>
<td>3</td>
</tr>
</tbody>
</table>

Social and Behavioral Sciences


The demand for people with business and technical skills is rising, but competencies other than specialized skills are also required to function in our society. No person exists in isolation. Social issues are unavoidable factors in human life. Social and behavioral scientists investigate what it means to be human and sketch ways to become human. Every moment of living is filled with opportunities for applying the ideas of the social sciences to the human condition. The social and behavioral science curricula enhance students' abilities to make the most of such opportunities. The classes offered by the Social Science Department are small, assuring the student of individualized instruction in the classroom. Students will also find their instructors readily available for individual conferences.

Students who take social and behavioral science courses have diverse personal experiences, dissimilar academic backgrounds, and distinct goals. Students include those taking courses before transferring to a four-year institution to complete a bachelor's degree, completing high school graduation requirements, fulfilling the general education requirements of the Associate of Applied Science Degree, or taking courses for personal enrichment.

Most public and private colleges and universities will accept up to 108 credit hours of lower division credit from Portland Community College. Students are advised to consult a counselor or departmental advisor concerning the degree requirements of a particular college or university. Students who plan to transfer to a state college or university may major in a specific area of study (political science, anthropology, etc.) or may pursue a program of general studies.

Program Prerequisites: A member of the Social Science and Behavioral Science Department or Counseling staff should be consulted with respect to the basic skills that are desirable for those enrolling in social and behavioral science courses. The transferability of credit depends upon the institution granting a four-year degree. Please contact the receiving institution, a PCC counselor, or a program staff member for specific transfer information.

Anthropology

Description: Anthropology is the study of people. In this discipline, people are considered in all their biological and cultural diversities, in the present as well as in the prehistoric past, and wherever people have existed. Students are introduced to the interaction between people and their environments to develop an appreciation of human adaptations past and present.

Anthropology can be a synthesizing focus for data from many fields of inquiry and has integral importance in preparing students to survive and play positive roles in our emergent trans-cultural world.

The general anthropology and cultural anthropology sequences are offered yearly. All other courses may be offered less frequently. The department suggests but does not require that students take cultural anthropology and field archeology in sequential order.

Program Prerequisites: See the prerequisites at the beginning of this section (Social Sciences). Also see the course descriptions section of this catalog for individual course prerequisites.

Anthropology Courses

ATH 101, ATH 102, ATH 103 - These are introductions to the major subfields of anthropology as required for anthropology majors at most colleges and universities. They are also prerequisite for many upper division courses in anthropology.

ATH 101 General Anthropology:

Physical - Human Origins & Diversity 3
## Geography

**Description:** Geography is concerned with the uniqueness of places. What makes one place unique and different from another? What are the factors and processes, both human and physical, that account for this uniqueness? Geography is not concerned with memorization of place names (capitals, rivers), lists of imports and exports or other statistical information.

**Program Prerequisites:** See the prerequisites at the beginning of this section (Social Sciences). Also see the course descriptions section of this catalog for individual course prerequisites.

**Geography Courses:**
- GEO 105 Intro to Human Cultural Geography 3
- GEO 106 Intro to Human Cultural Geography 3
- GEO 107 Intro to Human Cultural Geography 3
- GEO 206 Geography of Oregon 3
- GEO 208 Physical Geography: Geomorphology 3
- GEO 209 Physical Geography: Weather and Climate 3
- GEO 214 Geography of Mexico 3
- GEO 221 Field Geography: The Local Landscape 3
- GEO 280ACE: Geography - variable credit
- GEO 280BE: Geography - Seminar 2
- GEO 290 Environmental Problems 3
- GEO 298 Independent Study: Geography 3
- GEO 299 Special Studies: Geography 3

## History

**Description:** The study of history enables individuals to think historically and to analyze cause and effect relationships in human affairs. It provides insights on daily events as well as on the broader human condition. The more that people understand about their past, the greater their perspective becomes and the more likely the present is to make sense. History is the only study of people that includes the time dimension. It is, in a way, a family's story - the story of the human race. Not all of the courses are offered every year.

**Program Prerequisites:** See the prerequisites at the beginning of this section (Social Sciences). Also see the course descriptions section of this catalog for individual course prerequisites.

**History Courses:**
- HST 101 Western Civilization: Ancient World to 1200 3
- HST 102 Western Civilization: 1200-1789 3
- HST 103 Western Civilization: 1789 to the Present 3
- HST 104 Hist East Civ: Middle East 3
- HST 105 History of Eastern Civilization: India and Subcontinent 3
- HST 106 Hist East Civ: Far East 3
- HST 199A The Lewis and Clark Expedition 3
- HST 199B History of the Mid-Columbia Area 3
- HST 201 History of the United States: Colonial Period to 1840 3
- HST 202 History of the United States: 1840 to 1914 3
- HST 203 History of the United States: 1914 to Present 3
- HST 204 Hist Women-U.S.: Colonial/1865 3
- HST 205 History Women U.S.: 1865/Present 3
- HST 218 Native American Indian History 3
- HST 220 Labor History 3
- HST 225 History of Women, Sex, and the Family 3

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**Economics Courses:**
- EC 115 Outlines of Economics 3
- EC 200 Principles of Economics: Intro, Institutions & Philosophies 3
- EC 201 Principles of Economics: Microeconomics 3
- EC 202 Principles of Economics: Macroeconomics 3
- EC 203 Principles of Economics: Applications to Economic Issues 3
- EC 216 Introduction to Labor Economics 3
- EC 230 Contemporary World Economic Issues: International Economics 3
- EC 280A CE: Economics - variable credit
- EC 280B CE: Economics - Seminar 1
- EC 298 Independent Study: Economics 3
- EC 299 Special Studies: Economics 3

Students wishing to complete a sequence, have a choice of beginning with EC 200 or EC 201, but must complete nine hours including EC 201 Microeconomics and EC 203 Applications to Economic Issues.

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**Transfer Courses and Programs**

<table>
<thead>
<tr>
<th>Transfer Courses and Programs</th>
<th>Fall Term 1994 — Summer Term 1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATH 102 General Anthropology: Archeology - Prehistoric Cultures 3</td>
<td></td>
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<tr>
<td>ATH 103 General Anthropology: Cultural - Contemporary Peoples 3</td>
<td></td>
</tr>
<tr>
<td>ATH 207, ATH 208 and ATH 209: Three courses designed for those students who wish to explore and understand the diversity of human socio-cultural behavior from the anthropological perspective. These courses are designed to enable students to use the methods and perspectives of cultural anthropology to organize and explain their own observations of human cultural behavior. Students will be encouraged to examine the potential application of the anthropological perspective and knowledge to other fields of interest or careers they have chosen. These courses satisfy the block transfer requirements at most colleges and universities.</td>
<td></td>
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<tr>
<td>ATH 207 Cultural Anthropology: Culture Concepts 3</td>
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<tr>
<td>ATH 208 Cultural Anthropology: Cultures of the World 3</td>
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<tr>
<td>ATH 209 Cultural Anthropology: Cultural Growth &amp; Change 3</td>
<td></td>
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<tr>
<td>ATH 210 Selected Topics in Ethnography 3</td>
<td></td>
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<tr>
<td>ATH 214 Human Environments: Ecological Aspects 3</td>
<td></td>
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<tr>
<td>ATH 215 Human Environments: Energy Consideration 3</td>
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<td>ATH 216 Human Environments: Productivity 3</td>
<td></td>
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<tr>
<td>ATH 230 Native Americans of Oregon 3</td>
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<td>ATH 231 Native Americans of the Northwest 3</td>
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<tr>
<td>ATH 232 Native North Americans 3</td>
<td></td>
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<tr>
<td>ATH 280ACE: Anthropology - variable credit</td>
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<td>ATH 298 Independent Study: Anthropology - Seminar 1</td>
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<td>ATH 298 Independent Study: Anthropology 3</td>
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<tr>
<td>ATH 299 Special Studies: Anthropology 3</td>
<td></td>
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<tr>
<td>ATH 299F Special Studies: Cultural Anthropology Through Film 3</td>
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</tbody>
</table>

**Economics**

**Description:** Economics is the study of mankind in the ordinary "business of life." It examines individual and social action related to the use of limited resources toward the production, distribution and consumption of goods and services.

**Program Prerequisites:** See the prerequisites at the beginning of this section (Social Sciences).

**Economics Courses:**
- EC 115 Outlines of Economics 3
- EC 200 Principles of Economics: Intro, Institutions & Philosophies 3
- EC 201 Principles of Economics: Microeconomics 3
- EC 202 Principles of Economics: Macroeconomics 3
- EC 203 Principles of Economics: Applications to Economic Issues 3
- EC 216 Introduction to Labor Economics 3
- EC 230 Contemporary World Economic Issues: International Economics 3
- EC 280A CE: Economics - variable credit
- EC 280B CE: Economics - Seminar 1
- EC 298 Independent Study: Economics 3
- EC 299 Special Studies: Economics 3

Students wishing to complete a sequence, have a choice of beginning with EC 200 or EC 201, but must complete nine hours including EC 201 Microeconomics and EC 203 Applications to Economic Issues.
### Fall Term 1994 — Summer Term 1995

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>HST 240</td>
<td>Oregon's Social History</td>
<td>3</td>
</tr>
<tr>
<td>HST 246</td>
<td>Religion in the United States to 1840</td>
<td>3</td>
</tr>
<tr>
<td>HST 247</td>
<td>Religion in the United States Since 1840</td>
<td>3</td>
</tr>
<tr>
<td>HST 274</td>
<td>African Origins to 1877</td>
<td>3</td>
</tr>
<tr>
<td>HST 275</td>
<td>Afro-American History: 1877 to 1932</td>
<td>3</td>
</tr>
<tr>
<td>HST 276</td>
<td>Afro-American History: 1933 to Present</td>
<td>3</td>
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<tr>
<td>HST 277</td>
<td>Oregon Trail</td>
<td>3</td>
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<tr>
<td>HST 280A</td>
<td>CE: History - variable credit</td>
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<tr>
<td>HST 280B</td>
<td>CE: History - Seminar</td>
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<tr>
<td>HST 298</td>
<td>Independent Study: History</td>
<td>3</td>
</tr>
<tr>
<td>HST 299</td>
<td>Special Studies: History</td>
<td>3</td>
</tr>
</tbody>
</table>

### Transfer Courses and Programs

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third Term</td>
<td>HST 103</td>
<td>Western Civilization: 1789 to the Present</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ATH 209</td>
<td>Cultural Anthropology: Cultural Growth &amp; Change</td>
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<tr>
<td></td>
<td>GEO 107</td>
<td>Intro to Human Cultural Geography</td>
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<td></td>
<td>Electives</td>
<td></td>
<td>4</td>
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<tr>
<td>Fourth Term</td>
<td>PS 205</td>
<td>International Relations</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EC 230</td>
<td>Contemporary World Economic Issues:</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>International Economics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Fifth Term</td>
<td>PS 220</td>
<td>American Foreign Policy and World Order</td>
<td>3</td>
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<tr>
<td></td>
<td>BA 203</td>
<td>Introduction to International Business</td>
<td>3</td>
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<tr>
<td></td>
<td>Electives</td>
<td></td>
<td>8</td>
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<tr>
<td>Sixth Term</td>
<td>PS 225</td>
<td>Political Ideology</td>
<td>3</td>
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<tr>
<td></td>
<td>GEO 214</td>
<td>Geography of Mexico</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
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<td>8</td>
</tr>
</tbody>
</table>

1 Students seeking the Associate of Arts Degree are expected to take 24 credit hours of transferable courses in the same foreign language. Students seeking the Associate of Science Degree may substitute at least 9 credit hours of transferable courses in other areas of the humanities for this requirement. All students must complete a sequence of 12 credit hours of transferable courses in either science or mathematics. Electives may include physical education and health requirements. These requirements vary among universities.

### Peace and Conflict Studies (PACS)

**Career Description:** The PACS program is flexibly designed to satisfy the different needs of Portland Community College students, teaching and other professionals, and the general public.

Objectives include providing a multi-disciplinary means of exploring the structural causes and manifestations of violence in self, in society, in nation-states, and in the global community, and to consider alternatives to violent resolution of conflict. Those enrolled are encouraged to study, design, and participate in social and political structures that nurture peace and security, human rights and justice, racial and gender equality, environmental stability, economic equity, and responsible communication.

**Program Prerequisites:** See course descriptions, as they are listed by department for a statement on individual course prerequisites.

**Course of Study:** PACS courses may be taken on any PCC campus with credit being given for some courses completed elsewhere. Students considering an Associate of Arts or Associate of Science degree should take care to satisfy all requirements relating to their degree. PACS courses for which PACS credit is granted are transferable to most colleges and universities in the United States. Students who plan to transfer to a state college or university in Oregon are encouraged to complete course sequences to satisfy General Education requirements. Prior to enrolling, students should consult the receiving college or university and a program advisor concerning the transferability of credits. For more information contact the Portland Community College Social Science department, 244-6111, ext. 4289.
PACS Certificate Program Requirements
A minimum of 27 credit hours, including:
1. at least 4 credit hours in the required courses
2. at least 3 credit hours in each of the five course categories
3. at least 9 credit hours from courses taken outside of the Social Sciences
4. no more than 9 credit hours from any one subject area discipline

Required Courses in Peace and Conflict:
PS 211 Peace and Conflict 3

Any Social Science 20A CE: Peace and Conflict (1-9 credits)

I. Personal to Societal Peace and Conflict:
ATH 203 General Anthropology: Cultural - Contemporary Peoples 3
HST 103 History of the United States: 1789 to the Present 3
PHL 202 Introduction to Philosophy: Elementary Ethics 3
PSY 101 Psychology and Human Relations 3
SOC 206 Gen Soc: Social Problems - Conformity and Deviance 3

II. Race, Gender, and Peace and Conflict Issues:
ENG 211 Contemporary African Literature 3
ENG 212 Biography 3
ENG 240 Intro to Native American Literature 3
ENG 260 Intro to Women Writers 3
HST 218 Native American Indian History 3
HST 225 History of Women, Sex, and the Family 3
HST 276 Afro-American History: 1933 to Present 3

III. Environmental and Ecological Peace and Conflict:
ATH 214 Human Environments: Ecological Aspects 3
ATH 215 Human Environments: Energy Consideration 3
CET 234 Environmental Systems Design 3
CET 221 Hydrology and Hazardous Waste 3
GEO 105 Intro to Human Cultural Geography 3
GEO 106 Intro to Human Cultural Geography 3

IV. Global Peace and Conflict:
EC 230 Contemporary World Economic Issues: International Economics 3
ENG 265 International Political Poetry 3
GEO 107 Intro to Human Cultural Geography 3
PS 205 International Relations 3
PS 220 American Foreign Policy and World Order 3
PS 225 Political Ideology 3

V. Communication: Peace and Conflict:
PHL 191 Critical Thinking: Language and the Layout of Argument 3
PHL 193 Critical Thinking: The Evaluation of Practical Argument 3
SP 100 Introduction to Speech Communication 3
SP 105 Listening 3

Other Electives:
ATH 207 Cultural Anthropology: Culture Concepts 3
ATH 208 Cultural Anthropology: Cultures of the World 3
ATH 209 Cultural Anthropology: Cultural Growth & Change 3
ATH 216 Human Environments: Productivity 3

CJA 218 Criminal Justice Perspectives of Violence & Aggression 3
EC 201 Principles of Economics: Microeconomics 3
ENG 212 Biography 3
ENG 261 Literature of Science Fiction 3
HST 103 Western Civilization: 1789 to the Present 3
HST 104 Hist East Civ: Middle East 3
HST 105 History of Eastern Civilization: India and Subcontinent 3
HST 106 Hist East Civ: Far East 3
HST 220 Labor History 3
PHL 197 Critical Thinking: Television & The Presentation of Reality 3
SOC 204 General Sociology: Sociology in Everyday Life 3
SOC 299 Special Studies: Social Issues and Movements 3
SP 214 Interpersonal Communication: Process & Theory 3
SP 215 Small Group Communication: Process & Theory 3

NOTE: Other courses, or even sections of some courses, may also be available for PACS Certificate credit. Consult a PACS program advisor for the most up-to-date information relating to your plans to earn the certificate.

Philosophy

Description: Philosophers ask and attempt to answer fundamental questions about ourselves and the world. What is real? What can be known? How should we live our lives? What is the nature of human nature? What distinguishes logic from illogic? Philosophy courses will look at the answers given to such questions by major historical figures and will help the student to learn how to think critically about issues of the sort raised by these questions. Philosophy courses need not be taken in sequence and any three courses constitute a sequence for purposes of graduation. All philosophy courses are transferable to Portland State University, Oregon State University and the University of Oregon.

Program Prerequisites: See the prerequisites at the beginning of this section (Social Sciences). Also see the course descriptions section of this catalog for individual course prerequisites.

Philosophy Courses:
PHL 191 Critical Thinking: Language and the Layout of Argument 3
PHL 193 Critical Thinking: The Evaluation of Practical Argument 3
PHL 195 Critical Thinking: Science and the Occult 3
PHL 197 Critical Thinking: Television & The Presentation of Reality 3
PHL 201 Introduction to Philosophy: Philosophical Problems 3
PHL 202 Introduction to Philosophy: Elementary Ethics 3
PHL 204 Philosophy of Religion 3
PHL 205 Contemporary Moral Problems: Biomedical Ethics 3
PHL 208 Political Philosophy 3
PHL 209 Business Ethics 3
PHL 221 Symbolic Logic 3
PHL 222 Elementary Aesthetics: Philosophy of Art 3
PHL 298 Independent Study: Philosophy 3
PHL 299 Special Studies: Philosophy 3
Political Science

Description: Political Science focuses upon politics and political systems and the behavior of people within political systems. At PCC, primary emphasis is on American government, the constitutional background of American politics, political parties, interest groups, elections, Congress, the Presidency, the Supreme Court, domestic and foreign policies. In addition, PCC offers international relations, American foreign policy and political ideology.

Program Prerequisites: See the prerequisites at the beginning of this section (Social Sciences). Also, see the course descriptions section of this catalog for individual course prerequisites.

Political Science Courses:

- PSY 240 Interpersonal Awareness 3
- PSY 239 Introduction to Abnormal Psychology 3
- PSY 232 Human Sexuality 3
- PSY 231 Human Sexuality 3
- PSY 220 Psychology: Applied 3
- PSY 216 Social Psychology 3
- PSY 215 Human Development 3
- PSY 214 Introduction to Personality 3
- PSY 213 Brain, Mind & Behavior 3
- PSY 211 Peace and Conflict 3
- PSY 220 American Foreign Policy and World Order 3
- PSY 225 Political Ideology 3
- PSY 280A CE: Political Science - variable credit
- PSY 280B CE: Political Science - Seminar 2
- PSY 298 Independent Study: Political Science 3
- PSY 299A Special Studies: Political Science 3

Psychology

Description: Psychology is the scientific study of behavior and mental processes. Psychologists investigate how the individual's immediate environment, as well as how the individual's past experience and physiological makeup influence current thoughts and behavior.

Program Prerequisites: See the prerequisites at the beginning of this section (Social Sciences). Also, see the course descriptions section of this catalog for individual course prerequisites.

Psychology Courses:

- PSY 101 Psychology and Human Relations 3
- PSY 190 Stress Management 3
- PSY 201 General Psychology 3
- PSY 202 General Psychology 3
- PSY 203 General Psychology 3
- PSY 213 Brain, Mind & Behavior 3
- PSY 214 Introduction to Personality 3
- PSY 215 Human Development 3
- PSY 216 Social Psychology 3
- PSY 220 Psychology: Applied 3
- PSY 231 Human Sexuality 3
- PSY 232 Human Sexuality 3
- PSY 239 Introduction to Abnormal Psychology 3
- PSY 240 Interpersonal Awareness & Growth Techniques 3
- PSY 280A CE: Psychology - Worksite Placement-variable credit
- PSY 280B CE: Psychology - Seminar 1— 2
- PSY 298 Independent Study: Psychology 3
- PSY 299A Special Studies: Psychology 3

Sociology

Description: Sociology is the study of human social behavior. It is the scientific study of human interaction with a focus on human group life. The general sociology series SOC 204, SOC 205 and SOC 206 introduces the student to basic knowledge, concepts, theory and research in sociology. It is recommended, but not required, that the courses be taken in sequence. The general sociology series is a prerequisite for all upper division sociology courses.

Program Prerequisites: See the prerequisites at the beginning of this section (Social Sciences). Also, see the course descriptions section of this catalog for individual course prerequisites.

Sociology Courses:

- SOC 204 General Sociology: Sociology in Everyday Life 3
- SOC 206 Gen Soc: Social Problems - Conformity and Deviance 3
- SOC 218 Sociology of Gender 3
- SOC 232 Death and Dying: Culture and Issues 3
- SOC 240 Sociology of Work & Leisure 3
- SOC 280ACE: Sociology - variable credit
- SOC 280B CE: Sociology - Seminar 1— 2
- SOC 298 Independent Study: Sociology 3
- SOC 299 Special Studies: Social Issues and Movements 3
- SOC 299A Special Studies 3
- SOC 299B Special Studies: Sociology - The American Male 3

Speech Communication

Description: Speech Communication offers a wide variety of classes for students. A full two-year transfer program for speech communication majors is available.

Students may choose from the comprehensive selection of courses which will fulfill the requirements for an associate of arts degree in speech communication. These courses may also fulfill General Education requirements for the associate of applied science and associate of general studies degrees.

Classes in interpersonal communication and public speaking can result in personal enrichment and increased skills for students. Class size is relatively small and class structure largely informal, allowing maximum interaction between students and faculty.

Transitional classes which may or may not be transferable are also available for those students with limited communication skills. If the transferability of credit is a concern, check with the receiving institution prior to enrolling. Consult a Speech Communication Department advisor for more information. The speech courses are in the categories listed below:

Transitional
Several classes are designed for students with limited communication skills. Classes in speaking and listening are available for those who may need improvement. If transferability of these courses is a concern, students should check with the institution to which they are planning to transfer. These classes include:

- SP 101 Oral Communication Skills
- SP 105 Listening
- SP 110 Fundamentals of Voice and Articulation
Forensics
A forensics program is open to all students who wish to participate in intercollegiate competition. Meets are held primarily in the Northwest, with occasional travel beyond. The Speech Communication Department has a full selection of competitive activities appropriate for all levels. Novice and junior divisions can challenge the beginner. Senior division is available for the experienced competitor. In addition to the standard Lincoln-Douglas and cross-examination debates, the college participates in oratory, extemporeneous, impromptu, expository, radio and oral interpretation events. Students may serve as judges at various high school and collegiate meets. Furthermore, noncompetitive programs allow students to speak before high school or college audiences and in front of various civic groups. The forensics course is SP 270, Projects in Public Speaking.

Interpersonal: Theory And Process
Interpersonal classes are designed to give students a more complete understanding of the communication process in their daily lives. The emphasis is on face-to-face communication. Personal improvement in a variety of interpersonal skills is stressed. These classes include:
- SP 100 Introduction to Speech Communication
- SP 140 Introduction to Intercultural Communication
- SP 214 Interpersonal Communication: Process & Theory
- SP 215 Small Group Communication: Process & Theory
- SP 227 Nonverbal Communication

Performance Classes
Performance classes include a series of public speaking courses, voice and diction, and oral interpretation of literature. These classes are designed to improve delivery skills and to reduce speech-making anxiety. Organization of ideas, critical thinking and delivery are stressed. These classes include:
- SP 111 Fundamentals of Speech
- SP 112 Fund Speech: Persuasive Speaking
- SP 113 Fund Speech: Argumentation & Debate
- SP 300 Business & Professional Speech Communication
- SP 212 Voice & Diction
- SP 217 Theories of Persuasion
- SP 229 Oral Interpretation

Program Prerequisites: See the course descriptions section of this catalog for statements on the prerequisites for individual speech courses.

Speech Courses:
- SP 100 Introduction to Speech Communication 3
- SP 101 Oral Communication Skills 3
- SP 105 Listening 3
- SP 110 Fundamentals of Voice and Articulation 3
- SP 111 Fundamentals of Speech 3
- SP 112 Fund Speech: Persuasive Speaking 3
- SP 113 Fund Speech: Argument/Debate 3
- SP 130 Business & Professional Speech Communication 3
- SP 140 Introduction to Intercultural Communication 3
- SP 212 Voice & Diction 3
- SP 214 Interpersonal Communication: Process & Theory 3
- SP 215 Small Group Communication: Process & Theory 3
- SP 217 Theories of Persuasion 3
- SP 227 Nonverbal Communication 3
- SP 229 Oral Interpretation 3
- SP 270A Projects in Public Speaking 3
- SP 270B Projects in Public Speaking 3
- SP 270C Projects in Public Speaking 3
- SP 299 Special Studies: Speech/Communication 3

Theater Arts
Cascade Campus
Cascade Hall B-37
244-6111, ext. 5250
Sylvania Campus
Performing Arts Center, Room 108
244-6111, ext. 4323

Description: The Theater Arts Department offers a variety of courses for majors and non-majors in both performing and nonperforming aspects of theater. A two-year associate of arts degree is available for theater arts majors.

Program Prerequisites: Pass a writing placement examination at a level that permits admission to WR 121.

Course of Study: Students may select courses from the program to fulfill requirements for an Associate of Arts degree in addition to completing the transfer requirements. Classes are oriented toward individual projects as well as group activity and are relaxed to allow a creative environment.

Introductory Courses: Two classes are offered as an introduction to theater. They are designed for students who wish to explore the area and for experienced students who wish to improve and expand their skills and knowledge. Both courses are transfer level, but if this is a concern to students, they should verify transferability with the institution to which they are planning to transfer. These courses are TA 101 Theatre Appreciation and TA 111 Fundamentals of Technical Theater.

Performance Courses: Several performance classes are offered for both beginning and advanced students. These courses are designed to help the student feel more relaxed in front of an audience as well as to improve performance skills and creativity. The courses are TA 141, 142, and 143 Fundamentals of Acting Technique, TA 155 Readers Theatre, TA 144 Improvisational Theater, TA 148 Movement for the Stage and TA 240 Beginning Pantomime. Advanced acting classes TA 241, 242 and 243 are usually offered every other year.

Technical Courses: Courses are offered for students interested in backstage work. They are designed for both technically oriented students and performance students who wish to expand their understanding of the entire theatrical process. Classes are organized to include individualized "hands-on" projects so that students may practice their skills by using equipment and supplies. TA 111 Fundamentals of Technical Theatre is an introductory and overview class. Additional courses are TA 112 Introduction to Set Design, TA 113 Introduction to Stage Lighting, TA 227 Stage Make-up, and TA 261 Introduction to Costuming.
Special Projects: Transfer credit courses are offered to students who wish to participate in school productions as well as for individualized performances. Roles are open to any student by auditioning. Productions are mounted each year, and all students interested (regardless of major field of study) are encouraged to audition and will be given equal consideration. In order to allow flexibility, credit for special projects may be given to either performing or non-performing students by special arrangements with a theater arts instructor. The courses are TA 180A and TA 253A, TA 253B, TA 253C Theater Rehearsal and Performance and TA 190A and TA 290A Projects in Theater.

Theater Arts Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA 101</td>
<td>Theater Appreciation</td>
<td>3</td>
</tr>
<tr>
<td>TA 111</td>
<td>Fundamentals of Technical Theater</td>
<td>4</td>
</tr>
<tr>
<td>TA 112</td>
<td>Introduction to Set Design</td>
<td>3</td>
</tr>
<tr>
<td>TA 113</td>
<td>Introduction to Stage Lighting</td>
<td>3</td>
</tr>
<tr>
<td>TA 141</td>
<td>Fundamentals of Acting Techniques</td>
<td>3</td>
</tr>
<tr>
<td>TA 142</td>
<td>Fundamentals of Acting Techniques</td>
<td>3</td>
</tr>
<tr>
<td>TA 143</td>
<td>Fundamentals of Acting Techniques</td>
<td>3</td>
</tr>
<tr>
<td>TA 144</td>
<td>Improvisational Theater</td>
<td>3</td>
</tr>
<tr>
<td>TA 148</td>
<td>Movement for the Stage</td>
<td>3</td>
</tr>
<tr>
<td>TA 155</td>
<td>Readers Theater</td>
<td>3</td>
</tr>
<tr>
<td>TA 180A</td>
<td>Theater Rehearsal and Performance</td>
<td>3</td>
</tr>
<tr>
<td>TA 180B</td>
<td>Theater Rehearsal and Performance</td>
<td>2</td>
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<tr>
<td>TA 180C</td>
<td>Theater Rehearsal and Performance</td>
<td>1</td>
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<tr>
<td>TA 190A</td>
<td>Projects in Theater</td>
<td>3</td>
</tr>
<tr>
<td>TA 190B</td>
<td>Projects in Theater</td>
<td>2</td>
</tr>
<tr>
<td>TA 190C</td>
<td>Projects in Theater</td>
<td>1</td>
</tr>
<tr>
<td>TA 227</td>
<td>Stage Make-up</td>
<td>3</td>
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<tr>
<td>TA 240</td>
<td>Beginning Pantomime</td>
<td>3</td>
</tr>
<tr>
<td>TA 241</td>
<td>Intermediate Acting Technique</td>
<td>3</td>
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<tr>
<td>TA 242</td>
<td>Intermediate Acting Technique</td>
<td>3</td>
</tr>
<tr>
<td>TA 243</td>
<td>Intermediate Acting Techniques</td>
<td>3</td>
</tr>
<tr>
<td>TA 253A</td>
<td>Theater Rehearsal and Performance</td>
<td>3</td>
</tr>
<tr>
<td>TA 253B</td>
<td>Theater Rehearsal and Performance</td>
<td>2</td>
</tr>
<tr>
<td>TA 253C</td>
<td>Theater Rehearsal and Performance</td>
<td>1</td>
</tr>
<tr>
<td>TA 261</td>
<td>Introduction to Costuming</td>
<td>3</td>
</tr>
<tr>
<td>TA 290A</td>
<td>Projects in Theater</td>
<td>3</td>
</tr>
<tr>
<td>TA 290B</td>
<td>Projects in Theater</td>
<td>2</td>
</tr>
<tr>
<td>TA 290C</td>
<td>Projects in Theater</td>
<td>1</td>
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</tbody>
</table>

English Composition: The English Composition program provides a range of transfer writing courses designed to prepare students for the written work of upper division and graduate education. It also meets the writing requirements of several associate degree and certificate programs in the college. For most transfer students, WR 121 or WR 214 and WR 123 or WR 227 will satisfy the writing course requirements of Oregon's four-year colleges and universities. Students are required to take the writing placement examination to determine appropriate placement in a writing course. WR 115 Introduction to Expository Writing is designed for students needing basic skill preparation. WR 216 Advanced Composition is designed for students who would like to develop writing skills beyond the skills developed in the other writing courses. After taking the placement examination, students should check with an advisor or counselor before enrolling in a writing course.

Manuscript form for composition courses will vary slightly among instructors; however, students may be required, by the middle of WR 115, to submit typed manuscripts which follow the instructor's guidelines.

Business and Technical Writing: Students majoring in technical areas or business are either required or encouraged to take one or both of the following courses: WR 214 Business Communications and WR 227 Technical Writing I.

Creative Writing: The PCC Creative Writing subject area offers the student one of the largest selections of creative writing courses in the state. There are no prerequisites for any of the three introductory classes, and all are offered for three transferable credit hours.

The creative writing faculty recommends that students who register for creative writing courses be able to adhere to the standard conventions of spelling and grammar and have reading skills that are at the WR 121 level.

Each instructor has a unique approach to creative writing, but the student can count on studying critical terminology, and spending most of the class sessions discussing each student's creative work.

Program Prerequisites: Students are required to take the writing placement examination to determine appropriate placement in a writing course. After taking the placement examination, students should check with an advisor or counselor before enrolling in a writing course. Writing placement tests may be taken at the Testing Centers at Cascade, Rock Creek, Southeast Center or Sylvania.

Writing Transfer Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR 115</td>
<td>Introduction to Expository Writing</td>
<td>3</td>
</tr>
<tr>
<td>WR 121</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>WR 122</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>WR 123</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>WR 185</td>
<td>English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>WR 214</td>
<td>Business Communications</td>
<td>3</td>
</tr>
<tr>
<td>WR 216</td>
<td>Advanced Composition</td>
<td>3</td>
</tr>
<tr>
<td>WR 227</td>
<td>Technical Writing I</td>
<td>3</td>
</tr>
<tr>
<td>WR 241</td>
<td>Creative Writing (Fiction)</td>
<td>3</td>
</tr>
<tr>
<td>WR 242</td>
<td>Creative Writing (Poetry)</td>
<td>3</td>
</tr>
<tr>
<td>WR 243</td>
<td>Creative Writing (Script Writing)</td>
<td>3</td>
</tr>
<tr>
<td>WR 244</td>
<td>Advanced Creative Writing - Fiction</td>
<td>3</td>
</tr>
<tr>
<td>WR 245</td>
<td>Advanced Creative Writing - Poetry</td>
<td>3</td>
</tr>
<tr>
<td>WR 246</td>
<td>Advanced Creative Writing (Editing and Publishing)</td>
<td>3</td>
</tr>
</tbody>
</table>

Writing Transfer: Non-transfer developmental writing and writing support courses may be found in the Support Courses and Programs section of this catalog. A description of PCC's Technical Writing program may be found in the Career Courses and Programs section of this catalog.

Description: Writing transfer courses are offered under the subject headings of English Composition, Business and Technical Writing, and Creative Writing.

Note: Paper conferences are an integral part of the instructional process in ALL writing courses and students should anticipate at least two conferences each quarter.
Fall Term 1994 — Summer Term 1995

COURSE DESCRIPTIONS

Portland Community College is committed to offering instruction that provides students with the opportunity for self improvement, entry level employment skills, and to complete the first two years of a baccalaureate degree. The following course prefixes describe the primary intent of the courses offered:

Support Courses
DE: Developmental Education
ALC: Alternative Learning Center
ESL: English as a Second Language
ABE: Adult Basic Education
GED: General Equivalency Degree

Professional/Technical Courses*
AB: Auto Collision Repair Technology
AD: Alcohol and Drug Counselor
ADT: Architectural Drafting Technology
AM: Automotive Service Technology
AMT: Aviation Maintenance Technology
BCT: Building Construction Technology
BT: Business Technology
CJ: Career Education
CIM: Computer Integrated Manufacturing Technology
CIS: Computer Information Systems
CJA: Criminal Justice Careers
CT: Computer Technology
DA: Dental Assisting
DH: Dental Hygiene
DRF: Drafting Technology
DS: Diesel Service Technology
ET: Electrical Engineering Technology
ETP: Electronic Technology
E2P: Electronic Technology
ED: Education
EDO: Emergency Dispatch Operator - 911
EL: Electronic Service Technology
EMT: Emergency Medical Technology
FN: Dietetic Technology
FP: Fire Protection
GD: Graphic Design
HEC: Consumer and Family Studies
ID: Interior Design
ITP: Sign Language Interpretation
IVP: Video Production Internship
LA: Legal Assistant
LAT: Landscape Technology
MCH: Machine Manufacturing Technology
MET: Mechanical Engineering Technology
MFG: Manufacturing Enterprise Technology
MLT: Medical Laboratory Technology
MOA: Medical Office Assisting
MRT: Medical Records Technology
MT: Microelectronic Technology
MSA: Management and Professional Development
MUS: Music
NUR: Nursing
OMT: Ophthalmic Medical Technology
OT: Opticianry
PT: Printing Technology
RAD: Radiologic Technology
RE: Real Estate
SON: Sonography
TE: Trade Extension
VS: Veterinary Science
WLD: Welding

*Many professional/technical courses are applicable to the baccalaureate degree. Check with the BA-granting institution.

Lower Division Collegiate Courses
(first two years of the baccalaureate degree)
ART: Art
ATH: Anthropology
BA: Business Administration
BI: Biology
CG: Counseling and Guidance
CH: Chemistry
CS: Computer Science
CSS: Crop Soil Science
D: Dance
EC: Economics
EET: Electronic Engineering Technology
ENG: English
ENL: English as a Non-Native Language
FR: French
G: Geology
GE: General Engineering
GEO: Geography
GER: German
GS: General Science
HE: Health
HOR: Horticulture
HST: History
J: Journalism
JPN: Japanese
MFG: Manufacturing Engineering Technology
MTH: Mathematics
MUS: Music
PE: Physical Education
PHIL: Philosophy
PHY: Physics
PS: Political Science
PSY: Psychology
RD: Reading
RUS: Russian
SOC: Sociology
SP: Speech
SPA: Spanish
TA: Theater Arts
WR: Writing

A number below 100 indicates a support course, which is usually not transferable to a BA-granting institution.
**Course Descriptions**

**AB - Auto Collision Repair Technology**

AB 23 Introduction to Auto Collision Repair, 1 cr.—This class will cover hands-on small dent repair using metal finishing techniques and plastic filler. The safe use of materials and equipment will be stressed throughout the class. This class will be offered to high school students exclusively to introduce them to the auto collision industry and our program.

AB 101 AB Basic Skills I, 6 cr.—Introduces students to the safe use of Base coat/Clear coat, Pearl coat, and Tn-coat urethane systems. Emphasis is on spot repair, color matching, and blending with urethane base coats. Covers masking techniques.

AB 102 AB Basic Skills II, 6 cr.—Develops the use and maintenance of MIG Welders as applied to auto body repair. Covers the repair of auto body metals. Small dents are reshaped to their original contour and damage analysis is discussed.

AB 103 Panel Repair I, 6 cr.—This course is to develop skill in the repair of small dents. Safe use of grinders, sanders, and assorted hand tools will be practiced. Paint preparation is also discussed.

AB 104 Panel Repair II, 6 cr.—This course introduces students to the use of pulling equipment, plus skills learned in AB 103 will be applied to live projects. Damage estimating will be incorporated with the repair projects.

AB 105 Frame Analysis & Repair, 12 cr.—Covers structural misalignment analysis, use of measuring systems, structural repair procedures, and wheel alignment.

AB 110 Auto Painting IA, 6 cr.—This course introduces the student to the care and use of all paint equipment, shop safety and surface preparation for solid color materials. Emphasis is on urethane undercoats, spot repair, color matching, and blending with urethane base coat. Masking techniques are also covered.

AB 111 Auto Painting IB, 6 cr.—Introduces the care and use of all paint equipment, shop safety and surface preparation for metallic color materials. Emphasizes urethane undercoat, spot repair, color matching, and blending with urethane base coat. Covers masking techniques.

AB 112 Auto Painting IIA, 6 cr.—Students are introduced to the safe use of solid color enamel and single stage urethane systems. Emphasis is on spot repair, color matching and blending. Surface preparation and proper masking techniques for these products are also covered.

AB 113 Auto Painting IIB, 6 cr.—Introduces the safe use of metallic enamel and single stage metallic urethane systems. Emphasizes spot repair, color matching and blending. Covers surface preparation and proper masking techniques for these products.

AB 114 Auto Painting IIIA, 6 cr.—Students are introduced to the safe use of Base coat/Clear coat, Pearl coat, and Tn-coat urethane systems. Emphasis is on spot repair, color matching and blending. Surface preparation and proper masking techniques for these products are also covered.

AB 115 Auto Painting IIIB, 6 cr.—Review and practice all previously learned painting skills on customer and school-owned cars.

AB 121 Estimating, 3 cr.—Insurance coverage pertaining to collision repair. Use of the Crash Estimating Guide and figure estimates on minor and major damage is covered.

AB 201 Panel Replacement, 12 cr.—Covers replacing new and used weld on panels, such as rocker panels, quarter panels and rear body panels. Includes preparation and installation of cosmetic and structural weld on panels.

AB 202 Auto Body Technical Skills, 6 cr.—Prerequisite: AB 101, AB 103, AB 105, and AB 201. Focuses on refining technical skills for diagnosing damage to auto electronic components, anti-lock brakes, air bags and sensors, and front drive components. Includes current regulations and safety for air conditioning, plastic repair, hazardous wastes, and right-to-know laws, plus summary of estimation collision damage.

AB 203 Complete Collision Repair, 6 cr.—Prerequisite: AB 101, AB 103, AB 105, and AB 201. Allows students to apply their skills to repair a variety of damage on a vehicle involved in a single collision. It is designed to simulate an actual type of repair in a collision facility.

AB 204 General Shop, 12 cr.—Previously learned auto body skills are reviewed and practiced on customer and/or school-owned vehicles. May also be a work experience class, done in an approved, supervised auto body repair facility.

AB 280A CE: Auto Body Repair I, 10 cr.—Focuses on demonstrating knowledge of auto body repair. Students observe and obtain hands-on experience matching their learning objectives. Credits are determined by total clock hours student spends on site during the term. Must be coordinated with supervisor, instructor, and cooperative education specialist.

AB 280B CE: Auto Body Repair - Sem I, 2 cr.—Prerequisite: department permission. Provides opportunity to share work experiences and receive feedback from students and instructors.

AB 280C CE: Auto Body Paint I, 10 cr.—Prerequisite: department permission. Students are placed in a department-approved work setting where they receive as varied and complete an experience as possible in an on-the-job setting. Must work 40 hours for each credit earned. The Optional seminar provides opportunity to share experiences with other students and instructors.

AB 9120 Auto Body Restoration, 4 cr.—Reformats current class structure to give students a better overall background in Auto Body Restoration, using structured modules, in a self-paced individualized workshop lab.

**AD - Alcohol and Drug Counselor**

AD 101 Alcohol Use and Addiction, 3 cr.—Basic overview of addiction with emphasis on alcohol addiction. A broad range of topics will be considered: physiology, psychology, denial, intervention, treatment, prevention, recovery, relapse, and community resources. Required for students wishing to enter the program.
AD 102 Drug Use and Addiction, 3 cr.—Considers current drug use and psychological/behavioral aspects of client misuse or addiction. Includes drug chemistry, physiological effects of drug use upon the body and specific treatment formats and techniques.

AD 103 Women and Addiction, 3 cr.—Investigates patterns of alcohol and drug use and abuse by women in our society. Explores treatment and recovery models specific to the needs of women, plus the relationship of substance abuse to social issues.

AD 104 Multicultural Counseling, 3 cr.—Focuses on diversity of populations using addiction counseling services. Emphasizes developing sensitivity to relevant cultural differences and building skills in addressing them.

AD 105 Addiction: Special Studies, 3 cr.—Special topics seminars. Not required for degree and may not be substituted for any required program courses.

AD 150 Basic Counseling and Addiction, 3 cr.—Prerequisite: AD 101. Introduces basic skills required for establishing an effective professional helping relationship. Emphasizes in-class practice and feedback.

AD 151 Basic Counseling Skills Mastery, 1 cr.—Provides an opportunity to demonstrate a minimum level of facilitative skills required for initial practicum placement. Demonstrate mastery in responding to client behavior, content, feelings and meaning, through in-class practice and videotape sessions.

AD 152 Group Counseling and Addiction, 3 cr.—Prerequisite: AD 101. Topics include intervention, group development, process and goals, with extensive role-playing. Considers group dynamics, counselor interaction, alcohol/drug agenda and managing difficult groups.

AD 153 Theories of Counseling, 3 cr.—Prerequisite: AD 101. Basic theories of counseling, emphasizing treatment of addiction. Developmental model of recovery is used as a basis for discussion and comparison of the various theories.

AD 154 Case Management and Addiction, 3 cr.—Prerequisite: AD 101. Methods for making decisions regarding goals and objectives to be reached by clients during and after treatment. Students will learn all aspects of client record management.

AD 155 Motivational Interviewing, 3 cr.—Prerequisite: AD 101, AD 150, and AD 151. Produce an intake tape and an intake summary. Special emphasis on diagnosis of addiction. Considers various issues concerning intake.

AD 156 Ethical and Professional Issues, 3 cr.—Prerequisite: AD 101. Covers ethical and legal issues relevant to the alcohol and drug counselor.

AD 201 Families and Addiction, 3 cr.—Prerequisite: AD 101. Provides overview of the chemically dependent family system. Includes appropriate methods for drawing families into treatment.

AD 250 Advanced Counseling and Addiction, 3 cr.—Prerequisite: AD 101, AD 150, and AD 151. Focuses on advanced skills for an effective professional relationship with clients. Covers interview techniques, facilitative dimensions, feedback, maintaining empathy and rapport, confrontation, problem solving, structuring the counseling interview, recovery and relapse, 12-step recovery programs, attitudes and values, and counselor self-care.

AD 251 Advanced Counseling Skills Mastery, 1 cr.—Corequisite: AD 250. Focuses on increasing counselor empathy and communication skills. The Oregon Alcohol and Drug Counselor Certification Examination requires a course with a videotape. Students demonstrate skills through in-class practice and videotape review. The 1-credit portion of the course is offered on a pass/no pass basis only.

AD 252 Advanced Group Counseling, 3 cr.—Prerequisite: practicum involvement at a treatment facility. Professionally employed leaders of alcohol & drug groups admitted if space permits. Focuses on developing group counseling skills. Various themes and "critical issues" in counseling alcoholics will be explored in experiential groups, working on common and difficult therapeutic problems.

AD 280A Practicum: Addiction Counseling I, Variable Credit—Prerequisite: AD 101, AD 102, AD 150, AD 151, AD 152, AD 153, AD 154, AD 155, AD 156, WR 121 and department permission. Corequisite: AD 280B. Student works in alcohol/drug treatment or education setting. Either 16 hours per week (4 credits) or 20 hours per week (5 credits). Practicum experiences supervised by department faculty member.

AD 280B Practicum: Addiction Counseling - Seminar, 2 cr.—Prerequisite: department permission. Taken in conjunction with a practicum experience. Addresses job-related concerns such as professional ethics, confidentiality, burnout prevention, counselor recovery, stress reduction, continuing education and CADC requirements.

ADT - Architectural Drafting Technology

ADT 101 Architectural Graphics 1, 2 cr.—Covers typical step-by-step process used to design a house, including programming, sketching, drawings and models.

ADT 102 Architectural Graphics 2, 2 cr.—Examines typical step by step process used to design a commercial building, including programming, sketchings, drawings and models.

ADT 103 Architectural Graphics 3, 2 cr.—Prerequisite: DRF 116 or departmental approved equivalent. Covers one and two point perspectives and the use of color in renditions and sketches.

ADT 111 Working Drawings 1, 2 cr.—Prerequisite: DRF 116 or department approved equivalent. Covers typical residential construction practices and residential plans. Students draw residential plans.

ADT 112 Working Drawings 2, 2 cr.—Prerequisite: DRF 116 or department approved equivalent. Covers commercial plans and typical light commercial construction practices.

ADT 113 Working Drawings 3, 2 cr.—Prerequisite: DRF 116 or department approved equivalent. Covers site development, including surveying existing grades, locating existing and future buildings, driveways, parking and landscaping, plus drawing site plans.

ADT 121 Structural Systems 1, 2 cr.—Prerequisite: DRF 116 or department-approved equivalent. Covers drawing building sections, structural framing and foundation details.
### Course Descriptions

#### Fall Term 1994 — Summer Term 1995

**ADT 122 Structural Systems 2, 4 cr.** — Prerequisite: MTH 60 (or higher math level) and DRF 116 or department approved equivalent. Covers design of wood structural members (rafters, joists, beams, etc.), and structural steel framing.

**ADT 123 Structural Systems 3, 4 cr.** — Prerequisite: MTH 60 (or higher math level) and DRF 116 or departmental approved equivalent. Covers design and handing mechanical plans for plumbing, electrical, lighting, heating, and cooling systems.

**ADT 131 Environmental Control Systems, 4 cr.** — Prerequisite: DRF 116 or department approved equivalent. Covers design and handing mechanical plans for plumbing, electrical, lighting, heating, and cooling systems.

**ADT 132 Building Codes, 4 cr.** — Prerequisite: DRF 116 or department approved equivalent. Covers land use zoning and Oregon Building Codes, applying codes to building design and to plan checking.

**ADT 151 I & 2 Family Structural Code, 3 cr.** — Students study CABO Code as applied to residential buildings and basic methods of wood framing.

**ADT 152 I & 2 Family Mechanical Code, 3 cr.** — Students study the Mechanical Code as applied to residential buildings including heating and cooling systems.

**ADT 153 I & 2 Family Electrical Code, 3 cr.** — Students study the Electrical Code as applied to residential buildings including wiring design, methods, equipment and special conditions.

**ADT 154 I & 2 Family Plumbing Code, 3 cr.** — Students study the Plumbing Code as applied to residential buildings, including plumbing design, materials, installation standards, storm and sanitary sewer systems.

**ADT 161 Blueprint Reading-Residential, 2 cr.** — This course is designed to teach non-drafting students to read architectural blueprints.

**ADT 162 Blueprint Reading-Commercial, 2 cr.** — Prerequisite: ADT 161 or department approved equivalent. This course is designed to teach advanced techniques in reading architectural blueprints.

**ADT 191 Special Projects 1, 2 cr.** — This course is intended for special projects. Course content will be jointly developed by the student and the instructor. The course may be repeated for longer projects.

**ADT 192 Special Projects 2, 2 cr.** — Prerequisite: ADT 191 or department approved equivalent. This course is intended for larger special projects the same term or projects that require a second term to complete. Course content will be jointly developed by the student and the instructor.

**ADT 193 Special Projects 3, 2 cr.** — Prerequisite: ADT 192 or department approved equivalent. This course is intended for larger special projects that require a third term to complete. Course content will be jointly developed by the student and the instructor.

**ADT 201 Design Studio 1, 6 cr.** — Prerequisite: Completion of first year or department approval. Covers design and preparing a set of remodel/addition working drawings.

**ADT 202 Design Studio 2, 8 cr.** — Prerequisite: Completion of first year, ADT 102, or department approval. Covers design of special and general use commercial buildings and preparing a complete set of commercial working drawings.

**ADT 203 Design Studio 3, 8 cr.** — Prerequisite: Completion of first year, ADT 101, or department approval. Covers design of single and multi-family buildings and preparing a complete set of residential working drawings.

**ADT 231 Specifications, 3 cr.** — Prerequisite: Completion of first year or department approval. Covers basic contracts and construction specifications for residential and commercial projects.

**ADT 232 Estimating, 3 cr.** — Prerequisite: Completion of first year or department approval. Covers estimating materials and labor costs of construction.

**ADT 251 Uniform Building Codes 1, 3 cr.** — Covers non-structural standards of the Uniform Building Code, including occupancy classifications, building area, height and location limits, exit requirements and fire resistant standards.

**ADT 252 Uniform Building Codes 2, 3 cr.** — Study of the Uniform Building Code, including handicapped access requirements, finish materials, glazing, plastics, chimneys and fireplaces.

**ADT 253 Uniform Building Codes 3, 3 cr.** — Study of the Uniform Building Code, including handicapped access requirements, finish materials, glazing, plastics, chimneys and fireplaces.

**ADT 280A CE: Architectural Drafting, 1 cr.** — Prerequisite: department approval. Students work on approved job sites, where they receive as varied and complete an experience as possible under job conditions. As an alternative, students may be assigned real or simulated jobs at PCC.

**ADT 280B CE: Architectural Drafting, 2 cr.** — Prerequisite: department approval. Students work on approved job sites, where they receive as varied and complete an experience as possible under job conditions. As an alternative, students may be assigned real or simulated jobs at PCC.

**ADT 280C CE: Architectural Drafting, 3 cr.** — Prerequisite: department approval. Students work on approved job sites, where they receive as varied and complete an experience as possible under job conditions. As an alternative, students may be assigned real or simulated jobs at PCC.

**ADT 280D CE: Architectural Drafting, 4 cr.** — Prerequisite: department approval. Students work on approved job sites, where they receive as varied and complete an experience as possible under job conditions. As an alternative, students may be assigned real or simulated jobs at PCC.

**ADT 280E CE: Architectural Drafting, 5 cr.** — Prerequisite: department approval. Students work on approved job sites, where they receive as varied and complete an experience as possible under job conditions. As an alternative, students may be assigned real or simulated jobs at PCC.

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**ALC - Alternative Learning Center**

**ALC 50 Basic English Language Skills Lab, 0 cr.** — Content may differ for each student. Designed for students receiving instruction in the Alternative Learning Center. For each credit earned, students spend a minimum of 30 hours in the lab or on course-related activities.
ALC 51 Basic English Language Skills Lab 0.5 cr.—Content may differ for each student. Designed for students receiving instruction in the Alternative Learning Center. For each credit earned, students spend a minimum of 30 hours in the lab or on course-related activities.

ALC 52 Basic English Language Skills Lab, 1 cr.—Content may differ for each student. Designed for students receiving instruction in the Alternative Learning Center. For each credit earned, students spend a minimum of 30 hours in the lab or on course-related activities.

ALC 53 Basic English Language Skills Lab, 2 cr.—Content may differ for each student. Designed for students receiving instruction in the Alternative Learning Center. For each credit earned, students spend a minimum of 30 hours in the lab or on course-related activities.

ALC 54 Basic English Language Skills Lab, 3 cr.—Content may differ for each student. Designed for students receiving instruction in the Alternative Learning Center. For each credit earned, students spend a minimum of 30 hours in the lab or on course-related activities.

AM - Automotive Service Technology

AM 101 Unit 1: Engine Repair, 4 cr.—Prerequisite: Unit 8. Disassemble and reassemble an operable laboratory engine to study its basic functions, how to clean and replace engine parts, and to determine engine wear and causes of wear. Includes the purpose and function of an engine's lubrication and cooling systems.

AM 102 Unit 2: Electrical Systems I, 4 cr.—Prerequisite: Unit 8. Covers electrical theory, schematic symbols and work with batteries, starters and test equipment.

AM 103 Unit 3: Engine Performance I, 4 cr.—Prerequisite: Units 8, 1 and 2. Basic engine operation, compression and leakage testing. Covers description, operation and testing of primary and secondary electronic ignition systems. Includes centrifugal and vacuum advance, computer-controlled advance, basic timing adjustment and power timing procedures.

AM 104 Unit 4: Steering and Suspension Systems I, 4 cr.—Prerequisite: Unit 8. Work on alignment and suspension systems and other factors contributing to handling. Includes alignment angles and correction, wheel balancing, rear wheel tracking and work with suspension components, steering gears and wheel bearings.

AM 105 Unit 5: Brake Systems I, 4 cr.—Prerequisite: Unit 8. Study the principles of automotive brake systems. Practice disassembly/assembly of system components using school owned equipment. Includes proper measuring and machinery techniques of brake drums and discs.

AM 106 Unit 6: Heating and Air Conditioning Systems, 4 cr.—Prerequisite: Units 8 and 2. Covers theory and operation of automotive heating and air-conditioning systems. Work on approved customer automobiles. Includes testing and repair of these systems including electrical and vacuum circuits.

AM 107 Unit 7: Manual Drive Train and Axles I, 4 cr.—Prerequisite: Unit 8. Introduces various designs of manual transmissions, trans-axles and driveline, drive axle components of an automobile. Each component is covered in detail, including purpose, application, operation, inspection, diagnosis, and repair. Students will disassemble, inspect and assemble school owned units to get hands-on experience and familiarization.

AM 108 Unit 8: Intro to Automotive Systems, 4 cr.—Orientation to PCC Automotive Service Technology program. It is an overview of automotive systems emphasizing practical application of mathematics, the use of service manuals and essential study skills. Includes tool use, precision measurement, and shop procedures.
AM 109 Unit 9: Fuel Systems I, 4 cr.—Prerequisite: Units 8, 1 and 2. Fundamentals of combustion and air/fuel ratios. Includes fuel tanks, fuel pumps, electronic carburetors, filters and exhaust systems. Students test, diagnose, service and repair fuel systems.

AM 112 Unit 12: Electrical II, 4 cr.—Prerequisite: Units 8 and 2. Students read schematics and work on charging systems and accessories, including alternators, electronic regulators, instruments and lighting circuits.

AM 113 Unit 13: Emission Control Systems, 4 cr.—Prerequisite: Units 8, 1, 2, 3 and 9. Covers description, operation, testing, diagnosis, and servicing of exhaust emission control systems, computerized emission control systems, crankcase and evaporation emission control systems.

AM 114 Unit 14: Steering and Suspension Systems II, 4 cr.—Prerequisite: Units 8 and 4. Work on approved customer automobiles to diagnose steering and suspension problems; properly align front and rear ends; check frame alignment; repair and/or replace faulty steering system parts; balance wheels; and diagnose tire wear, stability and suspension problems.

AM 115 Unit 15: Brake Systems II, 4 cr.—Prerequisite: Units 8 and 5. Brake diagnosis and repair on automobiles in a laboratory/shop setting. Cover complete brake inspections and determining what repairs are needed. Ordering parts and completing repairs under close instructor supervision.

AM 117 Unit 17: Manual Drive Train and Axles II, 4 cr.—Prerequisite: Units 8 and 7. Work on approved customer automobiles diagnosing and servicing components of standard transmissions/transaxles. Provides realistic understanding of procedures which take place in an automotive repair facility.

AM 119 Unit 19: Fuel Systems II, 4 cr.—Prerequisite: Units 8, 1, 2, 3 and 9. Mechanical and electronic gasoline fuel injection, diesel fuel injection and turbo-chargers. Work on approved automobiles to test, diagnose and service these systems.

AM 122 Unit 22: Electrical III, 4 cr.—Prerequisite: Units 8, 2 and 12. Work on approved automobiles and study how to diagnose electrical problems, read schematics, use test equipment, perform satisfactory wire connections, test, repair, and/or replace electrical units.

AM 123 Unit 23: Engine Performance II - Diagnosis and Repair, 4 cr.—Prerequisite: Units 8, 1, 2, 3, 9, 12, 13, 19. Basic operation and use of the automotive oscilloscope. Work on approved customer vehicles to determine causes of customer complaints, correct those malfunctions, and perform routine service and testing of engine-related control systems.

AM 124 Unit 24: Steering and Suspension Systems III, 4 cr.—Prerequisite: Units 8, 4 and 14. Work on approved customer automobiles. Covers diagnosing steering and suspension problems, aligning front and rear ends, checking frame alignment, repairing and replacing faulty steering system parts, balancing wheels, and diagnosing tire wear, stability and suspension problems. Students work on approved customer automobiles.

AM 125 Unit 25: Brake Systems III, 4 cr.—Prerequisite: Units 8, 5 and 15. Work on approved customer automobiles to diagnose customer complaints, analyze costs, repair and replace faulty brakes or related parts, and utilize safety check sheets.

AM 127 Unit 27: Automatic Transmission/Transaxle I, 4 cr.—Prerequisite: Unit 8. Work on automatic transmissions/transaxles and study how to trace the power flow, diagnose problems, disassemble, inspect and evaluate, clean and layout components. Reassemble and adjust transmission, and test the unit for its proper operation.

AM 133 Unit 33: Engine Performance III - Diagnosis and Repair, 4 cr.—Prerequisite: Units 8, 1, 2, 3, 9, 12, 13, 19 and 23. Continuation of Unit 23.

AM 137 Unit 37: Automatic Transmission/Transaxle II, 4 cr.—Prerequisite: Units 8 and 27. Work on approved customer automobiles diagnosing and servicing components of the automatic transmission/transaxle. Provides specific diagnostic guidelines. Covers shop procedures that take place in an automotive repair facility.

AM 141 Unit 41: Diagnosis and Repair, 4 cr.—Prerequisite: All other PCC automotive courses. Work on school owned or instructor approved vehicles to diagnose customer complaints, estimate costs, make electrical, chassis, drive train, and comfort control systems. Work with a partner to develop quality workmanship that meets automotive industry standards, with a minimum of 20 flat-rate hours for each student.

AMT - Aviation Maintenance Technology

AMT 101 Introduction to A&P, 4 cr.—Familiarization with Aviation Maintenance Technology, including: program requirements, safety, aircraft and engines, general-purpose common hand tools, power tools, shop equipment, precision measuring tools, construction of aircraft parts, aircraft hardware, work ethics and career opportunities.

AMT 102 Basic Electricity, 4 cr.—Includes basic electrical theory, interpretation of electrical schematics, principles of component operation, alternating current theory and introduction of basic electronic theory.

AMT 105 FARs & Related Subjects, 4 cr.—Presents Federal Aviation Regulations as they pertain to the aircraft mechanic, plus some "action" learning on servicing and operation of the aircraft on the ground.

AMT 106 A&P Applied Math, 4 cr.—Not a traditional math class. Existing math skills are used to perform operations in aircraft maintenance and record keeping. Also covers some basic principles of physics. Recommended AMT 101.

AMT 107 Materials & Processes, 4 cr.—Covers many general aircraft procedures, including: fluid lines and fittings, non-destructive testing methods, heat treatment, welding, aircraft cleaning, and corrosion control. These procedures are equally applicable to both the airframe and powerplant courses.

AMT 109 Assembly & Rigging, 4 cr.—Covers methods of assembly and rigging commonly used in preparing both fixed and rotary wing aircraft for a safe test flight. Includes analysis of test flight reports and recommended rigging corrections necessary to produce a safe and efficient aircraft. Recommended: A good knowledge of aircraft weight, balance and aerodynamic relationships.
AMT 115 Aircraft Structures & Inspection, 4 cr.—Examines structural designs and methods of inspecting the aircraft to assure continued operation in the “as engineered” configuration. Contains some lecture information for the sheet metal courses. Emphasizes the interpretation of Airworthiness Directives, service bulletins, and other maintenance documents. Technical writing skills required to complete FAA forms and records is practiced. FARs and Related Subjects (AMT 105) is a recommended prerequisite.

AMT 117 Reciprocating Engine Theory & Maintenance, 4 cr.—Students study aircraft reciprocating engine theory and how to use manufacturers’ publications. An introduction to the engine shop and procedures used during engine overhaul are included.

AMT 120 Propellers and Engine Installation, 4 cr.—Examines propeller theory and repair within limitations imposed by FAA Regulation Part 65, plus control and auxiliary systems, such as anti-ice and synchronizing. Unducted fan systems are explored and engine removal and installation are accomplished.

AMT 121 Turbine Engine Theory and Maintenance, 4 cr.—Presents theory for all turbine engines, but does not build expertise in any one design. Maintenance includes inspection, checking, servicing and repairing turbine engines and turbine engine installations.

AMT 123 Ignition Systems, 4 cr.—Covers magneto theory and overhaul practices, plus the relationships of the complete ignition system to the powerplant and its operation.

AMT 124 Fuel Metering Systems, 4 cr.—Examines the many methods used to move air and fuel into and through an engine in a ratio producing safe and efficient engine operation under widely varying conditions.

AMT 126 A&P Self Study/Tutorial, 4 cr.—Prerequisite: department permission. A three-week or longer period for student to study material from certain classes during times when the class is not offered, or to work with a tutor or instructor on specific problem areas.

AMT 203 A&P Electricity I, 4 cr.—Students study airframe/engine electrical system components; install, check, and service airframe/engine electrical wiring, controls, switches, indicators and protective devices; inspect, check, service and repair alternating current and direct current electrical systems.

AMT 204 A&P Electricity II, 4 cr.—Covers the inspection and servicing of batteries. Includes study of the application of electrical and electronic principles used in the sensing, indicating, and control devices of airframe and powerplant systems. This course supports requirements of subsequent A&P courses.

AMT 208 Aircraft Systems, 4 cr.—Prerequisite: AMT 101, AMT 102, AMT 203, AMT 204, and AMT 105. Students study the various airframe systems including ice and rain, cabin atmosphere, position and warning, and fire protection.

AMT 211 Bonded Structures, 4 cr.—Covers modern bonded structures such as honeycomb and laminated components. Also includes the discussion of inspection and limited repairs to wood structures.

AMT 212 Sheet Metal, 4 cr.—Covers methods for sheet metal repairs to aircraft and methods of forming repair parts for damaged aircraft.

AMT 213 Hydraulic Systems & Landing Gear, 4 cr.—Covers inspection and repair of aircraft landing gear and hydraulic system components.

AMT 214 Instruments, Communication & Navigation Systems, 4 cr.—Presents basic functions, internal workings, and maintenance procedures for instruments, communication, navigation and autopilot systems used on complex, modern aircraft.

AMT 216 AMT Practicum/Airframe, 4 cr.—Practical application of skills developed before graduating from the FAA-approved Airframe curriculum. Used as a comprehensive tool to evaluate student and program strengths and weaknesses.

AMT 218 Powerplant Inspection, 4 cr.—Covers the proper inspection of the entire engine installation, including exhaust systems, engine instrumentation, lubrication systems and control systems.

AMT 219 Turbine Engine Overhaul, 4 cr.—Covers removing, disassembly, cleaning, inspecting, reassembling and reinstalling a turbine engine. Emphasizes engine manufacturer’s publications.

AMT 222 Reciprocating Engine Overhaul, 4 cr.—Covers machine and overhaul processes for reciprocating engines.

AMT 225 A&P Practicum/Powerplant, 4 cr.—Practical application of skills developed before graduating from the FAA-approved Powerplant curriculum. Used as a comprehensive tool to evaluate student and program strengths and weaknesses.

AMT 227 A&P Makeup, 4 cr.—Prerequisite: department permission. A three-week or longer period for student to make up time missed during required classes. (FAR Pt.147 requires the school to offer a means of making up missed time.) Also used to make up incomplete grades.

AMT 228 A&P Shop Practice, 4 cr.—Prerequisite: department permission. A three-week or longer period for students to work on projects of their choice to be better qualified for specific jobs or to develop skills in specific areas prior to FAA testing. Students not in PCC’s FAA-approved program should have experience requirements certified by FAA before registering.

AMT 229 Rotary Wing Maintenance, 4 cr.—Provides basic knowledge about helicopters through hands-on experience. A&P program students may register during one of the last phases of their program. Offered in three-week modules. Recommended: Students should have A&P license or equivalent experience before registering.

ART - Art

ART 101 Introduction to Art, 3 cr.—Addresses seeing, experiencing and appreciating the urban world, art, architecture, gardens, fountains, malls and public spaces. Examines how cities express the values, technology, geography and economic structure of many different cultures in the light of aesthetic, historic and critical factors. Recommended: Writing 115 placement and reading score of 21.

ART 102 Introduction to Art, 3 cr.—Addresses painting and sculpture in terms of experiencing, appreciating and understanding their role in our lives. Art is examined in the light of aesthetic, historic and critical issues. Recommended: Writing 115 placement and reading score of 21.

ART 103 Introduction to Art, 3 cr.—Addresses issues relating to design in our daily lives: commercial, industrial, crafts and product design. Examines how design expresses the values,
technology, economy and taste of our culture in the light of aesthetic, historic and critical factors. Recommended: Writing 115 placement and reading score of 21.

ART 115 Basic Design, 3 cr.—Addresses two-dimensional, black and white design issues in the context of the contemporary visual world. Explores the elements (line, shape, texture, value, space) and principles (composition, harmony, pattern, rhythm) of visual design. It is recommended that ART 115, 116, and 117 be taken in sequence. 

ART 116 Basic Design, 3 cr.—Addresses color theory, relationship, and organization in the context of the contemporary visual world. Explores the elements (line, shape, texture, value, space) and principles (composition, harmony, pattern, rhythm) of visual design. It is recommended that ART 115, 116, and 117 be taken in sequence.

ART 117 Basic Design, 3 cr.—Addresses three-dimensional design—space, forms, materials and methods—in the context of the contemporary visual world. Explores the elements (line, shape, texture, value, space) and principles (composition, harmony, pattern, rhythm) of visual design. It is recommended that ART 115, 116, and 117 be taken in sequence. 

ART 131 Introduction to Drawing, 3 cr.—Presents various ways of seeing and drawing to become more visually literate. Examines basic drawing techniques and materials. Examines conceptual references for critical analysis of visual forms, and basic theories of art within the historical context. May be taken three times.

ART 141 Introduction to Photography (Non-darkroom), 3 cr.—Covers camera operation, selection and use of film, filters, lenses, flash units and other accessories. Students shoot 35mm color slides and have them processed commercially. Students must own, or have access to a 35mm camera with adjustable exposure controls.

ART 142 Introduction to Photography (Darkroom), 3 cr.—This course provides an introduction to basic photographic techniques, processes and approaches learned in ART 142. Covers advanced exposure procedures, printing on fiber-based paper, bleaching and toning prints, and the effect of using colored filters with black and white film. Students will be encouraged to continue using the camera as an instrument of expression and communication. Fall term: Carolingian and uncial alphabet styles. Winter term: Roman alphabet, lower and upper case. Spring term: italic alphabet, lower and upper case. May be taken three times.

ART 181 Introduction to Painting, 3 cr.—The course is primarily a studio experience with supporting slides, lectures, and occasional films. Presents different ways of seeing and painting to become more visually literate. Examines basic painting techniques and materials. Presents a conceptual framework for critical analysis, along with basic art theory. May be taken three times.

ART 197 Gallery Management and Design, 3 cr.—Provides experience in the practical aspects of working in an art gallery. Students are responsible for installing and taking down exhibits, and maintaining equipment and supplies. Lecture and discussion focuses on art marketing, economic issues and operational strategies. 

ART 204 History of Western Art, 3 cr.—Uses visual art as a reflection of human interaction with the socio-political and physical environment. Viewing, analyzing and comparing many art forms in an historical context, covering the Paleolithic, Ancient Near Eastern, and Aegean cultures, beginning about 30,000 BC. Recommended: Writing 121 placement and reading score of 24.

ART 205 History of Western Art, 3 cr.—Uses visual art as a reflection of human interaction with the socio-political and physical environment. Viewing, analyzing and comparing many art forms in an historical context, covering Late Antiquity, Early Christian and Medieval periods, beginning about 500 BC. Recommended: Writing 121 placement and reading score of 24.

ART 206 History of Western Art, 3 cr.—Uses visual art as a reflection of human interaction with the socio-political and physical environment. Viewing, analyzing and comparing many art forms in an historical context, covering Renaissance and Baroque periods, beginning about 1300 AD. Recommended: Writing 121 placement and reading score of 24.

ART 207 History of Asian Art, 3 cr.—Explores and analyzes the visual arts in relation to the culture of India from the Neolithic through the modern period. Recommended: Writing 121 placement and reading score of 24.

ART 208 History of Asian Art, 3 cr.—Explores and analyzes the visual arts in relation to the culture of China from the Neolithic through the modern period. Recommended: Writing 121 placement and reading score of 24.

ART 209 History of Asian Art, 3 cr.—Explores and analyzes the visual arts in relation to the culture of Japan from the Neolithic through the modern period. Recommended: Writing 121 placement and reading score of 24.

ART 211 Modern Art History - 19th Century Art in Europe, 3 cr.—The Nineteenth Century saw the beginning of the modern world and modern societies in Europe. Examines and analyzes the visual arts beginning with the French Revolution in 1789 to reveal the processes that led to our current cultural life. Recommended: Writing 121 placement and reading score of 24.

ART 212 Modern Art History - Early 20th Century Art, 3 cr.—The turn of the Twentieth Century witnessed revolutions in science and technology, psychology and philosophy. Examines and analyzes the visual arts to reveal some effects of those changes, and to gain insight into our modern world. Recommended: Writing 121 placement and reading score of 24.

ART 213 Modern Art History - Art Since 1945, 3 cr.—World War II ended the supremacy of Europe in the visual art world and focused attention on America. Examines and analyzes art since 1945 to explore the ideas behind it, to reveal our culture and values, and to gain a greater understanding and appreciation of contemporary art. Recommended: Writing 121 placement and reading score of 24.

ART 218 Lettering Calligraphy I, 2 cr.—Covers practical and creative uses of calligraphy, lettering principles, techniques and functions, and discusses the traditions and historical development of letters. Fall term: Roman alphabet, lower and upper case. Winter term: italic alphabet, lower and upper case. Spring term: Carolingian and uncial alphabet styles.
ART 220 Advanced Lettering and Seminar, 2 cr.—Covers lettering techniques and shop practices necessary for commercial production of calligraphic and drawn letters. Work involves problem solving activities the professional calligrapher is likely to encounter on the job.

ART 221 Computer Graphics in Arts I, 4 cr.—Introduces the computer as a tool for imaginative exploration in art, using paint, desktop publishing, and animation programs. Students are encouraged to carry over ideas and principles of art from such courses as Basic Design, Drawing, Painting and Graphic Design.

ART 221A Computer Graphics in Arts I, 2 cr.—Introduces the computer as a tool for imaginative exploration in art, using paint, desktop publishing, and animation programs. Students are encouraged to carry over ideas and principles of art from such courses as Basic Design, Drawing, Painting and Graphic Design.

ART 224 Computer Graphics in Arts II, 4 cr.—Continues ART 221, providing further experience with programs previously used and introducing new, more advanced software. Animation will be emphasized, as well as computer use in art, advertising, video, music, and business graphics. Recommended: ART 221.

ART 231 Drawing, 3 cr.—Further exploration of different ways of seeing and drawing to become more visually literate. Presents basic drawing techniques and materials. Emphasizes conceptual references for critical analysis of visual forms, along with basic theories of art within the historical context. Class may be taken three times. Recommended prior course: ART 131.

ART 237 Life Drawing, 3 cr.—Prerequisite: 6 hours drawing/painting, or instructor permission. Covers studying and drawing the human form, using professional models. Presents the structure, form and proportions of human figure, applying various drawing techniques and concepts. Emphasizes personal artistic growth with attention to composition. Class may be taken three times.

ART 241 Nature Photography, 3 cr.—Prerequisite: ART 141 and ART 142, or instructor permission. Covers specialized equipment and methods of professional nature photography. Work in color and/or black and white (color processed commercially at student expense). Includes field trips and discusses marketing nature images. Recommended: 35mm (or larger) SLR with a selection of lenses.

ART 242 Small Format Portraiture, 3 cr.—Prerequisite: ART 141 and ART 142, or instructor permission. Covers lighting, posing, specialized equipment, and business practices. Primarily B&W; some color printing possible (color film processed at student expense). Students should have access to 35mm SLR camera and lens of approximately 85mm (or larger format SLR and comparable lens).

ART 243 The Photographic Portfolio, 3 cr.—Prerequisite: ART 141 and ART 142, or instructor permission. Provides framework within which students may pursue their unique photographic vision. Explores role of photography in the arts, and rights and responsibilities of the photographer artist. Work in black and white and/or color (color processed at student expense).

ART 253 Ceramics I, 3 cr.—Presents all aspects of introductory clay processes: development of ideas, care and preparation of clay, skills and understanding related to clay work on and off the potter’s wheel, glazes and firing procedures. May be taken three times.
ATH 103 General Anthropology: Cultural - Contemporary Peoples, 3 cr.—Examines modern human cultures. Analyzes a variety of ethnographic examples from various world societies to understand the diverse aspects of language, technology, economy, social structure, governance, religion, world views and expressive aspects of life.

ATH 207 Cultural Anthropology: Culture Concepts, 3 cr.—Examines the different schools of anthropological thought and the concept of culture from a historical perspective. Emphasis is placed upon the importance of culture in explaining similarities and differences in our evolving world system.

ATH 208 Cultural Anthropology: Cultures of the World, 3 cr.—Introduces ethnographic descriptions of a representative sample of the cultural variations among contemporary peoples. Compares various subsistence systems and levels of socio-political integration.

ATH 209 Cultural Anthropology: Cultural Growth & Change, 3 cr.—Examines the processes of cultural growth and change, the development of contemporary anthropological theory and the rapidly growing fields within applied anthropology. Ethnographic techniques are presented so students may use them to examine the changing culture of our complex society.

ATH 210 Selected Topics in Ethnography, 3 cr.—Introduces the life styles and interactions with their environments of peoples in a selected part of the world. Uses ethnographic and other information for a concentrated study of the cultural diversity and environmental adaptations of those peoples.

ATH 214 Human Environments: Ecological Aspects, 3 cr.—Examines the ecological relationships between human societies and their natural environments. Clarifies the human's biological relatedness to the world's natural ecosystems and then presents a look at the ensuing disruptions in nature and in human cultures.

ATH 215 Human Environments: Energy Consideration, 3 cr.—Explores the issue of energy, ecologically and in terms of human use of energy. Examines the energy crisis from the perspective of the individual energy user. Also looks at worldwide consequences of energy consumption.

ATH 216 Human Environments: Productivity, 3 cr.—Examines human productivity and its environmental effects in industrial societies and compares this with more traditional societies. Presents a critical analysis of energy consumption and use in our society.

ATH 230 Native Americans of Oregon, 3 cr.—Presents the history of anthropological research and the prehistory, languages and culture areas of Oregon's native peoples. Individual native groups are studied to better depict the life ways of Oregon's major cultural and geographic divisions.

ATH 231 Native Americans of the Northwest, 3 cr.—An in-depth survey of the native peoples of Oregon, Washington, Alaska, and Southwest Canada. Individual native groups are studied to depict cultural variation within the region.

ATH 232 Native North Americans, 3 cr.—Surveys the anthropology and distribution of the native North American peoples. Presents the history of anthropological research and the prehistory, languages and culture areas of native North America. Specific native groups will be surveyed to better depict the life ways of the major cultural and geographic divisions.

ATH 280A CE: Anthropology, 3 cr.—Enables students to extend their knowledge of anthropology through work in settings that provide learning experiences to supplement classroom learning.

ATH 280B CE: Anthropology - Seminar, 1 cr.—Forum for students to discuss their work experiences with peers and the instructor.

ATH 298 Independent Study: Anthropology, 3 cr.—Prerequisite: instructor permission. Prior study in anthropology is recommended. Offers special topics, activities, or projects in an area of anthropology not usually covered in depth in other anthropology courses. Prior study in anthropology is recommended.

ATH 299 Special Studies: Anthropology, 3 cr.—Prerequisite: instructor permission. Recommended: prior study in anthropology. Offers special topics in areas of anthropology not usually considered in depth in other anthropology courses. Prior study in anthropology is recommended.

ATH 299F Special Studies: Cultural Anthropology Through Film, 3 cr.—Cross-cultural survey of the human experience through the medium of ethnographic film. Introduces the anthropological perspective. Students are given an opportunity to apply this perspective to a wide variety of human beliefs and behaviors.

BA - Business Administration

BA 101 Introduction to Business, 4 cr.—Covers management, finance, accounting, marketing, production, computers, international business, small business investments and other areas of general interest.

BA 102 Introduction to Accounting, 3 cr.—Presents double-entry bookkeeping as related to service businesses. Includes general ledger, worksheets, financial statements, payroll, petty cash and bank reconciliations.

BA 113 Credit Procedures, 3 cr.—Covers the primary objectives of credit management: minimizing bad debt losses and maximizing sales volume. Stresses the need to investigate credit applicants, establish credit limits and follow orderly collection procedures.

BA 114 Introduction to Buying, 3 cr.—This course instructs the student about buying procedures. A twelve-month buying plan will be developed as well as a model stock plan for a retail specialty store.

BA 115 Credit Techniques, 3 cr.—Prerequisite: BA 113 or instructor permission. Provides hands-on experience in applying the credit principles studied in BA 113. Focuses on using the computer, telephone, and other office equipment to complete the tasks of consumer and commercial credit departments.

BA 131 Computers in Business, 4 cr.—Prerequisite: BA 101 or instructor permission. An introductory survey of computers and business information systems. Emphasizes the combination of management skills, equipment, software, and people to produce information for business managers. Recommended: good reading skills.
Fall Term 1994 — Summer Term 1995

Course Descriptions

BA 141 Introduction to International Business Law, 3 cr.—Surveys international aspects of traditional business law subjects (sales, commercial paper, corporate law, agency, etc.) and related subjects (antitrust law, administrative law, trade regulation, etc.)

BA 160 Purchasing I, 3 cr.—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 cr.—Covers more advanced purchasing concepts and techniques, such as win-win negotiations, total cost management, supplier management, continuous quality improvement, value analysis and value engineering, and inventory management.

BA 203 Introduction to International Business, 3 cr.—Explores the processes of international trade, whether the company is an importer, exporter, or a multinational firm. Forms a basis for further study and specialization in the international business field.

BA 206 Management Fundamentals, 3 cr.—Prerequisite: BA 101 or instructor permission. Introduces business management theory, including the basic functions of planning, organizing, directing and controlling as well as factors contributing to change in current management approaches.

BA 210 Adv Acctg Spsht App, 3 cr.—Prerequisite: BT 177 or CIS 125S, and BA 212. Presents the advanced functions of electronic spreadsheets as related to the accounting profession. Also applies to finance, marketing, operations, and other business occupations.

BA 211 Principles of Accounting I, 3 cr.—Prerequisite: BA 102 or high school bookkeeping, or full-cycle bookkeeping experience; MTH 30 or MTH 60, and qualify for WR 121. Introduces financial accounting theory, including the accounting cycle, analysis and recording of transactions, and reporting financial information in accordance with generally accepted accounting principles.

BA 212 Principles of Accounting II, 3 cr.—Prerequisite: BA 211. Continues the presentation of fundamental issues begun in BA 211. Introduces the statement of cash flows and financial statement analysis.

BA 213 Principles of Accounting III, 3 cr.—Prerequisite: BA 212 and MTH 65 or qualify for MTH 111. Covers managerial accounting: the cost/volume/profit relationship, manufacturing costs, cost decisions, management planning, budgeting and responsibility accounting.

BA 215 Basic Cost Accounting, 3 cr.—Prerequisite: BA 212. Examines concepts and techniques for accumulating and reporting manufacturing costs. Includes accounting for material, labor and overhead costs, job and process costing, standard costing, variance analysis.

BA 216 Accounting Problems, 3 cr.—Prerequisite: BA 213 or instructor permission. Reinforces understanding and offers new perspectives through reviewing and applying theory to a variety of accounting problems.

BA 218 Personal Finance, 3 cr.—Studies the role of the consumer in our economy, problems of financing family and individual needs, including budgeting, bank relationships, charge accounts, installment buying, insurance, wills, real estate investing, and personal taxes.

BA 222 Financial Management, 3 cr.—Prerequisite: BA 212 and MTH 65. Introduces concepts, techniques and decision process to manage the firm's sources and uses of funds. Includes working capital, ratio analysis, leverage, operating budgets, working capital management, cost of capital, capital budgeting and evaluation of financial alternatives.

BA 223 Principles of Marketing, 3 cr.—Prerequisite: BA 101. Provides a general knowledge of marketing with emphasis on the marketing mix elements and target markets. Distribution, pricing and promotion are addressed. Marketing strategies, customer behavior and international markets are topics that are also covered.

BA 224 Human Resource Management, 3 cr.—Attention is given to human behavior, employment, employee development, performance appraisal, wage and salary administration, employment and job rights, discipline and due process, and labor-management relations.

BA 226 Business Law I, 3 cr.—Discusses fundamental concepts, principles, and rules of law that apply to business transactions. Includes the function and operation of the courts, business crimes, torts, and contract law, plus application of the Uniform Commercial Code to business activities.

BA 227 Business Law II, 3 cr.—Prerequisite: BA 226. Discusses fundamental concepts, principles, and rules of law that apply to business organizations. Includes agency, property law, sales transactions, partnerships, corporations and government regulations.

BA 228 Computer Accounting Applications, 3 cr.—Prerequisite: BA 211 or instructor permission; BT 177 or BA 131, or prior knowledge of spreadsheets. Covers use of integrated accounting programs on microcomputers. Includes general ledger, accounts receivable, accounts payable, and payroll. Recommended BA 212 and microcomputer experience.

BA 234 International Marketing, 3 cr.—Prerequisite: BA 203 or instructor permission. Covers nature and concepts of international marketing including techniques for identifying potential markets and assessing uncontrollable elements such as economic, political, and sociocultural environmental factors. International marketing strategies related to product/service, pricing, promotion, and distribution are examined.

BA 237 Fundamentals of Import/Export, 3 cr.—Prerequisite: BA 234 or instructor permission. Examines motivations and procedures for the import and export of goods and services. Emphasizes U.S. import/export regulations, documentation, logistics, community resources, and customer services.

BA 238 Sales, 3 cr.—Offers a blend of practicality and theory on industrial, commercial and retail sales. Students demonstrate and practice basic sales techniques, explore communication and motivation as they relate to selling, and examine the function of sales relative to the total marketing program.

BA 239 Advertising, 3 cr.—Covers the basics of planning, creating, using, and placing advertising in the business world. Reviews the entire field of advertising as a basis for students who select advertising as a career or as an integral part of a marketing program.

BA 240 Governmental Accounting, 3 cr.—Prerequisite: BA 212. Develops the conceptual foundation of accounting procedures, records, and statements used to summarize and disclose the results of non-profit and governmental activities.
BA 242 Introduction to Investments, 3 cr.—Students will study popular investment vehicles—what they are, how they can be utilized, and the risk and return possibilities. Particular emphasis will be on stocks and bonds, mutual funds, options, and real estate. Securities exchanges and the functions of the broker will be examined.

BA 244 Introduction to Records Management, 3 cr.—Offers a study of the life cycle of records on all types of media from creation through disposition. Considers responsibilities of the records manager as they relate to each subsystem of the total records management program and to the needs of all types of organizations.

BA 247 Advanced Sales, 3 cr.—Prerequisite: BA 238. Explores methods for improving sales ability (such as the use of short, explicit, believable sales techniques) and applying them to day-to-day sales work. Examines the role of the sales manager. Emphasizes the commercial and industrial sales field.

BA 249 Retailing, 3 cr.—Overview of retailing and its function in the total marketing concept. Covers analyzing the target market, the retailing product mix, and techniques used in modern retailing. Includes a review of the impact of government regulations and changes in retailing.

BA 250 Small Business Management, 3 cr.—Prerequisite: BA 101, BA 211, or instructor permission. Emphasizes the general functions, procedures and specific subject areas related to starting, organizing and operating a successful small business. It includes franchising.

BA 251 Office Management, 3 cr.—Prerequisite: BA 101 or instructor permission. Introduction to the organizing, planning, leading, and controlling functions of an office and the resulting role and responsibilities of the office manager.

BA 252 Sales Management, 3 cr.—Prerequisite: BA 238 or instructor permission. Examines the role, responsibilities and duties of the sales manager in business and industry. Explores the evolution and contribution of personal selling, reviews the sales process, and introduces the techniques to design, develop, direct, and evaluate a sales force.

BA 256 Income Tax, 3 cr.—Covers preparation of federal individual and sole proprietorship income tax returns. Also provides a brief overview of partnership and corporate returns.

BA 257 Introduction to Escrow, 3 cr.—This course offers a basic knowledge of escrow proceedings for persons interested in pursuing a career in the escrow field. Particular attention is given to the legal and ethical responsibilities of persons engaged in escrow work. The material covered should be of value to all those involved either directly or indirectly in escrow, real estate or lending activities.

BA 258 Escrow Procedures, 3 cr.—This course outlines the day-to-day operation of the escrow office. Emphasis is on real estate escrows, and some personal property and bulk sales are also covered. Subordinations, sales escrow, lease-hold escrow, loan escrow, exchange escrow and various legal documents are covered.

BA 259 Escrow Problems, 3 cr.—Prerequisite: BA 257 and BA 258 or one year's experience in closing. This course treats the closing of more complex transactions such as exchanges, apartments, mobile homes, condominiums, business sales, subdivisions and lot releases. Emphasis is on customer relations and on title problems such as tax liens, judgments, assessments, mechanic's liens and second mortgages.

BA 280A CE: Business Experience, 3 cr.—Prerequisite: Instructor approval of job site. Offers relevant field experience in business environments in one of the following areas: bookkeeping, marketing, management, international business, advertising, banking, purchasing, investment, finance and customer services (sales or credit services). Allows students to explore career options.

BA 280B CE: Business Experience - Seminar, 1 cr.—Prerequisite: Instructor permission. Supplements the on-the-job experience through feedback sessions, instruction in job-related areas, and linkages to the student's on-campus program.

BA 285 Human Relations-Organizations, 3 cr.—Prerequisite: BA 101 or instructor permission. Explores the human side of organizations, perceptions, communications, small groups, organization structure, motivation, morale and the quality of work life, leadership, dynamics of change, discrimination, substance abuse, work stress, ethics and goals, cultural differences, individual and organizational changes and growth.

BA 299 Projects in Business, 3 cr.—Prerequisite: BA 101 or instructor permission. Explores the human side of organizations, perceptions, communications, small groups, organization structure, motivation, morale and the quality of work life, leadership, dynamics of change, discrimination, substance abuse, work stress, ethics and goals, cultural differences, individual and organizational changes and growth.

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BCT 103 Materials of Construction, 2 cr.—Introduces building materials used in the construction of various types of structures. Includes discussion of applicable code requirements.

BCT 104 Basic Trades Builders Math, 2 cr.—Covers basic math, terminology, and language commonly used in the normal work day of the builder.

BCT 105 Building Codes for One and Two Family Residences, 3 cr.—Students explore the CABO code book for one and two family dwellings, using it to solve problems. This activity is correlated to blueprints, selection, and sizes of various items, including material, doors, windows, and rooms.

BCT 106 Hand Tool/Power Tool Use and Safety, 6 cr.—Develops understanding of the hand tools and power tools used in the construction trades. Students will identify commonly used hand/power tools, select the correct tool to complete assigned projects, and work in a safe and competent manner. Safety and care of tools will be emphasized.

BCT 107 Introduction to Applied Construction I, 5 cr.—Develops understanding of the components that are used in residential construction. Emphasizes safety and proper use of material and tools. Students will complete construction projects by selecting the correct materials and assembling them in the proper sequence in a safe and competent manner.

BCT 108 Introduction to Applied Construction II, 5 cr.—Explores the ways residential construction practices relate to residential plans. Includes hands-on experience in topics like foundations, framing, drywall, and equipment operation.

BCT 109 Intro Elect/Mech Trades 1, 5 cr.—Introduces the electrical trades as a career choice. Provides exposure to A.C. theory, Ohm's law, schematics and hands-on experience in the use of test meters, troubleshooting and residential wiring.

BCT 110 Intro Elect/Mech Trades 2, 5 cr.—Introduces the mechanical trades with special focus on refrigeration, HVAC, plumbing and welding. Hands-on experience includes safe use of propane torch for soldering and brazing, tap and die, working with copper pipe and tubing and completion of an individual project.

BCT 111 Voc Training for Trades & Industry, 1 cr.—Covers the relationship between certain physical, educational and mechanical abilities and career success in skilled trades and industrial occupations. Defines apprenticeship and the apprenticeship application process. Designed for non-traditional students preparing to enter skilled trades and industrial occupations.

BCT 112 Target Occup Trades/Industry, 2 cr.—Students define their personal goals and values as related to career choices in the skilled trades and industry, complete a resume and job portfolio and practice interviewing skills.

BCT 113 Contemporary Worksite Issues, 3 cr.—Explores the issues of safety, productive work habits, effective communication, diversity and sexual harassment vs. hazing in the skilled trades and industry. Information is delivered through discussion, role-playing, guest speakers and training workshops.

BCT 120 Floor Framing, 3 cr.—Students conduct full-scale joist, post & beam and TJI floor systems along with rough stair layout under typical job conditions.

BCT 121 Wall Framing, 3 cr.—Explores wall framing systems, labor methods, and materials. Students lay out, cut and erect partitions and exterior wood frame walls and cover walls with sheathing.

BCT 122 Roof Framing 1, 3 cr.—Covers using a framing square, rafter tables, rafter framing formulas, and appropriate terminology. In addition, students lay out, cut and assemble gable, shed and hip roofs.

BCT 123 Roof Framing 2, 3 cr.—Covers the layout, cutting and assembly of the following types of roofs: gambrel, mansard, dormers and unequal pitch roofs.

BCT 126 Site Layout, 2 cr.—Covers use of surveying instruments, taking elevations, producing contour maps, locating buildings on given sites and developing plot plans for building sites suitable for acquiring building permits.

BCT 127 Concrete Construction, 6 cr.—Covers residential foundation work, including layout, grading and finishing steps, form systems, labor methods, and the handling and curing alternatives for concrete mixtures.

BCT 128 Exterior Finish, 3 cr.—Includes installation of exterior windows, roofing, plus laying out, cutting and installation of soffits, siding and trim, ready painting.

BCT 202 Contracts, Specifications and Construction Bookkeeping, 3 cr.—Covers common practices in preparing contracts and specifications, including construction industry accounting systems and legal aspects of the industry, such as lien laws, bonding procedures, contracts, licensing laws and permits.

BCT 203 Interior Finish, 6 cr.—Covers finish techniques for drywall, paneling, doors, windows, floor covering, stair finishing, plastic laminate and insulation.

BCT 204 Construction Codes and Estimating, 3 cr.—Covers practices required by local and state construction codes. Includes estimating the amount, cost and labor cost of materials required in various types of construction.

BCT 205 Cabinetry, 12 cr.—Prerequisite: Department permission. Covers the measuring, layout, machining, assembly, cost estimating and installation of cabinet work.

BCT 206 Structural Timber Construction, 3 cr.—Focuses on different types of timber frame construction, lumber grades, lumber spans and rigging. Includes current codes and safety regulations.

BCT 207 Commercial Interior Finish, 3 cr.—Focuses on drywall installation, insulation, suspended ceilings, trim, door and hardware installation. Includes current code and safety regulations.

BCT 208 Commercial Concrete Construction, 6 cr.—Focuses on the types of footing forms, edge forms on grade, wall forms, vertical pier forms, column forms, above grade slab forms, stair forms and bridge deck forms. Includes current code and safety regulations.

BCT 211 Remodeling, 12 cr.—Prerequisite: Department permission. Covers sketching plans, estimating, building permit application procedures, writing contracts and specifications using Uniform Building Code requirements, accounting procedures, individual construction skills required by each project and making appropriate recommendations after analyzing client's needs.

BCT 213 Advanced Blueprint Reading, 2 cr.—Covers typical residential and commercial plans and practices. Presents skills for reading residential/commercial blueprints and applying that knowledge to construction property. Residential plans are reviewed for detail terminology and basic print reading before moving into commercial plans.
BCT 215 Introduction to Uniform Building Codes, 4 cr.—The UBC focuses on multi-family residences, commercial construction, and rural agricultural buildings, covering more complicated construction than the CABO code book.

BCT 216 Beginning Cabinetry, 2 cr.—Covers how different materials and subsequent systematic steps create a kitchen cabinet or a complete kitchen. Includes basic machinery operation, geared toward sound, safe, productive use of tools and equipment used to build cabinets.

BCT 217 Intermediate Cabinetry, 2 cr.—Prerequisite: BCT 216 or instructor permission. Emphasizes equipment operation and mastering dovetail and mortise and tenon joints. Includes working with hardwoods.

BCT 218 Advanced Cabinetry, 2 cr.—Prerequisite: BCT 216 or department permission. Covers proper designing, planning, layout, and estimation of material amounts and costs. Includes applied finishes, transportation and installation of cabinets, and appropriate counter top work. Students build items specified by the instructor.

BCT 280A CE: Building Construction, 1 cr.—On-the-job training at a department-designated worksite, giving students experience in real work conditions and helping determine their career choices.

BCT 280B CE: Building Construction, 4 cr.—On-the-job training at a department-designated worksite, giving students experience in real work conditions and helping determine their career choices.

BCT 280C CE: Building Construction, 8 cr.—On-the-job training at a department-designated worksite, giving students experience in real work conditions and helping determine their career choices.

BCT 280D CE: Building Construction, 12 cr.—On-the-job training at a worksite designated by the program. The hands-on job site training will give students experience in real work conditions and help determine their career choices.

BCT 280E CE: Building Construction - Seminar, 1 cr.—Provides opportunity to share work experiences and receive feedback from students and instructors.

BI - Biology

BI 100 Life Science Principles for Veterinary Technology, 4 cr.—Surveys general biology, considering topics in the chemical, cellular, organ, and systems level of organization. Includes biochemistry, cell production, genetics, developmental biology and gross anatomy.

BI 101 Biology, 4 cr.—Surveys biological principles applied to plants and animals from cellular level to ecological level of organization. Presents an introduction to life, the cell and basic chemical processes in living organisms.

BI 102 Biology, 4 cr.—Prerequisite: BI 101. Surveys biological principles applied to plants and animals from cellular level to ecological level of organization. Presents the genetic aspects of life with an evolutionary theme.

BI 103 Biology, 4 cr.—Prerequisite: BI 102. Surveys biological principles applied to plants and animals from cellular level to ecological level of organization. Emphasizes evolutionary relationships among the five kingdoms, along with human anatomy and physiology.

BI 105 Human Biology, 4 cr.—Surveys human body systems, including the integumentary, skeletal, muscular, respiratory and digestive. Become familiar with structures and their associated physiological functions. Laboratory exercises include the dissection of fetal pig, preserved organs and physiological exercises to augment lecture. Recommended: Designed for the Medical Record Technology and Dietetic Technology programs.

BI 121 Human Anatomy and Physiology I, 4 cr.—Surveys the systems of the human body to develop a general understanding of its structure and function. Laboratory exercises compliment lectures.

BI 122 Human Anatomy and Physiology II, 4 cr.—Prerequisite: BI 121. Continuation of BI 121.

BI 141 Habitats: Life of the Forest, 4 cr.—Examines the structure and function of Oregon forest ecosystems. Covers distribution and interactions of plants, animals, microorganisms, climate and basic geology. The laboratory emphasizes identification and environmental testing.

BI 142 Habitats: Marine Biology, 4 cr.—Examines the marine environment and the ecology, physiology, and morphology of marine plants and animals, emphasizing Oregon. The laboratory focuses on identification and environmental testing.

BI 143 Habitats: Fresh Water Biology, 4 cr.—Covers the environments of freshwater streams, lakes, and marshes. Includes effects of physical and chemical factors on organisms, along with the organisms, their biological interactions and nutrient cycles. Explores ecological factors of freshwater environments and the effects of human activities on them.

BI 160 Ecology/Field Biology: Coast, 1 cr.—This field trip experience is designed to introduce students to the relationships among plants, animals and the general geologic formation of various life zones for the Oregon Coast. Students receive one credit for every ten hours of instruction (assuming successful completion of course requirements).

BI 161 Ecology/Field Biology: Malheur, 2 cr.—This field trip experience is designed to introduce students to the relationships among plants, animals and the general geologic formation of various life zones for the Malheur geographical area. Students receive one credit for every ten hours of instruction (assuming successful completion of course requirements).

BI 163 Organic Gardening, 3 cr.—Introduces biological principles relating to organic gardening. Covers soil analysis, grafting and pruning techniques, and explores the vast number of plants that can grow in western Oregon. Each student develops a garden plan and an edible landscape design.

BI 170 Environmental Science, 4 cr.—Examines major environmental questions facing the world today. Includes population growth, matter and energy resources, ecosystems, pollution, and environment and society. Explores a broad range of environmental issues-including sustainability, the interconnection of the economy with ecosystem, short-term versus long-term gains, and the trade-offs in balancing problems and solutions.

BI 201 Botany, 4 cr.—Emphasizes the fundamentals of botany, the plant cell, photosynthesis, cellular respiration, basic plant chemistry, genetics and evolution.

BI 202 Botany, 4 cr.—A survey of life, including virus, bacteria, fungi, algae, mosses, ferns, gymnosperms and angiosperms. Emphasizes their evolutionary interrelationships and uses.
BI 203 Botany, 4 cr.—Emphasizes plant structure, function, development and ecology. Students carry out an independent investigation according to their botanical interest.

BI 211 Principles of Biology, 5 cr.—Covers cellular anatomy and physiology, mitosis, biochemistry, bioenergetics, cellular respiration, and DNA and RNA protein relationships. Designed for students majoring in biology and the sciences, including pre-med, pre-dental, chiropractic, pharmacy, and related fields.

BI 212 Principles of Biology, 5 cr.—Prerequisite: BI 211. Includes anatomy and physiology of important animal systems, especially the human. Emphasizes significant evolutionary change.

BI 213 Principles of Biology, 5 cr.—Prerequisite: BI 212. Includes molecular DNA and continues the study of genetics, evolution, ecology, and the systemic survey of the plant and animal kingdoms.

BI 222 Human Genetics, 3 cr.—Includes the physical basis of inheritance, the mechanics of inheritance and probability, sex chromosome and autosomal anomalies, gene structure and function, behavioral genetics, twinning, the genetic effects of nuclear energy, radiation, environmental agents and carcinogens, and contemporary issues in human genetics. Recommended prior courses: BI 101, BI 102, BI 103

BI 231 Anatomy & Physiology I, 4 cr.—First term of a three-term sequence designed to familiarize the student with both macroscopic and microscopic structures and their functions. BI 231 includes anatomical terminology, cell chemistry, cell structure and function, tissues and the integumentary, skeletal, muscular, and nervous systems. Laboratory materials and experiments will be used to aid the student in visualizing and applying concepts presented in lecture. Recommended: high school biology and chemistry in the past seven years, BI 101, and BI 102, and reading at 12th grade level.

BI 232 Anatomy & Physiology II, 4 cr.—Prerequisite: BI 231. Courses may not be taken out of sequence. Second term of a three-term sequence. BI 232 includes the structure and function of the following systems: sensory, endocrine, cardiovascular, lymphatic, and digestive, including metabolism. Laboratory experiences will be used to aid the student in visualizing and applying concepts presented in lecture.

BI 233 Anatomy and Physiology III, 4 cr.—Prerequisite: BI 232. Courses may not be taken out of sequence. Third term of a three-term sequence. BI 233 will include the following topics: the anatomy and physiology of the respiratory, urinary and reproductive systems and fluid and electrolyte balance, embryology and genetics. Laboratory experiences will be used to aid the student in visualizing and applying concepts in lecture.

BI 234 Microbiology, 5 cr.—Prerequisite: BI 101. Covers microbial interactions, including environmental parameters and relationships with health and disease, bacteria and industry, water and sewage treatment, soil micro-organisms and microbiology of foods. Explores genetic recombination of bacteria, virus, and parasites. Laboratory stresses aseptic technique, and microscopic identification and physiology using a variety of media, culturing techniques, and staining techniques. Recommended: BI 102 and 12th grade reading level.

BI 241 Pathophysiology, 3 cr.—Prerequisite: BI 231, BI 232 and BI 234 or instructor permission. Covers disease processes, including genetic disorders; disorders of the immune, nervous, circulatory, respiratory, and endocrine systems; neoplasms; and alterations in body fluids, acids, bases and electrolytes.

BI 280A CE: Biology, 10 cr.—Provides field learning experiences for students majoring in biology. Students use a training plan developed with the Biology department and the work site to structure their learning experiences. One credit hour may be earned for every 40 hours worked over a 12-week term.

BI 280B CE: Biology - Seminar, 2 cr.—Prerequisite: department permission. An optional seminar exploring job survival, including stress management, interpersonal relations, etc. Students share experiences and receive feedback from other students and instructors.

BI 55 Human Biology, 4 cr.—Surveys human body systems. Includes the integumentary, skeletal, muscular, respiratory and digestive. Students will become familiar with structures and their associated physiological functions. Laboratory exercises include the dissection of fetal pig, preserved organs and physiological exercises to augment lecture. Designed for the Medical Assisting and Dietetic Technology programs. Recommended: students should have a good command of the English language with reading comprehension at or above the 10th grade level.

BI 90 Basic General Biology, 4 cr.—Explores ten major biological concepts. Prior science courses not required.
Course Descriptions

Fall Term 1994 — Summer Term 1995

BT 106 Hard Disk Management: MAC, 1 cr.—Prerequisite: BT 101. Goal is to organize and manage a hard disk based microcomputer.

BT 108 Presentation Graphics: DOS, 1 cr.—Explores presentation graphics on microcomputer. Uses software to produce visual media for presentations.

BT 109 Presentation Graphics: WIN, 1 cr.—Explores presentation graphics on the microcomputer. Uses software to produce visual media for presentations.

BT 110 Presentation Graphics: MAC, 1 cr.—Explores presentation graphics on microcomputer. Uses software to produce visual media for presentations.

BT 111 Stenography I, 3 cr.—Covers basic principles of Gregg shorthand and develop the ability to read and write shorthand rapidly, to write at 40 to 60 words per minute, and to transcribe with minimum errors. Recommended: Concurrent enrollment in BT 121 or BT 124 and BT 120. Language skills and reading ability for understanding and follow oral and written communication. Is equivalent to BT 111A/B/C.

BT 111A Stenography I, 1 cr.—Students learn basic principles of Gregg shorthand and develop the ability to read and write shorthand more rapidly. Second credit in a sequence of three one-credit courses.

BT 111B Stenography I, 1 cr.—Prerequisite: BT 111A. Students continue to learn basic principles of Gregg shorthand and develop the ability to read and write shorthand more rapidly. Second credit in a sequence of three one-credit courses.

BT 111C Stenography I, 1 cr.—Prerequisite: BT 111B. Students continue to learn basic principles of Gregg shorthand and develop the ability to read and write shorthand more rapidly. Third credit in a sequence of three one-credit courses.

BT 112 Stenography II, 3 cr.—Prerequisite: BT 111. The goal is for students to take unpreviewed dictation in Gregg shorthand for three minutes at 50 to 70 words a minute and to transcribe with minimum errors. Reviews theory, increases dictation speed and accuracy, and introduces transcription.

BT 113 Stenography III, 3 cr.—Prerequisite: BT 112. The goal is for students to take unpreviewed dictation in Gregg shorthand for three minutes at 60 to 80 words per minute, transcribe with minimum errors, and generate mailable letters within a time limit.

BT 114 Applied Stenography I, 3 cr.—Prerequisite: BT 113. Students develop skill in writing shorthand at 80 to 100 words per minute, transcribing with minimum error and rapidly producing mailable copy with correct letter form and word usage.

BT 115 Applied Stenography II, 3 cr.—Prerequisite: BT 114. Goal is for students to develop shorthand speed at 90 to 110 words per minute from unpreviewed dictation and gain skill in transcribing with minimum error. Stresses rapid production of mailable letters using advanced vocabulary. (Legal option available.)

BT 116 Applied Stenography III, 3 cr.—Prerequisite: BT 115. Goal is for students to develop increased shorthand skill at 100 to 120 words per minute from unpreviewed dictation and gain skill in transcribing with minimum error. Rapid transcription of office dictation with advanced vocabulary is emphasized. (Legal option available.)

BT 117 Shorthand Skillbuilding, 3 cr.—Goal is to review shorthand theory, increase shorthand reading and writing speed, and improve transcription skills.

BT 118 Briefhand, 3 cr.—Goal is to learn basic principles of briefhand. Includes reading notes quickly, writing from dictation, and transcribing with minimal errors. This skill is useful for limited vocational application as well as personal use.

BT 120 Business Editing Skills, 3 cr.—Prerequisite: Qualify for WR 121 and ability to edit keyboard by touch. Goal is to gain knowledge and skills for editing business documents. Emphasizes punctuation, spelling, grammar, word usage, proofreading, and keying from dictation.

BT 121 Beginning Keyboarding, 3 cr.—Covers techniques for keying alphabetic and numeric portion of computer keyboard by touch. Students produce simple letters and tables, manuscripts, and increase speed and accuracy. Recommended: Language skills and reading ability for understanding and following oral and written communication. Is equivalent to BT 121A/B/C.

BT 121A Beginning Keyboarding, 1 cr.—Covers techniques for keying the alphabetic portion of the computer keyboard by touch. Recommended: Language skills and reading ability for understanding and following oral and written communication. First credit in a sequence of three one-credit courses.

BT 121B Beginning Keyboarding, 1 cr.—Prerequisite: BT 121A. Covers production of simple letters. Introduces numbers and selected symbols. Provides opportunity to refine basic keyboarding techniques with increased speed and accuracy. Second credit in a sequence of three one-credit courses.

BT 121C Beginning Keyboarding, 1 cr.—Prerequisite: BT 121B. Covers production of manuscripts, simple tables, and offers opportunity to continue skillbuilding. Third in a sequence of three one-credit courses.

BT 122 Intermediate Keyboarding, 3 cr.—Prerequisite: BT 120 or instructor permission, 40 accurate words per minute in a three minute time period. Goal is rapid and accurate keyboarding of business correspondence, manuscripts/reports, tables, memos, and forms. Recommended: Language skills and reading ability for understanding and following oral and written communication. Equivalent to BT 122A/B/C.

BT 122A Intermediate Keyboarding, 1 cr.—Prerequisite: BT 122 and BT 123. Goal is to develop rapid and accurate keyboarding of manuscripts and reports. Second credit in a sequence of three one-credit courses.

BT 122B Intermediate Keyboarding, 1 cr.—Prerequisite: BT 122A. Goal is to develop rapid and accurate keyboarding of tables, memos, and forms. Third credit in a sequence of three one-credit courses.

BT 123 Advanced Keyboarding, 3 cr.—Prerequisite: BT 120 with B or higher, BT 122 and BT 201, plus ability to key 50 accurate words a minute within three minutes. Emphasizes business production standards. Uses word processing software to produce/edit business documents, create original compositions, produce statistical documents, and prioritize and produce complex projects. Equivalent to BT 123A/B/C.
BT 123A Advanced Keyboarding, 1 cr.—Prerequisite: BT 120 with B or higher; and BT 122 and BT 201, plus ability to key 50 accurate words a minute within three minutes. Emphasizes business production standards. Uses word-processing software to produce/edit business documents. Recommended: Language skills and reading ability for understanding and following oral and written communication. First in a sequence of three one-credit courses.

BT 123B Advanced Keyboarding, 1 cr.—Prerequisite: BT 123A. Emphasizes business production standards. Students work on original composition exercises, produce statistical documents, and complete integrated projects.

BT 123C Advanced Keyboarding, 1 cr.—Prerequisite: BT 123B. Emphasizes business production standards. Students prioritize and produce complex projects.

BT 124 Keyboard for Speed & Accuracy, 3 cr.—Prerequisite: Keyboard by touch. Builds control, confidence and endurance for accurate keyboarding while increasing speed. Recommended: Language skills and reading ability for understanding and following oral and written communication.

BT 130 Numeric Keypad on Computer, 1 cr.—This hands-on course provides the student with the information and opportunity to properly master the 10-key pad by touch. Students study addition, subtraction, multiplication, and division using the calculator function of the microcomputer. Available for 9-1-1 students only.

BT 131 10-Key on Calculators, 1 cr.—Goal is to develop 10-key skills by touch. Recommended: Language skills and reading ability for understanding and following oral and written communication.

BT 132 Beg Sftwr Applications: DOS, 3 cr.—This is a hands-on microcomputer course for beginners. Use a word processor, a spreadsheet, and a database software program within the operating system of a computer. Recommended: Keyboarding by touch.

BT 133 Beg Sftwr Applications: WIN, 3 cr.—This is a hands-on microcomputer course for beginners. Use a word processor, a spreadsheet, and a database software program within the operating system of a computer. Recommended: Keyboarding by touch.

BT 134 Beg Sftwr Applications: MAC, 3 cr.—This is a three-credit hands-on microcomputer course for beginners. Use a word processor, a spreadsheet, and a database software program within the operating system of a computer. Recommended: Keyboarding by touch.

BT 140A Beg DB: dBASE - DOS, 1 cr.—Goal is to introduce basic components of a database management program, such as how to design, make, save, and use records; and to develop a working knowledge of the database vocabulary. Recommended: Language skills and reading ability for understanding and following oral and written communication.

BT 141A Beg DB: Paradox-DOS, 1 cr.—Goal is to introduce basic components of a database management program, such as how to design, make, save and use records; and to develop a working knowledge of the database vocabulary. Recommended: Language skills and reading ability for understanding and following oral and written communication.

BT 170 Beg SS Excel: WIN, 3 cr.—Hands-on microcomputer course in which students will learn beginning to intermediate spreadsheet concepts including graphs, windows, database, statistical functions, and macros. Students gain a working knowledge of spreadsheet vocabulary. Recommended: Language skills and reading ability for understanding and following oral and written communication. Is equivalent to BT 170 A/B/C.

BT 170A Beg SS Excel: WIN, 1 cr.—Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include moving around the spreadsheet, entering data, formatting, and printing. Students gain a working knowledge of spreadsheet vocabulary. Recommended: Language skills and reading ability for understanding and following oral and written communication. First credit in a sequence of three one-credit courses.

BT 170B Beg SS Excel: WIN, 1 cr.—Prerequisite: BT 170A. Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include date/time function, inserting rows and columns, absolute versus relative addressing, statistical functions, macros, and graphs. Second credit in a sequence of three one-credit courses.

BT 170C Beg SS Excel: WIN, 1 cr.—Prerequisite: BT 107B. Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include database functions of sorting, querying, and lookup tables. Third credit in a sequence of three one-credit courses.

BT 171 Int SS Excel: WIN, 3 cr.—Prerequisite: BT 170 or BT 170C or instructor permission. Reviews basic functions of creating, editing, and printing spreadsheets. Financial, logical, statistical, and database functions are used. Includes creation of complex database tables, including multiple database tables; "what-if" analysis with data tables and matrices; importing of tables; complex graphs; advanced macros and menus; and printing and transferring of files.

BT 172 Beg SS Excel: MAC, 3 cr.—Hands-on microcomputer course in which students will learn beginning to intermediate spreadsheet concepts including graphs, windows, database, statistical functions, and macros. Students gain a working knowledge of spreadsheet vocabulary. Recommended: Language skills and reading ability for understanding and following oral and written communication. Is equivalent to BT 172 A/B/C.

BT 172A Beg SS: Excel on MAC, 1 cr.—Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include moving around the spreadsheet, entering data, formatting, and printing. Students gain a working knowledge of spreadsheet vocabulary. Recommended: Language skills and reading ability for understanding and following oral and written communication. First credit in a sequence of three one-credit courses.

BT 172B Beg SS: Excel on MAC, 1 cr.—Prerequisite: BT 172A. Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include date/time function, inserting rows and columns, absolute versus relative addressing, statistical functions, macros, and graphs. Second credit in a sequence of three one-credit courses.

BT 172C Beg SS: Excel on MAC, 1 cr.—Prerequisite: BT 172B. Hands-on opportunity for student to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include database functions of sorting, querying, and lookup tables. Third credit in a sequence of three one-credit courses.
BT 173 Int SS Excel: MAC, 3 cr.—Prerequisite: BT 172 or BT 172C or instructor permission. Reviews basic functions of creating, editing, and printing spreadsheets. Financial, logical, statistical, and database functions are used. Includes creation of complex database tables, including multiple database tables; "what-if" analysis with data tables and matrices; importing of tables; complex graphs; advanced macros and menus; and printing and transferring of files.

BT 174 Beg SS Lotus: WIN, 3 cr.—Hands-on microcomputer course in which students will learn beginning to intermediate spreadsheet concepts including graphs, windows, database, statistical functions, and macros. Students gain a working knowledge of spreadsheet vocabulary. Recommended: Language skills and reading ability for understanding and following oral and written communication. Is equivalent to BT 174 A/B/C.

BT 174A Beg SS Lotus: WIN, 1 cr.—Hands-on opportunity to learn the basic concepts of using a spreadsheet program on a microcomputer. Includes moving around the spreadsheet, entering data, formatting, and printing. Gain a working knowledge of spreadsheet vocabulary. Recommended: Language skills and reading ability for understanding and following oral and written communication. First in a sequence of three one-credit courses.

BT 174B Beg SS Lotus: WIN, 1 cr.—Prerequisite: BT 174A. Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include date/time function, inserting rows and columns, absolute versus relative addressing, statistical functions, macros, and graphs. Second credit in a sequence of three one-credit courses.

BT 174C Beg SS Lotus: WIN, 1 cr.—Prerequisite: BT 174B. Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include database functions of sorting, querying, and lookup tables. Third credit in a sequence of three one-credit courses.

BT 175 Int SS Lotus: WIN, 3 cr.—Prerequisite: BT 174 or BT 174C or instructor permission. Reviews basic functions of creating, editing, and printing spreadsheets. Financial, logical, statistical, and database functions are used. Includes creation of complex database tables, including multiple database tables; "what-if" analysis with data tables and matrices; importing of tables; complex graphs; advanced macros and menus; and printing and transferring of files.

BT 176 Beg SS Lotus: MAC, 3 cr.—Hands-on microcomputer course in which students will learn beginning to intermediate spreadsheet concepts including graphs, windows, database, statistical functions, and macros. Students gain a working knowledge of spreadsheet vocabulary. Recommended: Language skills and reading ability for understanding and following oral and written communication. Is equivalent to BT 176 A/B/C.

BT 176A Beg SS Lotus: MAC, 1 cr.—Prerequisite: BT 176A. Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include date/time function, inserting rows and columns, absolute versus relative addressing, statistical functions, macros, and graphs. Second credit in a sequence of three one-credit courses.

BT 176B Beg SS Lotus: MAC, 1 cr.—Prerequisite: BT 176B. Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include database functions of sorting, querying, and lookup tables. Third credit in a sequence of three one-credit courses.

BT 177B Beg SS Lotus: DOS, 1 cr.—Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include moving around the spreadsheet, entering data, formatting, and printing. Students gain a working knowledge of spreadsheet vocabulary. Recommended: Language skills and reading ability for understanding and following oral and written communication. First credit in a sequence of three one-credit courses.

BT 177A Beg SS Lotus: DOS, 1 cr.—Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include date/time function, inserting rows and columns, absolute versus relative addressing, statistical functions, macros, and graphs. Second credit in a sequence of three one-credit courses.

BT 177C Beg SS Lotus: DOS, 1 cr.—Prerequisite: BT 177B. Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include database functions of sorting, querying, and lookup tables. Third credit in a sequence of three one-credit courses.

BT 178 Int SS Lotus: DOS, 3 cr.—Prerequisite: BT 177 or BT 177C or instructor permission. Reviews basic functions of creating, editing, and printing spreadsheets. Financial, logical, statistical, and database functions are used. Includes creation of complex database tables, including multiple database tables; "what-if" analysis with data tables and matrices; importing of tables; complex graphs; advanced macros and menus; and printing and transferring of files.

BT 179 Beg SS Excel: DOS, 3 cr.—Hands-on microcomputer course in which students will learn beginning to intermediate spreadsheet concepts including graphs, windows, database, statistical functions, and macros. Students gain a working knowledge of spreadsheet vocabulary. Recommended: Language skills and reading ability for understanding and following oral and written communication. Is equivalent to BT 179 A/B/C.

BT 179A Beg SS Excel: DOS, 1 cr.—Hands-on opportunity to learn the basic concepts of using a spreadsheet program on a microcomputer. Includes moving around the spreadsheet, entering data, formatting, and printing. Gain a working knowledge of spreadsheet vocabulary. Recommended: Language skills and reading ability for understanding and following oral and written communication. First in a sequence of three one-credit courses.
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**BT 179B Beginning SS Excel: DOS, 1 cr.**—Prerequisite: BT 179A. Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include database functions of sorting, querying, and lookup tables. Second credit in a sequence of three one-credit courses.

**BT 179C Beg SS Excel: DOS, 1 cr.**—Prerequisite: BT 179B. Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include database functions of sorting, querying, and lookup tables. Third credit in a sequence of three one-credit courses.

**BT 180 Int SS Excel: DOS, 3 cr.**—Prerequisite: BT 179 or BT 179C. Reviews basic functions of creating, editing, and printing spreadsheets. Financial, logical, statistical, and database functions are used. Includes creation of complex database tables, including multiple database tables; “what-if” analysis with data tables and matrices; importing of tables; complex graphs; advanced macros and menus; and printing and transferring of files.

**BT 181 Beg SS Quatro Pro: DOS, 3 cr.**—Hands-on microcomputer course in which students will learn beginning to intermediate spreadsheet concepts including graphs, windows, database, statistical functions, and macros. Students gain a working knowledge of spreadsheet vocabulary. Recommended: Language skill and reading ability for understanding and following oral and written communication. Is equivalent to BT 181 A/B/C.

**BT 181A Beg SS Quatro Pro: DOS 1, 24 cr.**—Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include moving around the spreadsheet, entering data, formatting, and printing. Students gain a working knowledge of spreadsheet vocabulary. Recommended: Language skill and reading ability for understanding and following oral and written communication. First credit in a sequence of three one-credit courses.

**BT 181B Beg SS Quatro Pro: DOS, 1 cr.**—Prerequisite: BT 181A. Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include date/time function, inserting rows and columns, absolute versus relative addressing, statistical functions, macros, and graphs. Second credit in a sequence of three one-credit courses.

**BT 181C Beg SS Quatro Pro: DOS, 1 cr.**—Prerequisite: BT 181B. Hands-on opportunity for students to learn the basic concepts of using a spreadsheet program on a microcomputer. Topics include database functions of sorting, querying, and lookup tables. Third credit in a sequence of three one-credit courses.

**BT 182 Int SS: Quatro Pro-DOS, 3 cr.**—Prerequisite: BT 181 or BT 181C. Reviews basic functions of creating, editing, and printing spreadsheets. Financial, logical, statistical, and database functions are used. Includes creation of complex database tables, including multiple database tables; “what-if” analysis with data tables and matrices; importing of tables; complex graphs; advanced macros and menus; and printing and transferring of files.

**BT 201 Beg WP Wrdprf: DOS, 3 cr.**—Prerequisite: 25 words per minute keyboarding. Develops introductory skill in the use of a word processing program. Includes creating, editing, and printing simple documents and manuscripts, using headers, footers, spell check, thesaurus, and footnote functions; producing merged copy, and working with stored paragraphs and/or instructions. Recommended: Language skills and reading ability for understanding and following oral and written communication.

**BT 201A Beg WP Wrdprf: DOS, 1 cr.**—Prerequisite: 25 words per minute keyboarding. Develops introductory skill in the use of a word processing program. Includes creating, editing, and printing letters, memos, and manuscripts. Recommended: Language skills and reading ability for understanding and following oral and written communication. First credit in a sequence of three one-credit courses.

**BT 201B Beg WP Wrdprf: DOS, 1 cr.**—Prerequisite: BT 201A. Goal is to produce multi-page documents, use headers and footers, and become familiar with spell check, thesaurus, and footnote functions. Second credit in a sequence of three one-credit courses.

**BT 201C Beg WP Wrdprf: DOS, 1 cr.**—Prerequisite: BT 201B. Goal is to produce merged copy and create, save, and recall stored paragraphs and/or instructions. Third credit in a sequence of three one-credit courses.

**BT 202 Int WP Wrdprf: DOS, 3 cr.**—Prerequisite: Successful completion of BT 201 or BT 201C or demonstrated equivalent skill. Develop additional word processing skills on a microcomputer. Reviews basic functions of the software covered in BT 201 or BT 201C; use the table, math, and sort features, create the supporting page for manuscripts/reports, use more advanced merge and stored keystroke procedures, and become familiar with desktop publishing features. Recommended: Language skills and reading ability necessary for reading, understanding, and following written and oral communication.

**BT 203 DTP WP Wrdprf: DOS, 3 cr.**—Prerequisite: BT 202 instructor permission or experience with the specific software. Familiarizes students with the functions of desktop publishing found in word processing software. Hands-on use of the software to create forms, announcements, fliers, advertisements, newsletters, and other publications. Recommended: Language skills and reading ability necessary for reading, understanding, and following written and oral communication.

**BT 207 Beg WP Wrdprf: MAC, 3 cr.**—Prerequisite: 25 words per minute keyboarding. Develops introductory skill using a word processing program. Includes creating, editing, and printing simple documents and manuscripts; using headers, footers, spell check, thesaurus, and footnote functions; producing merged copy; and working with stored paragraphs and/or instructions. Recommended: Language skills and reading ability for understanding and following oral and written communication.

**BT 207A Beg WP Wrdprf: MAC, 1 cr.**—Prerequisite: 25 words per minute keyboarding. Develops introductory skill using a word processing program. Includes creating, editing, and printing letters, memos, and manuscripts. Recommended: Language skills and reading ability for understanding and following oral and written communication. First credit in a sequence of three one-credit courses.

**BT 207B Beg WP Wrdprf: MAC, 1 cr.**—Prerequisite: BT 207A. Goal is to produce multi-page documents, use headers and footers, and become familiar with spell check, thesaurus, and footnote functions. Second credit in a sequence of three one-credit courses.

**BT 207C Beg WP Wrdprf: MAC, 1 cr.**—Prerequisite: BT 207B. Goal is to produce merged copy and create, save, and recall stored paragraphs and/or instructions. Third credit in a sequence of three one-credit courses.
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BT 208 Int WP Wrdrpf: MAC, 3 cr.—Prerequisite: BT 207 or 207C or demonstrated equivalent skill. Develops additional word processing skills on a microcomputer. Reviews the basic functions of the software covered in BT 207 or 207C; use the table, math, and sort features; create the supporting page for manuscripts/reports; use more advanced merge and stored keystroke procedures; and become familiar with simple desktop publishing features including multiple columns and style sheets.

BT 209 DTP WP Wrdrpf: MAC, 3 cr.—Prerequisite: BT 208. Covers desktop publishing functions found in word processing software. Students use the software to create forms, announcements, fliers, advertisements, newsletters and other publications.

BT 210 Beg WP Wrdrpf: WIN, 3 cr.—Prerequisite: Ability to key using the touch system with a speed of at least 25 words per minute. Create, edit, and print simple documents such as letters, memos, and one-page manuscripts; produce multi-page documents; use headers and footers; become familiar with spell check; produce merged copy; and create, save and recall stored keystrokes, paragraphs, and/or instructions. Second credit in a sequence of three one-credit courses.

BT 211 Int WP Wrdrpf: WIN, 3 cr.—Prerequisite: Successful completion of BT 210 or BT 210C or demonstrated equivalent. Reviews basic functions of the software covered in BT 210 or BT 210C; use the table, math, and sort features; create the supporting page for manuscripts/reports; use more advanced merge and stored keystroke procedures; and become familiar with simple desktop publishing features including multiple columns and style sheets. Recommended: language skills and reading ability necessary for reading, understanding, and following written and oral communication.

BT 212 DTP WP Wrdrpf: WIN, 3 cr.—Prerequisite: BT 211. Covers desktop publishing functions found in word processing software. Students use the software to create forms, announcements, fliers, advertisements, newsletters and other publications.

BT 213 Beg WP Word: DOS, 3 cr.—Prerequisite: Ability to key using the touch system with a speed of at least 25 words per minute. Create, edit, and print simple documents such as letters, memos, and one-page manuscripts; produce multi-page documents; use headers and footers; become familiar with spell check; produce merged copy; and create, save and recall stored keystrokes, paragraphs, and/or instructions. Recommended: language skills and reading ability necessary for reading, understanding, and following written and oral communication.

BT 213A Beg WP Word: DOS, 1 cr.—Prerequisite: 25 words per minute keyboarding. Goal is to develop introductory skill in the use of a word processing program. Includes creating, editing, and printing letters, memos, and manuscripts. For personal use or the student needing an introductory course. Recommended: Language skills and reading ability for understanding and following oral and written communication. First credit in a sequence of three one-credit courses.

BT 213B Beg WP Word: DOS, 1 cr.—Prerequisite: BT 213A. Goal is to produce multi-page documents, use headers and footers, and become familiar with spell check, thesaurus, and footnote functions. Second credit in a sequence of three one-credit courses.

BT 213C Beg WP Word: DOS, 1 cr.—Prerequisite: BT 213B. Goal is to produce merged copy and create, save, and recall stored paragraphs and/or instructions. Third credit in a sequence of three one-credit courses.

BT 214 Int WP Word: DOS, 3 cr.—Prerequisite: BT 213 or 213C. Covers desktop publishing functions found in word processing software. Students use the software to create forms, announcements, fliers, advertisements, newsletters and other publications.

BT 215 DTP WP Word: DOS, 3 cr.—Prerequisite: BT 214 or instructor permission. Covers desktop publishing functions found in word processing software. Students use the software to create forms, announcements, fliers, advertisements, newsletters and other publications.

BT 216 Beg WP Word: WIN, 3 cr.—Prerequisite: 25 words per minute keyboarding. Develops introductory skill in the use of a word processing program. Includes creating, editing, and printing simple documents and manuscripts; using headers, footers, spell check, thesaurus, and footnote functions; producing merged copy; and working with stored paragraphs and/or instructions. Recommended: Language skills and reading ability for understanding and following oral and written communication.

BT 216A Beg WP Word: WIN, 1 cr.—Prerequisite: 25 words per minute keyboarding. Develops introductory skill in the use of a word processing program. Includes creating, editing, and printing letters, memos, and manuscripts. Recommended: Language skills and reading ability for understanding and following oral and written communication. First credit in a sequence of three one-credit courses.

BT 216B Beg WP Word: WIN, 1 cr.—Prerequisite: BT 216A. Goal is to produce multi-page documents, use headers and footers, and become familiar with spell check, thesaurus, and footnote functions. Second credit in a sequence of three one-credit courses.

BT 216C Beg WP Word: WIN, 1 cr.—Prerequisite: BT 216B. Goal is to produce merged copy and create, save, and recall stored paragraphs and/or instructions. Third credit in a sequence of three one-credit courses.

BT 217 Int WP Word: WIN, 3 cr.—Prerequisite: Successful completion of BT 216 or 216C or demonstrated equivalent. Reviews the basic functions of the software covered in BT 210 or BT 210C; use the table, math, and sort features; create the supporting page for manuscripts/reports; use more advanced merge and stored keystroke procedures; and become familiar
with simple desktop publishing features including multiple columns and style sheets.

**BT 218 DTP WP Word: WIN, 3 cr.**—Prerequisite: BT 217. Covers desktop publishing functions found in word processing software. Students use the software to create forms, announcements, fliers, advertisements, newsletters and other publications.

**BT 219 Beg WP Word: MAC, 3 cr.**—Prerequisite: 25 words per minute keyboarding. Includes creating, editing, and printing simple documents and manuscripts; using headers, footers, spell check, thesaurus, and footnote functions; producing merged copy; and working with stored paragraphs and/or instructions. Recommended: Language skills and reading ability for understanding and following oral and written communication.

**BT 219A Beg WP Word: MAC, 1 cr.**—Prerequisite: 25 words per minute keyboarding. Goal is to develop introductory skill in the use of a word processing program. Includes creating, editing, and printing letters, memos, and manuscripts. For personal use or the student needing an introductory course. Recommended: Language skills and reading ability for understanding and following oral and written communication. First credit in a sequence of three one-credit courses.

**BT 219B Beg WP Word: MAC, 1 cr.**—Prerequisite: BT 219A. Goal is to produce multi-page documents, use headers and footers, and become familiar with spell check, thesaurus, and footnote functions. Second credit in a sequence of three one-credit courses.

**BT 219C Beg WP Word: MAC, 1 cr.**—Prerequisite: BT 219B. Goal is to produce merged copy and create, save, and recall stored paragraphs and/or instructions. Third credit in a sequence of three one-credit courses.

**BT 220 Int WP Word: MAC, 3 cr.**—Prerequisite: Successful completion of BT 219 or BT 219C or demonstrated equivalent. Reviews the basic functions of the software covered in BT 219 or BT 219C; use the table, math, and sort features; create the supporting page for manuscripts/reports; use more advanced merge and stored keystroke procedures; and become familiar with simple desktop publishing features. Recommended: Language skills and reading ability necessary for reading, understanding, and following written and oral communication.

**BT 221 DTP WP Word: MAC, 3 cr.**—Prerequisite: BT 220. Covers desktop publishing functions found in word processing software. Students use the software to create forms, announcements, fliers, advertisements, newsletters and other publications.

**BT 230 DTP PageMaker: WIN, 3 cr.**—Prerequisite: BT 132, 133, 201, 210, 213, 216, 201A, 210A, 213A, BT 216A. The goal is to use the design features used in preparing announcements, fliers, advertisements, reports, and other documents used in the business world.

**BT 230A DTP PageMaker: WIN, 1 cr.**—Prerequisite: BT 132, 133, 201, 210, 213, 216, 201A, 210A, 213A, BT 216A. Goal is to use the design features used in preparing announcements, fliers, advertisements, reports, and other documents used in the business world.

**BT 231 DTP PageMaker: DOS, 3 cr.**—Prerequisite: BT 132, 133, 201, 210, 213, 216, 201A, 210A, 213A, BT 216A. Goal is to use the design features used in preparing announcements, fliers, advertisements, reports, and other documents used in the business world.

**BT 231A DTP PageMaker: DOS, 1 cr.**—Prerequisite: BT 132, 133, 201, 210, 213, 216, 201A, 210A, 213A, BT 216A. Goal is to use the design features used in preparing announcements, fliers, advertisements, reports, and other documents used in the business world.

**BT 232 DTP PageMaker: MAC, 3 cr.**—Prerequisite: BT 207, 207A, 219, 219A, 134. Electronic publishing through hands-on use of a page-layout desktop publishing application software. Various design features available with the software through the preparation of announcements, fliers, advertisements, reports, and other documents used in the business world. Recommended: Language skills and reading ability necessary for reading, understanding, and following written and oral communication.

**BT 242 Machine Transcription, 3 cr.**—Prerequisite: BT 222 and an A or B grade in BT 220. Students develop skills for transcribing business documents from taped dictation with emphasis on punctuation, spelling, and grammar. Efficient use of reference materials is emphasized. Recommended: Language skills and reading ability for understanding and following oral and written communication.

**BT 251 Legal Transcription, 4 cr.**—Prerequisite: BT 242C Machine Transcription, 1 cr.—Prerequisite: BT 242A Machine Transcription, 1 cr.—Prerequisite: BT 251 and BT 252. Students develop skills for transcribing business documents from taped dictation with emphasis on punctuation, spelling, and grammar. Efficient use of reference materials is emphasized. Recommended: Language skills and reading ability for understanding and following oral and written communication. First credit in a sequence of three one-credit courses.

**BT 252 Machine Transcription, 1 cr.**—Prerequisite: BT 242A. Students develop skills for transcribing business documents from taped dictation with emphasis on punctuation, spelling, and grammar. Recommended: Language skills and reading ability for understanding and following oral and written communication. Second credit in a sequence of three one-credit courses.

**BT 245 Office Procedures, 4 cr.**—Prerequisite: BT 225. Covers legal terminology, transcription of legal documents, and procedures for specific areas of law: corporations, probate, domestic relations, and litigation. Emphasizes accuracy and proofreading.
BT 252 Legal Procedures I, 4 cr.—Through legal office simulations, field trips to law offices and a panel of legal secretaries, presents responsibilities of a legal secretary and the professional skills required for entry into the legal secretarial field. Includes legal terminology and general procedures.

BT 253 Legal Procedures II, 4 cr.—Prerequisite: BT 252 and BT 251. Explores legal terminology, transcription of legal documents, and procedures in criminal litigation. Bankruptcy, and BT 251. Explores legal terminology, transcription of legal documents, and procedures in criminal litigation. Bankruptcy, and personal injury. Students familiarize themselves with the law library and do basic research.

BT 260 Bus Edit Skills: Proofreading, 1 cr.—Goal is to learn techniques for proofreading. Emphasizes practice in reading business letters, memoranda and statistical documents. Reviews number, spelling and word division rules.

BT 261 Bus Edit Skills: Punctuation, 1 cr.—Goal is to review punctuation rules and improve skills in using an office reference manual.

BT 262 Business Technology: Producing Business Documents, 1 cr.—Prerequisite: Keyboard by touch. Introduces and reviews the formatting skills needed to produce the basic documents used in the business world. Includes business letters, envelopes, tabulations, memorandums, manuscripts, and preprinted forms. Recommended speed of 30 wpm.

BT 263 Telephone Techniques, 1 cr.—Goal is to gain knowledge and skills needed to use telephone equipment efficiently, to manage business telephone calls, to listen effectively, to develop speaking skills, to project a positive image, and to manage stressful calls.

BT 272 Project Management: MAC, 1 cr.—This course provides a hands-on introduction to project management on microcomputers. Students will become aware of and apply the basic concepts of project management software and acquire skill in using the software to simulate business projects.

BT 273 Project Management: DOS/WIN, 1 cr.—This course provides a “hands-on” introduction to project management on microcomputers. Students will become aware of and apply the basic concepts of project management software and acquire skill in using the software to simulate business projects.

BT 280A CE: Secretarial, 3 cr.—Prerequisite: Four terms in a specific program area or instructor permission. Provides field experience for the legal secretarial student. Before enrolling, the student must have a permission slip from the Business Technology department.

BT 280B CE: Secretarial - Seminar, 1 cr.—Corequisite: Concurrent registration in BT 280A. Supplements the field experience portion of cooperative education through feedback sessions, instruction in job-related areas, and linkages to the student’s on-campus program.

BT 280F CE: Administrative Assistant, 5 cr.—Prerequisite: Satisfactory progress through four terms in the administrative assistant program area or instructor approval. Corequisite: Concurrent registration in BT 280G (Seminar) required. Provides field experience for the administrative assistant student.

BT 280G CE: Administrative Assistant - Seminar, 1 cr.—Corequisite: Concurrent registration in BT 280F. Supplements the field experience portion of cooperative education through feedback sessions, instruction in job-related areas, and linkages to the student’s on-campus program.

BT 290 Office Skills Update, 0 cr.—Students update office skills. The material is presented in an individualized, self-paced format.

BT 298 Business Machine-Calculators, 3 cr.—Prerequisite: MTH 30 or instructor permission. Uses electronic calculators to solve problems involving current practices in business mathematics.

BT 299 Projects in Business, 4 cr.—Workshops, seminars and non-traditional courses in Business Technology.

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CET - Civil Engineering Technology

CET 110 Statics, 4 cr.—Prerequisite: Completion of MTH 60 and placement in WR I 15. Corequisite: CET 111, CET 112 and CET 113. Covers fundamental concepts of mechanics relating to forces acting on rigid bodies. Includes problems involving reactions and reactions on structures and machines in two and three dimensions. Also covers friction, moments of inertia, and centroids.

CET 111 Engineering Technology Orientation, 4 cr.—Co-requisites: CET 110, 112, and 113. A rigorous, practical approach to techniques and problems encountered in the field of engineering technology. Offers abundant opportunity to solve engineering problems.

CET 112 Technical Algebra/Trigonometry, 4 cr.—Prerequisite: Placement in WR I 115 and completion of MTH 60. Includes algebra and trigonometry used in CET 110 and 111, emphasizing simultaneous linear equations, quadratic equations and applied problems.

CET 113 Engineering Technology Graphics, 3 cr.—Prerequisite: Placement in WR I 115 and completion of MTH 60. Introduction to and study of the basic skills of drafting, and the use of drafting equipment for proper pictorial communication as used by industry.

CET 121 Strength of Materials, 4 cr.—Prerequisite: CET 110, CET 111, and CET 112. Corequisite: CET 122 and CET 123. Covers the relationship between stress and strain in deformable solids. Analysis is applied to circular shafts, beams, columns and pressure vessels. Covers combined stresses, statically indeterminate systems and properties of structural materials.

CET 122 Technical Engineering Physics, 4 cr.—Co-requisite: CET 112 and 123. Introduces physical properties of matter and energy including properties of solids, liquids and gases, and heat transfer.

CET 123 Technical Algebra with Analytic Geometry, 4 cr.—Prerequisite: CET 112. Covers algebra and geometry of special interest to engineering technicians including solving higher order equations, determinants, matrix operations, logarithms and trigonometric identities. Plane analytical geometry is introduced in preparation for calculus, emphasizing development of skills and confidence to solve advanced pre-calculus problems.

CET 124 Technical Chemistry, 3 cr.—Prerequisite: CET 112. Introduces basic chemistry, with emphasis on solution and metallurgical chemistry used in engineering technology.
CET 131 Applied Calculus, 8 cr.—Prerequisite: CET 121, CET 122, and CET 123. Introduces differential and integral calculus, with application to engineering problems.

CET 132 Plane Surveying, 3 cr.—Co-requisite: CET 123. Introduces surveying operations, including note keeping; use of tape, level, and transit; horizontal and vertical control networks including calculations and adjustments; and topographic surveying and mapping.

CET 211 Water Quality, 3 cr.—Prerequisite: CET 124 and CET 131. Introduces physical, chemical and biological parameters relating to the quality of water. Presents sampling systems, data analysis techniques and computational methods, including mathematical models.

CET 213 Fluid Mechanics, 3 cr.—Prerequisite: CET 131. Covers fluid properties, laws of fluid mechanics, and energy relationships in incompressible flow in closed conduits including pressure losses, flow measurement, hydrostatic forces, and pump selection. Includes open channel flow and measurement structures.

CET 214 Route Surveying, 3 cr.—Prerequisite: CET 132. Presents techniques for preliminary, location, and construction surveys related to roads and pipelines. Includes elements of horizontal and vertical location, including circular, spiral and parabolic curves. Students draw plans, profiles and cross sections, and study theodolite and electronic distance measuring instrument operations.

CET 221 Hydrology and Hazardous Waste, 3 cr.—Prerequisite: CET 211. Explores surface and groundwater hydrology and pollution via liquid and solid contamination. Presents case studies of water pollution and transport via literature and guest lecturers. Emphasizes physical, chemical and biological testing of water.

CET 222 Project Management, 3 cr.—Prerequisite: CET 132 and CET 131. Introduces surveying operations, including note keeping; use of tape, level, and transit; horizontal and vertical control networks including calculations and adjustments; and topographic surveying and mapping.

CET 223 Computer Aided Design II, 2 cr.—Prerequisite: CET 131. Design, production and use of Portland cement concrete. Includes analysis and design of reinforced concrete structures, including beams, floors, columns, walls and footings.

CET 224 Computer Aided Design III, 2 cr.—Prerequisite: CET 223. Presents advanced topics in civil computer aided drawing emphasizing drawing meeting industry standards.

CET 225 Environmental Systems Design, 3 cr.—Prerequisite: CET 221. Includes design of water supply, treatment and distribution facilities; wastewater collection, treatment and disposal systems; and air pollution control equipment.

CET 280A CE: Civil Engineering Technology, 5 cr.—Prerequisite: department permission. An opportunity to develop engineering technology skills in a department-approved work setting.

CG - Counseling and Guidance

CG 0690 Stopping Test Anxiety, 1 cr.—Covers techniques for coping with excessive test-taking anxiety and improving overall test performance.

CG 0691 Positive Family Relations, 1 cr.—Explores ways of building positive family relations while preserving and enhancing an individual's self-image.

CG 0693 Confidence Building, 1 cr.—Helps students explore the concept of self-confidence: how it is learned, how it can be developed and how it is sabotaged. Ideas, tools and techniques are introduced that will help students in their development of a stronger self-image.

CG 0695 Single Again, 1 cr.—Presents skills needed to cope with being single again after ending a relationship by divorce, death or separation. Provides training for adjusting to the social, emotional and economic changes of being once again single.

CG 0696 Women in Their Middle Years, 1 cr.—Examines the social, psychological, physical and economic demands that face middle-aged women. These demands often involve forced role changes and a new career direction differing greatly from expectations of prior generations. Helps the redefinition of life-style and career change by examining issues, identifying feelings and fears, getting current information and exploring individual values. May be offered for one, two or three credits.

CG 100A College Survival and Success, 3 cr.—Helps new or returning students make personal and social adjustments for college success. Covers college terms and information, class choice, degree requirements, use of library, tours, and student services. Emphasizes identifying personal learning strengths and weaknesses, balancing work, school and home demands, forming study partnerships and stress and time management.

CG 100B College Survival and Success, 2 cr.—New-to-college or returning-after-absence students will be assisted in the personal, academic, and social adjustments needed for college success. Balancing work, school and home demands, and managing stress and time are emphasized. Feeling comfortable with academic demands and projecting an educational plan are goals of this class.

CG 100C College Survival and Success, 1 cr.—New-to-college or returning-after-absence students will be assisted in the personal, academic, and social adjustments needed for college success. College terms and information, class choice, degree requirements, use of library, tours, student services are provided in a supportive atmosphere. Learning styles and managing stress and time are introduced.

CG 100 Para-professional Counseling, 3 cr.—Prerequisite: department permission. Develops skills and understanding of the para-professional counseling process, so that the student will be able to help people and make appropriate referrals.
Course Descriptions

CG 111A College Learning & Study Skills, 3 cr.—This course will provide students with information, techniques, strategies and skills helpful in becoming more efficient in time management, studying, listening, notetaking and taking exams. Also addressed are basic principles of the psychology of learning and memory as they relate to college students. College-level reading and/or writing skills as defined by placement in WR 115 or RD 115 are required.

CG 111B College Learning and Study Skills, 2 cr.—Provides students with information, techniques, strategies and skills helpful in becoming more efficient in the classroom. Topics addressed are class organization, time management, studying, listening, notetaking, taking exams, and memory. College-level reading and/or writing skills as defined by placement in WR 115 or RD 115 are required.

CG 111C College Learning and Study Skills, 1 cr.—Introduces students to information, techniques, strategies and skills helpful in becoming more efficient in the classroom. Topics addressed are class organization, time-management, studying, listening, notetaking, and taking exams. College-level reading and/or writing skills as defined by placement in WR 115 or RD 115 are required.

CG 140A Career Development, 3 cr.—Provides tools to make an informed career decision. Includes self-assessment, occupational information, informational interviewing and job finding skills, values, interests, obstacles, fears, attitudes and approaches to decision making and goal setting. Covers current and future labor market trends. Recommended: college-level reading and/or writing skills as defined by placement in WR 115 or RD 115 are required.

CG 140B Career Development, 2 cr.—Provides tools to make an informed career decision. Includes self-assessment and occupational information. Students will assess skills, values, interests, obstacles, fears, attitudes and approaches to decision-making and goal setting. Covers current and future labor market trends. Recommended: college-level reading and/or writing skills as defined by placement in WR 115 or RD 115 are required.

CG 141 Personal Effectiveness, 3 cr.—Provides the disabled student with practical behavioral and interpersonal skills to become more effective in dealing with the challenges of disability. Presents information and techniques regarding assertiveness, stress reduction, time management, self-esteem building and motivation.

CG 144 Intro to Assertiveness, 1 cr.—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.

CG 145 Stress Management, 1 cr.—Identifies specific, personal stressors and develops skills that enable students to more effectively deal with stress.

CG 146 Value Clarification, 1 cr.—Helps the student examine beliefs, attitudes and values behind decisions and actions. The student will examine whether behavior matches stated beliefs, evaluates the consequences of choices and develop a process that will enable the development of personalized values.

CG 147 Decision Making, 1 cr.—Helps students develop an awareness of their personal decision making style. Encourages the practice of different decision making styles to make effective life choices in personal, social or work settings.

CG 209 Job Finding Skills, 1 cr.—Explores a broad range of job search techniques, including building a job network, compiling appropriate information for job applications, targeting cover letters and resumes, typical interview questions and techniques. Promotes an overall understanding of the job search process.

CG 210 Job Finding Skills - Drafting, 1 cr.—Prerequisite: fourth term standing or instructor permission. Introduces drafting and illustration students to job search skills. Includes networking, resume writing, writing a cover letter, employer expectations, preparing for an interview, what to do after the interview, how to prepare a portfolio, and the value of a cooperative education experience.

CG 280A CE: Career Exploration, 3 cr.—Enables students to explore their interest and suitability for a career field through work situations in selected occupations. By demonstrating skills and evaluating career areas, the student may make an informed career decision. Offered for one to three credits per term with a limit of two terms or six credits.

CG 280B CE: Career Exploration - Seminar, 1 cr.—This required seminar supplements the work experience by giving the student a flexible menu of assignments from which to select a variety of activities. The activities may include video tapes, selected readings, workshops, lectures and a variety of career related exercises to enhance career development.

CH - Chemistry

CH 100 Fundamentals for Chemistry, 4 cr.—Covers selected basic chemical principles and computational problems found in first-year, 100-level chemistry courses. For students who have no chemical background and those with minimal problem solving skills. Recommended: Algebra I and II, or equivalent. Students who have completed or are concurrently enrolled in MTH 95 should consider enrolling in CH 104.

CH 101 Inorganic Chemistry Principles, 5 cr.—Survey of inorganic chemistry with an emphasis on solution chemistry. Designed for Allied Health students.

CH 102 Organic Chemistry Principles, 5 cr.—Covers basic organic and bio-chemistry. Designed for Allied Health students.

CH 104 General Chemistry, 5 cr.—Prerequisite: Credit for, or concurrent enrollment in MTH 95 or equivalent. Includes general principles of chemistry, including atomic structure, mole concept, chemical reactions, stoichiometry, and gas laws. Designed for students in a Health Science curriculum leading to a Baccalaureate degree or Liberal Arts students who need a laboratory science elective.

CH 105 General Chemistry, 5 cr.—Prerequisite: CH 104 includes stoichiometry, gases, oxidation-reduction, acid-base concepts, equilibrium, physical and chemical properties of solutions, and nuclear chemistry.
CH 106 General Chemistry, 5 cr.—Prerequisite: CH 105. Includes fundamental principles of organic chemistry and biochemical processes.

CH 201 General Chemistry, 4 cr.—Prerequisite: High school chemistry and MTH 95 or their equivalent. Includes the basic concepts of atomic theory and bonding, periodic law, and kinetic-molecular theory. Designed for engineering majors.

CH 202 General Chemistry, 4 cr.—Prerequisite: CH 201. Includes stoichiometry, solutions, colloids, acid-base theories, redox reactions, and organic chemistry. Designed for engineering majors.

CH 203 General Chemistry, 4 cr.—Prerequisite: CH 202. Includes energy kinetics, thermodynamics, equilibrium, nuclear chemistry, metals and non-metals, and other topics as time allows. Designed for engineering majors.

CH 211 Introduction to Biochemistry, 4 cr.—Prerequisite: CH 106 or 200-level organic chemistry. Introduces the chemistry of biological systems. Principal topics covered are: the structure and function of biological molecules, the chemistry of heredity, metabolism, and biological energy.

CH 212 General Chemistry, 5 cr.—Prerequisite: High school chemistry and MTH 95 or their equivalent. Includes fundamentals of chemistry, atomic structure, chemical bonding, nomenclature, physical states of matter, properties of gases, and chemical equations. Recommended for chemistry and other laboratory science majors, pre-professional majors in engineering, medicine, and dentistry.

CH 222 General Chemistry, 5 cr.—Prerequisite: CH 221. Includes chemical stoichiometry, acid and base solutions, oxidation-reduction, chemical kinetics, and thermodynamics.

CH 223 General Chemistry, 5 cr.—Prerequisite: CH 222. Includes chemical kinetics, ionic equilibria, nuclear chemistry, thermodynamics, and descriptive chemistry topics.

CH 241 Organic Chemistry, 5 cr.—Prerequisite: CH 106 or CH 223. Includes chemical bonding, alkanes, alkenes, alkyynes, stereoisomerism, alkyl halides, and topics in spectroscopy.

CH 242 Organic Chemistry, 5 cr.—Prerequisite: CH 241. Includes aromaticity, conjugation, arene chemistry, alcohols, aldehydes and ketones, and topics in spectroscopy.

CH 243 Organic Chemistry, 5 cr.—Prerequisite: CH 242. Includes carboxylic acids, amines, carbohydrates, amino acids, proteins, lipids, heterocyclic compounds including nucleic acids, and selected topics.

CIM 100 CIM I, 3 cr.—An introduction to the concepts of Computer Integrated Manufacturing in a lecture/lab environment. Topics discussed and demonstrated include: the Manufacturing System, CIM Models, Analysis Tools, and Flexible Manufacturing/Assembly.

CIM 101 CIM II, 3 cr.—The second class in a three term sequence that provides an introduction to the concepts and technologies of Computer Integrated Manufacturing in a lecture/lab environment. Topics discussed and demonstrated include: Computer Aided Manufacturing, Communication Networks, Computer Aided Design Process Planning & Manufacturing Standards.

CIM 102 CIM III, 3 cr.—The third class in a three term sequence that provides an introduction to the concepts and technologies of Computer Integrated Manufacturing in a lecture/lab environment. Topics discussed and demonstrated include: Robotics, Material Handling, Quality Assurance, and Planning/Implementation.

CIM 9649 CIM: Seminar Series, 0 cr.—A series of seminars offered on a continuing regular schedule to provide timely and practical information of a wide range of CIM-related topics. These seminars will typically fall into one of the following two categories: (1) Application Area or Product Updates - informational updates relating to a selected topical area. Typically 2-3 hours in length. Example: Autocad Release 12 Update. (2) Application Introduction - a basic introduction to the use of a specific application product. Typically 3-6 hours in length. Example: Introduction to Smartcam.

CIM 9650 CIM: Demonstrator Training, 0 cr.—Demonstrator training. This class provides individual or small group training by the CIM Center staff for persons who will be participating in the ICIM II Demonstration. Each station uses different hardware and software components of the CIM Center to demonstrate the use of CIM concepts in a small to medium sized manufacturing company.

CIM 9651 CIM: PCC/IBM CIM Center Overview, 0 cr.—This class provides an overview of the PCC/IBM CIM Center's capability and the ICIM II Demonstration.

CIM 9652 CIM: PCC/IBM CIM Center Series ICIMII Demonstration, 0 cr.—ICIM II Demonstration: The ICIM II Demonstration is an example of how a small manufacturing company uses the technologies of an integrated system to improve its management, operations and responsiveness. The demonstration shows how management, engineering, production, operations and manufacturing departments can work together, communicate efficiently and respond quickly as a CIM team.

CIM 9653 CIM Center Workshops, 0 cr.—The CIM Center workshops are typically 12-18 hours in length with the objective of providing enough knowledge to start making effective use of a specific application or application subset. Normally taught in a hands-on environment.

CIS 108 Computer Concepts I, 4 cr.—First course in computer literacy sequence which explores history, evolution and future trends in computing, career opportunities, and social issues. Concepts include: problem solving, operating systems, hardware and software, word processing, and spreadsheets. Lab exercises utilize: operating systems, word processing, spreadsheets and Windows.
Course Descriptions

CIS 121 Computer Concepts II, 4 cr.—Prerequisite: CIS 120 or instructor approval. Second course in sequence of computer literacy. Concepts to be covered include: data communications, business graphics, database management and systems development life cycle. Lab exercises include: electronic mail, database software, and business graphics.

CIS 122 Software Design, 4 cr.—Prerequisite: CIS 120, WR 115 or equivalent, and MTH 60, or instructor approval. Introduces the program development cycle. Includes problem definition, problem solving methods, and structured programming concepts. Students develop several computer programs using Warnier/Orr structured design methodology. May be taken concurrently with CIS 121.

CIS 125D Data Base Mgt for Micros, 4 cr.—Prerequisite: CIS 121 or instructor permission. Introduces the versatility and applications of database management systems. Covers types and uses of database management systems, operation of database management systems, design of forms and records, report generation and information structuring.

CIS 125S Elect Spreadsheets for Micros, 4 cr.—Prerequisite: CIS 120 or instructor permission. Explores the uses and applications of electronic spreadsheets. Includes spreadsheet basics, formatting, formulas, functions, multiple windows, linking, graphics, database management, and the design, development, and testing of macros.

CIS 133B Programming (Basic), 4 cr.—Prerequisite: CIS 120 or instructor permission, and MTH 60 or equivalent. Introduces the design, testing and implementation of programming in BASIC on microcomputers. Assignments include simple array processing, file manipulation and subroutine processing using structured design techniques.

CIS 133C Application Prog Dev I (COBOL), 4 cr.—Prerequisite: CIS 122. Introduction to fundamental programming algorithms and their applications in the business environment using COBOL. Includes language-specific syntax, arithmetic calculations, alternation, data validation and control break processing.

CIS 135D App Prog Dev (Database), 4 cr.—Prerequisite: CIS 122 and CIS 125D. Exploration of relational database theory and structured program development. Includes design, development, testing, implementation, and documentation of programs in a microcomputer DBMS environment.

CIS 140A Operating Sys: Mid-range, 4 cr.—Prerequisite: CIS 120 or instructor permission. Covers an object oriented mid-range computer operating system. An IBM AS/400 Mini-computer will be used. Topics include: command language syntax, menus, objects, libraries, messages, command language programming, testing, and debugging. Students should have basic programming logic skills including alternation and iteration.

CIS 140D Operating Sys: DOS, 4 cr.—Prerequisite: CIS 120 or instructor permission. Includes operating systems commands, command processor functions, input/output control, batch file processing, software installation, customization, and windowing environments.

CIS 140M Operating Sys: Mainframe, 4 cr.—Prerequisite: CIS 120 or instructor permission. Explores the concepts and facilities of a mainframe operating system. Includes the comparison of various operating systems, operating system commands, data set utilities and libraries, and exercises using job control language.

CIS 225 End User Support, 4 cr.—Prerequisite: CIS 120, WR 227, and three additional CIS courses, or instructor approval. Prepares computer professionals for providing training and support to end users. Includes the roles and responsibilities of the end-user support person; characteristics of the adult learner; and strategies and techniques for developing instruction, teaching technical subject matter, and providing ongoing technical support.

CIS 233C App Prog Dev II (COBOL), 4 cr.—Prerequisite: CIS 133C. Continues the study of programming algorithms and their application in the business environment using COBOL. Includes data validation, and problem solving methods using tables.

CIS 233R Rpt Generator Prog Dev (RPG), 4 cr.—Prerequisite: CIS 121 and CIS 122, or instructor permission. Introduction to the RPG (Report Program Generator) application programming language as implemented on an IBM AS/400. Techniques for creating programs for report generation using page headings, calculations, multiple control breaks, tables (both internal and external).

CIS 234 App Prog Dev III (COBOL), 4 cr.—Prerequisite: CIS 233C. Covers advanced algorithms and programming techniques commonly found in the business environment. Includes the creation, update and retrieval of sequential and direct access files, sorting, subprograms, and higher level language processing concepts.

CIS 234I Interactive Prog with CICS, 4 cr.—Prerequisite: CIS 233C or equivalent. Covers on-line processing concepts, on-line program design, and coding with CICS. Includes interactive system environment, screen design and coding, transfer and linking between programs, and pseudononsational systems. Student programming projects will be done using COBOL and CICS.

CIS 244 Structured Systems Analysis, 4 cr.—Prerequisite: Two classes in high-level programming languages and WR 121, or instructor permission. Surveys the system development life cycle, emphasizing definition of users' requirements. Students model business requirements using manual methods and CASE tools. Includes components and applications of information systems, project management, feasibility assessment, documenting data flows, data structures, and program specifications.

CIS 246 Structured Systems Design, 4 cr.—Prerequisite: CIS 244 and WR 214 or equivalent. Advanced studies of the system development life cycle, emphasizing data analysis and structured systems design. Includes a project which involves information gathering, project management, and progress reporting. Documentation for this project includes data structures, data flows, input/output design, procedure and process specifications.

CIS 254 Assembler Lang Prog Dev (BAL), 4 cr.—Prerequisite: CIS 133C or equivalent. Introduces assembler language programming, and explores internal machine processes that occur while using a higher level programming language. Students learn code, and debug problems involving input/output operations, data manipulation, and decimal arithmetic in Basic Assembler Language on an IBM mainframe computer.

CIS 275 Data Base Program Development, 4 cr.—Prerequisite: CIS 122 and one programming course. Introduces the design and use of a database system. Includes data structures, file organizations, database models, program/query development in a database environment, and database administration.
CIS 278 Communications: WAN, 4 cr.—Prerequisite: CIS 121 or equivalent. Provides the basic concepts of data communication, networking, and connectivity. Explores communications software and hardware used with personal computers to access networks. Topics and assignments include data communications hardware and software components, data transmission over wide area networks (WANs), and communication system protocols and architectures.

CIS 279 Communications: LAN, 4 cr.—Prerequisite: CIS 121 or instructor permission. Prepares students for the responsibilities of an entry-level system administrator of a local area network (LAN). Includes setup and customization of user accounts, system securities and system design and installation.

CIS 280D CE: Application Development, 4 cr.—Prerequisite: department approval. Students work in industry, performing duties directly related to the coursework taken in CIS programs.

CIS 285 4th Generation Languages, 4 cr.—Prerequisite: CIS 244 and CIS 275. Explores the advanced tools designed to replace or augment standard procedural computer programming languages. These may include CASE tools, integrated end-user tools, programmer aid tools, and expert systems. Also emphasizes learning SQL.

CIS 299C LAN Monitoring and Management, 4 cr.—Prerequisite: CIS 279 or department approval. Focuses on the need and techniques to monitor and manage a LAN. Includes discussion and lab activities centering on memory management, server-monitoring software, printer customization, system backup and remote management.

CIS 299D Install/Troubleshoot-LANs, 4 cr.—Prerequisite: CIS 279 or department approval. Focuses on installation, maintenance, and troubleshooting of local area networks (LANs). Includes network board configurations, network cabling, disk expansion, troubleshooting techniques, and common network problems. Lab includes hands-on LAN experience.

CIS 299E Obj Orient Prg-Turbo C++, 4 cr.—Prerequisite: CIS 261 and CS 262, CS 233U, or equivalent. Introduces concepts of Object Oriented Programming in a C++ environment. Laboratory exercises will introduce C++ fundamentals and provide insight into applications-oriented use of OOP concepts and techniques.

CJA 113 Introduction to Criminal Justice System - Corrections, 3 cr.—Covers theories and current practices in correctional treatment, crime prevention, contemporary criminal justice services and treatment methods, and professional career opportunities.

CJA 210 Arrest, Search & Seizure, 3 cr.—Presents Constitutional and Oregon Statutory requirements in the areas of arrest, search and seizure. Includes document preparation, service and courtroom presentation.

CJA 211 Intro to Civil Law, 3 cr.—Explores police conduct that gives rise to civil liability. Examines both state and federal laws and the state and federal court systems.

CJA 212 Intro to Criminal Law, 3 cr.—Covers the origin, structure and definitions of common law and statutory crimes, the Oregon Criminal Code, and criminal court procedures.

CJA 213 Intro to Evidence, 3 cr.—Explores the nature and types of criminal evidence and rules governing admissibility, competency and relevancy. Introduces presentation and suppression of evidence, hearsay rules and exceptions.

CJA 214 Intro to Criminal Investigation, 3 cr.—Introduces modern investigative methods, including the collection and preservation of physical evidence, scientific aids, sources of information, interviews, follow-up and case presentation. Includes techniques of interview and interrogation and the use of the polygraph and investigative hypnosis.

CJA 215 Forensic Science & Criminalistics, 3 cr.—Prerequisite: CJA 213 or instructor permission. Covers the theoretical and technical skills necessary for complex criminal investigation. Explores how scientific principles help in crime detection and solution.

CJA 217 Interviewing & Interrogation, 3 cr.—Presents knowledge and working skills in the art of interviewing and interrogation.

CJA 218 Criminal Justice Perspectives of Violence & Aggression, 3 cr.—Explores and analyzes violence and aggression as viewed from biological, psychological, psychiatric and sociological perspectives. Emphasizes episodically violent individuals, their detection, treatment methods and violence prevention in the area of crisis intervention. Presents the tools and techniques of crisis intervention through discussion, demonstration, simulation and role playing.

CJA 219 Introduction to Police Community Relations & Crime Preventio, 3 cr.—Explores causes and types of prejudice and how cultural and racial differences relate to the criminal justice system. Includes the role an individual officer should play in maintaining public support, as well as methods of individual, community and organizational response to prevent crime and victimization in neighborhoods and communities.

CJA 222 Intro to Juvenile Corrections, 3 cr.—Covers the historical and contemporary aspects of the juvenile offender, including juvenile law, legal process, and the juvenile court's structure and function.

CJA 226 Introduction to Dynamics of Juvenile Behavior, 3 cr.—Covers the problems of juveniles, emphasizing juvenile delinquency and deviant behavior. Reviews the major theories of juvenile delinquency and treatment strategies for these childhood and adolescent problems. Includes the historical and contemporary aspects of the juvenile offender, examination of juvenile court structure and function, juvenile law and legal process.
CJA 243 Narcotics & Dangerous Drugs, 3 cr.—Covers the history and causes of narcotic and drug problems, how to identify drug addicts and drug abusers, how to define and classify various types of narcotics and dangerous drugs, including laws and other controls and rehabilitation programs.

CJA 279 Criminal Justice Seminar, 4 cr.—Designed for criminal justice agencies offering special topic seminars to meet the information and training needs of local criminal justice agencies.

CJA 280 CE: Criminal Justice, 3 cr.—Prerequisite: CJA 111, CJA 112, CJA 113, CJA 211, CJA 212 and CJA 213. Students participate with various public sector criminal justice agencies to learn about their structure and function. The field placement must be program-related. The number of credits earned depends on the amount and degree of agency participation by the student.

**CS - Computer Science**

CS 133F Intro to Fortran Programming, 4 cr.—Prerequisite: Placement at WR 121 and completion of MTH 111. Course provides an in-depth introduction into programming in the FORTRAN 77 programming language. This introduction includes the basic concepts of structured programming and modular programming in a modern programming language. The student will be required to complete several laboratory assignments, including writing, debugging, and testing FORTRAN programs.

CS 140U Introduction to UNIX, 4 cr.—Prerequisite: A course in computer literacy, such as CIS 120. Covers UNIX commands, input/output routines to include filter and pipe, UNIX file system, shell, file security, and mail handling. Facilities for a single host and a network configuration. Students develop a series of UNIX shell scripts.

CS 161 Computer Science I, 4 cr.—Prerequisite: MTH 111 and a course in computer literacy. Introduces basic principles of software engineering, structured program design, modular program design, program solving, and social issues of computer programming. Topics include: scalar and structured data types, alternation and repetition control structures, and elementary text file processing.

CS 162 Computer Science II, 4 cr.—Prerequisite: CS 161 or equivalent. Continues study of problem solving, using program design methodology and structured programming. Covers a variety of data structures and algorithms for storing and manipulating data. Includes records, sets, files, linked lists, stacks and queues, trees, search and sort techniques, and recursion.

CS 171 Assembler Language I, 4 cr.—Prerequisite: CS 161 or equivalent, such as GE 113. Includes number representation, instruction execution, programming, and the assembly process. Includes operating and internal operation of a computer and designing, coding and debugging assembler programs involving data manipulation, decimal arithmetic, and input/output operations.

CS 233U C Programming, 4 cr.—Prerequisite: CS 161. Covers aspects of program control, program processing, data types and structures, functions, recursion, sorting techniques and systematic program design. Emphasizes all aspects of the programming and problem-solving process. Includes linear data structures, linked lists, stacks, queues, trees, recursive functions, and merging, sorting, and searching data structures.

CS 248U Advanced UNIX and C, 4 cr.—Prerequisite: CS 140U, CS 162 and CS 171. This course will introduce students to the C language and the UNIX operating system environment used in many upper division Computer Science courses. Use of the file system, operating system calls, shell level programming, low-level debugging of high-level language programs will be presented. Students will complete several programming exercises working with arrays, records, streams, files, linked lists, binary trees, and filters.

CS 250 Discrete Structures, 4 cr.—Prerequisite: CS 140U, CS 162, and CS 171. Introduces students to the C language and the UNIX operating system environment used in many upper division Computer Science courses. Use of the file system, operating system calls, shell level programming, low-level debugging of high-level language programs will be presented. Students will complete several programming exercises working with arrays, records, streams, files, linked lists, binary trees, and filters.

CS 251 Logical Structures, 4 cr.—The structures to be covered in this course are those related to logic and abstract algebras. Includes formal proof techniques, propositional and predicate calculus, computational logic, automatic theorem proving, the logic and knowledge-based programming model, Boolean algebra and circuit design, and the formal structure of abstract algebras.

CS 252 Computational Structures, 4 cr.—Prerequisite: CS 251 and WR 121. Introduces the student to fundamental theoretical structures and concepts underlying the study of computer science. Covers structures related to formal languages, grammars and the subject of solvable and unsolvable problems. Includes formal languages and grammars and the computational models that are their equivalence.

CS 260 Data Structures, 4 cr.—Prerequisite: CS 162. Covers abstract data structures used to store, access, and manipulate information in computer programming. Implementation language will be Pascal, Modula 2, or some similar strongly typed programming language. Includes stacks, queues and lists, searching, hashing, sorting, binary trees and general trees.

CS 264 Assembler Language II, 4 cr.—Prerequisite: CS 171. Continues CS 171 and includes topics in table processing, disk organization, disk input/output, printer drivers, macros, linking, loaders and interrupt processing.

**CSS - Crop Soil Science**

CSS 200 Soils and Plant Nutrition, 3 cr.—Prerequisite: MTH 60 or instructor approval. Covers how soils and plants interrelate, how soil is manipulated to provide an optimum environment for plants and other factors relating to soils and plant nutrition.
CST - Computer Software Engineering Technology

CST 101 Software Applications for Technicians, 3 cr.—Prerequisite: MTH 95 and WR 115. Covers analysis and documentation of projects and data of interest to the technician. Includes applying word processor, spreadsheet, and database software to problems encountered in research, development, and maintenance projects. Incorporates a variety of projects in lab involving documentation of hardware, software, and servicing problems.

CST 106 DOS for Technicians, 3 cr.—Prerequisite: MTH 95 and WR 115. Covers DOS operating system from the perspective of a technician. Includes DOS terminology, reading documentation, directory structure and directory manipulation commands, file manipulation commands, the concept of filters, pipes, and I/O redirection, DOS utilities, system configuration, software installation, and batch file creation and use.

CST 115 Introduction to Software Engineering in C++, 3 cr.—Prerequisite: MTH 95 and WR 115. Co-requisite: CST 6.106. Covers software engineering concepts and tools of software technicians. Includes history of computer languages, computer terminology, software validation, how to read and use documentation, read and document, compile and test, detect and correct defects found in algorithms and programs.

CST 116 Software Engineering in C++, 4 cr.—Prerequisites: CST 6.115. Co-requisite: MTH 111. Covers fundamentals of program design and software engineering. Includes creating and documenting algorithms, built-in data types, expressions, control statements, stream input/output commands, and using data structured design requiring creation and use of structures and functions.

CST 126 Team Programming in C++, 4 cr.—Prerequisites: CST 6.211 and MTH 231. Co-requisite: WR 227. Covers large-scale software development by teams of programmers using data abstraction features of C++. Includes tools and techniques for cooperative software development and extensive use of existing class hierarchies, plus creation of new generic class libraries.

CST 140 UNIX System V, 4 cr.—Prerequisite: MTH 95 and WR 115. Covers UNIX operating system from user's perspective. Includes UNIX organization and practical skills for effective use. Students use a broad range of utilities to control file system, user environment, and text processing capabilities of UNIX. Emphasizes use of various command shells and script programming capabilities. Recommended: experience with another operating system.

CST 206 DOS Windows for Technicians, 3 cr.—The study of the DOS windows environment from the perspective of the technician user. Topics include: the principles of graphical user interfaces and windows; the use of the mouse and keyboard; environment control; the file management system; how to configure and customize the environment; respond to system messages; install new software; and run applications. Students will complete a variety of projects to demonstrate their mastery of these skills. Prerequisite: CST 6.106 or departmental permission.

CST 211 Data Abstraction in C++, 4 cr.—Prerequisites: CST 6.116 and WR 121. Co-requisite: MTH 231. Covers object-oriented approach to design and creation of reusable data types, implemented as classes in C++. Presents advanced data structures and algorithms, including stacks, queues, sequences, streams, lists, arrays, trees, and tables. Covers static and dynamic representations of data structures.

CST 240 Advanced UNIX System V, 4 cr.—Prerequisite: CST 140 or departmental permission. Covers UNIX operating system from system administrator's perspective. Studies fundamental duties and responsibilities of systems and network administration. Students use a broad range of utilities to install, maintain, backup, configure, and troubleshoot file, mail, printer, and network systems of UNIX. Emphasizes use of sophisticated shell scripts.

CST 250 80X86 Assembly Language Programming, 4 cr.—Prerequisites: CST 6.116 and EET 241. Explores software engineering concepts applied to low-level languages. Covers software tools including assembler, linker, debugger, make utility and librarian. Includes assembler directives, macro creation, basic instruction set, and requirements for subroutines and parameter passing. Also covers data representation for arrays, strings, sets, BCD integers, IEEE floating point, records, and lists.

CST 256 Software Engineering in C, 4 cr.—Prerequisites: CST 6.126 and CST 6.240. Covers C programming language for software technicians familiar with another procedural language. Includes basic and constructed data types, expressions, control structures, preprocessor facilities, ANSI standard libraries, software support facilities for C language. Involves small-scale projects including creation of abstract data type libraries.

CST 258 Windows Programming, 4 cr.—Prerequisite: CST 6.126. Covers Microsoft Windows programming environment from the perspective of a C or C++ programmer. Includes concepts and features of the environment and programming facilities supplied by a development environment. Includes a variety of programming projects requiring knowledge of C or C++.

CST 260 Advanced 80X86 Assembly Language Programming, 3 cr.—Prerequisite: CST 6.250. Continues low-level language software engineering studies. Includes writing and documenting medium-scale applications for problems involving specialization of the keyboard, video device, printer, serial ports, hard disk and floppy disk DOS and BIOS interrupts, and mixed-language programming. Explores design and implementation of DOS device drivers.

CST 266 Advanced Software Engineering in C, 4 cr.—Prerequisite: CST 6.256. Continues study of C language programming. Covers C programming in the DOS and UNIX environments, emphasizing the non-ANSI libraries provided by each operating system. Students complete projects creating and modifying programs from data communications, language processing, graphics, and device driver application areas.

CST 268 Advanced Windows Programming, 3 cr.—Prerequisite: CST 6.258. Continues study of Microsoft Windows programming environment from the perspective of a C or C++ programmer, covering various application interfaces. Includes a variety of individual and team programming projects requiring knowledge of C or C++.

CST 270 Special Projects: Analysis and Design, 4 cr.—Prerequisite: Fifth-term standing in CSET. The first of a two-course sequence in which students assume major responsibility
for selecting, planning, and completing a large-scale software project. Includes analysis and baseline design to accepted standards for the project. Students may work individually or in small teams.

CST 272 Special Projects: Implementation, 4 cr.—Prerequisite: CST 6.350. The second of a two-course sequence in which students assume major responsibility for selecting, planning, and completing a large-scale software project. Includes detailed designing, coding and testing the project to accepted standards.

CST 280A CE: Computer Software Technology, 5 cr.—Prerequisite: Fifth-term standing in CSET and department permission. Opportunity for the student to demonstrate and apply the software and hardware knowledge and skills gained from this program in a department-approved work setting. Must be taken for two consecutive terms.

CST 280B CE: Computer Software Technology - Seminar, 1 cr.—Prerequisite: Fifth-term standing in CSET and department permission. Small group discussion of students' cooperative education work experience. Students keep a journal and prepare a term paper.

D - Dance

D 150 Jazz Dance I, 2 cr.—Introduces the fundamentals of jazz dance technique. Emphasizes and develops body alignment, coordination, flexibility, rhythm, and jazz dance vocabulary in simple dance combinations.

D 151 Jazz Dance II, 2 cr.—Prerequisite: D 150 or equivalent. Continues development of jazz dance technique at the advanced beginning/intermediate level. Class work is designed to increase students' stamina, strength, control, vocabulary of steps, musicality and quality of movement.

D 152 Jazz Dance III, 2 cr.—Prerequisite: D 151 or equivalent. Continues to develop jazz dance technique at the intermediate level. Emphasizes greater speed, control, and dynamics in longer and more complex combinations.

D 169 Musical Theater Dance, 2 cr.—Prerequisite: Two dance technique courses or equivalent. Covers dance forms and styles used in the musical theater. Includes basic dance steps and terminology, improving dance skills, and learning dance excerpts from musical theater shows.

D 175A Tap Dance I, 2 cr.—Presents knowledge and skills in basic tap steps and vocabulary, use of rhythms, and simple tap dance combinations.

D 192A Ballet I, 2 cr.—Offers knowledge and skill development in the basics of classical ballet technique. Emphasizes correct alignment, basic barre work, simple center floor work, and ballet vocabulary.

D 192B Ballet II, 2 cr.—Prerequisite: D 192A or equivalent. Continues development of knowledge and skills in classical ballet technique at the intermediate level. Designed to develop control, balance, strength, quality of movement and ballet vocabulary.

D 192C Dance Lab: Modern I, 2 cr.—Presents knowledge and skills in beginning modern dance technique. Includes floor work, axial and locomotor movement, and improvisation, emphasizing alignment, fundamentals of movement, and kinesthetic awareness.

D 192D Dance Lab: Modern II, 2 cr.—Prerequisite: D 192C or equivalent. Presents knowledge and skills in intermediate modern dance technique. Includes technique and improvisation, emphasizing alignment, strength, coordination, vocabulary and quality of movement.

D 209A Dance Performance, 3 cr.—Prerequisite. Two dance technique courses or equivalent. Auditions MAY also be required, depending on production. Offers practical experience in rehearsing and presenting a dance performance.

D 209B Dance Performance, 2 cr.—Prerequisite: Two dance technique courses or equivalent. Auditions MAY also be required, depending on production. Offers practical experience in rehearsing and presenting a dance performance.

D 209C Dance Performance, 1 cr.—Prerequisite: Two dance technique courses or equivalent. Auditions MAY also be required, depending on production. Offers practical experience in rehearsing and presenting a dance performance.

D 251 Intro to Dance - Dance History, 3 cr.—Overview of the history of dance as a performing art, emphasizing the Western world dance forms of ballet, modern dance, and jazz dance. Includes the role of dance in society, understanding and appreciation of dance forms, styles, and the contemporary dance scene.

D 260 Dance Improvisation & Choreography, 2 cr.—Prerequisite: Two dance technique courses or equivalent. Covers basic elements of dance design and composition. Explores movement in time, space and form through improvisations and assignments.

D 292 Ballet III, 2 cr.—Prerequisite: D 192B or equivalent. Continues skill development and knowledge of classical ballet technique at the intermediate level. Incorporates longer, more complex combinations of steps designed to increase speed, control, use of upper body, line, stamina, and musicality.

DA - Dental Assisting

DA 110 Clinical Procedures I, 2 cr.—Introduction to clinical dental assisting including operatory preparation, sterilization/disinfection procedures, dental equipment, tray set-ups and restorative dental procedures.

DA 111 Clinical Procedures Lab I, 2 cr.—Laboratory training and experience in basic dental assisting functions and responsibilities as correlated to the DA 110 lecture. Students progress to assisting dentists in the dental clinics.

DA 112 Clinical Procedures II, 1 cr.—Prerequisite: DA 110. Intermediate clinical dental assisting with instruction in oral examination, charting and other procedures.

DA 113 Clinical Procedures Lab II, 3 cr.—Prerequisite: DA 111. Continued clinical experience in correlation to the DA 112 and DA 118 lectures. Students spend 1 day per week assisting dental students at the Oregon Health Sciences University Dental School.

DA 114 Clinical Procedures III, 1 cr.—Prerequisite: DA 112. Advanced clinical dental assisting with instruction in dental specialty procedures.

DA 115 Clinical Procedures Lab III, 5 cr.—Prerequisite: DA 113. Advanced clinical experience, including dental specialty procedures. During the last six weeks of the term students spend three days per week in private dental practice internships.
Fall Term 1994 — Summer Term 1995

Course Descriptions

DA 118 Expanded Duties I, 1 cr.—Study of the function and procedures beyond the scope of general dental assisting as allowed by the Oregon Dental Practice Act. Includes amalgam polishing and margination, rubber dam placement and removal.

DA 119 Expanded Duties II, 1 cr.—Prerequisite: DA 118. Continued study of expanded duties to include coronal polishing, cement removal, and other areas needed to meet changes in the field.

DA 120 Dental Radiology I, 1 cr.—Introduction to the uses of radiographic images in dentistry, including the history, physical and chemical properties, biological effects and safety principles.

DA 121 Dental Radiology I (Lab), 2 cr.—Students practice radiographic techniques on manikins and correlate activities to the DA 120 lecture.

DA 122 Dental Radiology II, 1 cr.—Prerequisite: DA 120. Continued study of the philosophy and principles of dental radiography with review and preparation for National and State certification examinations.

DA 123 Dental Radiology II (Lab), 2 cr.—Prerequisite: DA 121. Students continue activities begun in DA 121, and when ready, take dental x-rays on patients.

DA 125 Dental Radiology III (Lab), 2 cr.—Prerequisite: DA 123. Advanced x-ray clinical experience to include the panoramic, and x-rays for children and edentulous patients. Radiographic experience during private practice internships.

DA 130 Dental Materials I, 1 cr.—Basic physical and chemical properties of dental materials including resins, gypsum products, impression materials, waxes, cements and bases.

DA 131 Dental Materials I (Lab), 2 cr.—Lab activities prepare students in the proper handling and manipulation of the materials studied in DA 130 lecture.

DA 132 Dental Materials II, 1 cr.—Prerequisite: DA 130. Continued study of dental materials to include those used specifically in the processes of crown and bridge construction.

DA 133 Dental Materials II (Lab), 2 cr.—Prerequisite: DA 131. Students continue to develop skills in the handling and manipulation of dental materials as described in the DA 132 lecture.

DA 135 Dental Materials III (Lab), 2 cr.—Prerequisite: DA 133. Advanced laboratory activities designed to improve proficiency and efficiency in the handling and manipulation of dental materials. Students apply knowledge and skill to private practice externships.

DA 140 Integrated Basic Science I, 3 cr.—Fundamental principles of human anatomy and physiology, plus study of tooth form and function. Introduction to dental embryology, microbiology and pathology included.

DA 142 Integrated Basic Science II, 2 cr.—Specialized study of the structures of the head and neck with emphasis on the oral cavity.

DA 145 Dental Health Education, 2 cr.—Basic principles of the prevention of dental disease through patient and public education, with an introduction to individual psychological differences and behavior modification.

DA 150 Dental Office Procedures I, 1 cr.—An overview of procedures associated with reception desk responsibilities and dental office management.

DA 152 Dental Office Procedures II, 2 cr.—Prerequisite: DA 150. A comprehensive course that includes oral and written communication, computer skills and job search techniques. All study is related to dentistry. Recommended: typing/keyboarding skills.

DA 156 Ethics and Jurisprudence, 1 cr.—Covers ethical standards established by professional dental organizations through their code of ethics. The legal responsibilities and obligations of the dental assistant and the dentist are also taught.

DA 160 Dental Pharmacology, 1 cr.—Students become familiar with medications and drugs used by the dentist in treating patients.

DE – Developmental Education

DE 20 Comprehensive Language Development, 3 cr.—Intensive work on all aspects of language use: reading, writing, spelling, listening and speaking. Students build skills through class, small group, and individualized instruction.

DE 21 Comprehensive English Development for the Deaf, 6 cr.—Prerequisite: instructor permission. The first course of a three-term English program for hearing impaired students wishing to further develop their English skills in writing, reading, and vocabulary.

DE 22 Comprehensive English Development for the Deaf, 6 cr.—Prerequisite: instructor permission. The second course of a three-term English program for hearing impaired students wishing to further develop their English skills in writing, reading, and vocabulary.

DE 23 Comprehensive English Development for the Deaf, 6 cr.—Prerequisite: instructor permission. The third course of a three-term English program for hearing impaired students wishing to further develop their English skills in writing, reading, and vocabulary.

DE 30 Learning Skills, 3 cr.—Presents college policies, procedures, and resources; helps with time management, study skills, note taking, class scheduling, talking with instructors, and succeeding in college. Recommended for students in developmental reading, writing, and math classes.

DE 40 Handwriting Improvement, 2 cr.—Exercises and practice help students to communicate more effectively through legible handwriting and to take pride in the appearance of their written work.

DE 50 Vocabulary Building, 3 cr.—Helps students improve vocabulary by studying parts of speech, word parts, word relationships and using the dictionary. Recommended for students in developmental reading and writing classes.

DE 60 Basic Grammar, 1 cr.—An overview of some fundamental principles of American English grammar, including parts of speech, sentence types, sentence analysis, simple/compound/complex sentences, and a brief overview of punctuation. (Class meets for a minimum of 10 clock hours; hours per week and number of weeks may vary.)
## Course Descriptions

### Fall Term 1994 — Summer Term 1995

**DE 61 Basic Grammar, 2 cr.** — Overview of some fundamental principles of American English grammar, including parts of speech, sentence types, sentence analysis, simple/compound/complex sentences, a brief overview of punctuation, subject-verb agreement, pronoun usage, and selected homonyms. (Class meets at least 20 clock hours; hours per week and number of weeks may vary.)

**DE 62 Basic Grammar, 3 cr.** — An overview of some fundamental principles of American English grammar, including parts of speech, sentence types, sentence analysis, simple/compound/complex sentences, subject-verb agreement, pronoun usage, selected homonyms, punctuation, capitalization, avoidance of fragments, run-ons, and other errors.

**DE 80 Applied Economics/Personal Finance, 5 cr.** — Examines the general principles of economics and certain aspects of personal finance, including employment and income, money management, credit, and consumer protection.

### DH — Dental Hygiene

**DH 101 Dental Hygiene Theory I, 4 cr.** — The study of basic dental hygiene procedures, theory and philosophy as applied to direct patient services.

**DH 102 Dental Hygiene Theory II, 2 cr.** — Prerequisite: DH 101. Continued study of dental hygiene practices, including oral prophylaxis classifications, alternative orphosphotherapy aids and school clinic policies and procedures.

**DH 103 Dental Hygiene Theory III, 2 cr.** — Prerequisite: DH 102. Expansion of the concepts of dental hygiene theory to include the more difficult oral conditions and special needs.

**DH 104 Dental Hygiene Practice I, 3 cr.** — Students will apply dental hygiene theory and techniques in a laboratory setting on dental manikins. Work with patients will begin when specified skill levels are reached.

**DH 105 Dental Hygiene Practice II, 3 cr.** — Prerequisite: DH 104. Students apply dental hygiene preventive and therapeutic principles while providing patient care in a clinical environment. Patient care includes oral prophylaxis and oral hygiene.

**DH 106 Dental Hygiene Practice III, 3 cr.** — Prerequisite: DH 105. Continued clinical activities with increased difficulty in the type and number of cases.

**DH 109 Dental Radiology I, 2 cr.** — Instruction covers basic knowledge concerning dental radiation. Students practice intraoral techniques on manikins with emphasis on radiation safety practices and techniques.

**DH 113 Dental Anatomy, 2 cr.** — Study of the anatomical characteristics of all permanent and deciduous teeth and their surrounding tissues.

**DH 121 Dental Health Education Strategies, 2 cr.** — This course seeks to familiarize the student with selected teaching techniques and organized teaching programs having direct application to dental health education concepts.

**DH 127 Medical Emergencies, 1 cr.** — Study of medical emergencies that occur in the dental office including prevention, recognition and appropriate intervention.

**DH 128 Oral Histology, 2 cr.** — The study of microscopic anatomy of the oral tissues. This course serves as an introduction to DH 129 Oral Pathology.

**DH 129 Oral Pathology, 3 cr.** — Prerequisite: DH 128. The study of oral diseases and recognition of conditions that may require consultation and treatment by a dentist prior to, or concurrent with dental hygiene procedures.

**DH 201 Dental Hygiene Theory IV, 2 cr.** — Prerequisite: DH 103. Dental hygiene theory applied to patients having moderate to severe periodontal disease. Instruction includes the use of ultrasonic scaling devices, root planing, curettage and nutritional counseling.

**DH 202 Dental Hygiene Theory V, 2 cr.** — Prerequisite: DH 104. Advanced dental hygiene theory to include expanded functions such as amalgam polishing/margination, occlusal sealants, tooth desensitization and pulp vitality testing. Introduction to dental assisting procedures included.

**DH 203 Dental Hygiene Theory VI, 4 cr.** — Prerequisite: DH 105. Expansion of dental hygiene theory to include dental specialties and the role of the hygienist in specialty offices. Job search skills and stress management included.

**DH 204 Dental Hygiene Practice IV, 5 cr.** — Prerequisite: DH 106. Continued clinical activities to include patients with moderate to severe periodontal disease. Activities will also correlate to DH 104 lecture topics.

**DH 205 Dental Hygiene Practice V, 5 cr.** — Prerequisite: DH 204. Continued clinical activities in correlation with DH 105 lecture topics. Increased student performance levels expected.

**DH 206 Dental Hygiene Practice VI, 5 cr.** — Prerequisite: DH 205. Advanced dental hygiene clinical activities to include all aspects of previous training at increased skill levels. Nitrous oxide sedation included, plus simulated private practice and mock board activities.

**DH 208 Community Dental Health Education, 1 cr.** — Prerequisite: DH 121. This course provides knowledge and skills necessary to function as an oral health educator for groups of varied populations.

**DH 210 Dental Radiology Lab II, 1 cr.** — A continuation of DH 109. Dental Radiology I. Course will include provision of basic intra and extraoral radiographic services to clinic patients including more advanced radiographic techniques.

**DH 212 Radiographic Interpretation, 1 cr.** — Prerequisite: DH 109. The course is designed to provide the student with knowledge of, and experience in the analysis and recording of dental radiographic images.

**DH 230 Dental Materials, 2 cr.** — The classification, chemistry, physical properties, and uses of dental materials including manipulation techniques.

**DH 231 Oral Anatomy/Pain Control, 4 cr.** — Students study the structures in and around the oral cavity, and the theory and practice of local anesthesia for patient comfort during dental procedures.

**DH 232 Nitrous Oxide Sedation, 2 cr.** — The theory and clinical application of nitrous oxide sedation for dental patients as prescribed by the State Dental Practice Acts of Oregon, Washington and California.

**DH 236 Ethics & Jurisprudence, 1 cr.** — Students study the legal restrictions and ethical responsibilities associated with the practice of dental hygiene and dentistry.

**DH 246 Pharmacology, 3 cr.** — Prerequisite: DH 102. An introduction to various drugs used in the practice of dentistry. Students study nomenclature, classification, dosage, and effects of different pharmacologic compounds.
Fall Term 1994 — Summer Term 1995

Course Descriptions

DH 250 Public Health, 2 cr.—An introduction to public health criteria, epidemiological studies, and basic statistics in preparation for courses in community dentistry.

DH 252 Community Dentistry I, 1 cr.—Students become familiar with, and involved in current community projects which provide dental services, research and education.

DH 253 Community Dentistry II, 1 cr.—Prerequisite: DH 121, DH 252 and SP 111. The development, evaluation and implementation of dental health projects in the community.

DH 260 Periodontology I, 2 cr.—Introduction to the science and management of periodontal diseases. Emphasis will be placed on microbial, biochemical and etiological principles. The course will correlate to clinical activities.

DH 261 Periodontology II, 2 cr.—Prerequisite: DH 260. Advanced study of periodontal disease to include the most severe conditions, surgical corrections and research findings.

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DRF — Drafting Technology

DRF 112 Technical Freehand Sketching, 2 cr.—Introduces skills needed to produce orthographic and pictorial freehand sketches. Emphasizes one-view, two-view, three-view and isometric drawing.

DRF 116 Introduction to Drafting, 8 cr.—Prerequisite: or co-requisite: DRF 112. Basic drawing techniques and applications. Emphasizes the use of drafting instruments, lettering, geometric constructions, orthographic projection, auxiliary view drawing, sections and conventions, pictorial drawing and basic dimensioning.

DRF 119 Introduction to CADKEY 3-D, 2 cr.—Prerequisite: or co-requisite: DRF 116. Introduces CADKEY 3-D software as a drafting tool. Includes hardware operation and data manipulation from the system’s central processing unit. Covers the creation of orthographic and three dimensional drawings using basic CADKEY commands.

DRF 122 Isometric Illustration, 4 cr.—Prerequisite: DRF 112 and DRF 116 or instructor permission. Develops the skills and knowledge necessary for the production of isometric drawings. Covers the proper procedures for using an isometric protractor, ellipse template, and technical pens.

DRF 124 Exploded Isometric Illustration, 4 cr.—Prerequisite: DRF 122 or instructor permission. Develops the knowledge and skills necessary to produce quality illustrations typically used in technical manuals. Covers procedures used in the layout of exploded drawings and the use of a lettering device.

DRF 126 Introduction to AutoCAD, 2 cr.—Prerequisite: or co-requisite: DRF 116 and CIS 120 or department approved equivalent. Introduces AUTOCAD software as a drafting tool. Includes hardware configuration and operation, data manipulation from the system’s central processing unit, and the creation, retrieval and modification of drawings using basic AutoCAD commands.

DRF 127 Shading & Rendering Techniques, 2 cr.—Focuses on skills needed to produce pencil and ink renderings. Includes shading to show depth, roundness and texture needed for display drawings. Also covers various color rendering techniques.

DRF 128 Descriptive Geometry, 2 cr.—Prerequisite: DRF 112 and DRF 116 or department approved equivalent. Introduces orthographic and auxiliary views as they apply to lines and planes in space, and to the graphical solution of force vectors.

DRF 129 Intermediate CADKEY: 3-D, 3 cr.—Prerequisite: DRF 119 or department approved equivalent. In-depth study of computer aided 3-D modeling. Emphasizes advanced 3-D modeling and dimensioning techniques, spline creation, surface shading and macro generation.

DRF 131 Desktop Publishing I: PageMaker on PC, 2 cr.—Introduces using a computer and desktop publishing software to prepare documents for possible publication. Includes placing and modifying text and graphics in document design.

DRF 132 Industrial Drafting II, 4 cr.—Prerequisite: DRF 116 and DRF 12 or department approved equivalent. Covers documentation methods for detail and assembly drawings. Includes American National Standard Fits, tolerances and allowances, methods of controlling surface roughness and quality, weldment drawings and AWS symbols and fasteners.

DRF 133 Industrial Drafting II-A, 4 cr.—Prerequisite: DRF 116, DRF 12 or department approved equivalent. Develops the first half of DRF 132, Industrial Drafting II.

DRF 134 Introduction to Machine Manufacturing, 4 cr.—Prerequisite: DRF 112 and DRF 116 or department approved equivalent. Introduces basic machines and practices used in most machine shops. Includes shop safety practices, tool crib and shop procedures, care and use of precision tools and the use of the sensitive drill press, engine lathe, milling machine and band saw.

DRF 135 Industrial Drafting II-B, 4 cr.—Prerequisite: DRF 116, DRF 12 or department approved equivalent. Develops the second half of DRF 132, Industrial Drafting II.

DRF 136 Intermediate AutoCAD, 3 cr.—Prerequisite: DRF 112 or department approved equivalent. In-depth study of computer aided drafting using AutoCAD software. Covers slide files, block attributes, user coordinate systems, v-points, 3-D entity creation, external references, and paper/model space drawing manipulation.

DRF 137 2-D Illustrations, Diagrams, 4 cr.—Prerequisite: DRF 124 or department approval. This course develops skills in drawing on mylar film and illustration board. Illustrations used in slide art and display illustration techniques using shading and color film are produced.

DRF 161 Industry Orientation, 2 cr.—Prerequisite: fourth term standing or department approved equivalent. Includes presentations from local industry representatives regarding their involvement in drafting and illustration.

DRF 239 Advanced CADKEY: 3-D, 3 cr.—Prerequisite: DRF 129 or department approved equivalent. CADL (Cadkey Advance Design Language) course. Includes program customization, menu creation and file translators (iges and DXF).

DRF 240 Casting and Molding Design Drafting, 3 cr.—Prerequisite: DRF 112, DRF 116, DRF 119, DRF 132, DRF 134, DRF 138, or department approved equivalent. Covers components and materials formed by the casting metals and molding (plastics) processes.

DRF 241 Structural Detail Drafting, 3 cr.—Prerequisite: DRF 112, DRF 116, DRF 123 or department approved equivalent. Covers structure fabrication detailing. Includes steel fabrication and reinforced concrete detailing.
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<tr>
<th>Course Description</th>
<th>Fall Term 1994 — Summer Term 1995</th>
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<tbody>
<tr>
<td><strong>DRF 242</strong> Computer Graphics I - Adobe on PC, 2 cr.—</td>
<td>Create original graphics using lines, curves, rectangles and ovals. Modify graphics by moving, transforming, layering, splitting, connecting and creating blends and gradations.</td>
</tr>
<tr>
<td><strong>DRF 244</strong> Drafting Math and Problem Solution, 4 cr.—</td>
<td>Prerequisite: DRF 131 or department approved equivalent. Includes arithmetic, algebra and trigonometry used by drafters. The math is applied to the study of forces and getting loads and reactions on various members and structures.</td>
</tr>
<tr>
<td><strong>DRF 248</strong> Desktop Publishing II: PageMaker on PC, 2 cr.—</td>
<td>Prerequisite: DRF 131 or department approved equivalent. Using the computer to design documents used in the publishing field. Includes customizing publication design by importing files from word processor, CADKEY, AutoCAD, Adobe Illustrator and a color scanner.</td>
</tr>
<tr>
<td><strong>DRF 250</strong> Fluid Power Design Drafting, 2 cr.—</td>
<td>Prerequisite: Second year standing or instructor approval. Introduces specialized manufacturing drawings in the fluid power environments. Includes hydraulic and pneumatic measurement units and calculation, mechanics and laws of fluids, components symbols, diagrams and circuits (systems). Covers drawing arrangements and terminology found in this field of manufacture.</td>
</tr>
<tr>
<td><strong>DRF 251</strong> Kinematics Drafting, 2 cr.—</td>
<td>Prerequisite: DRF 112, DRF 116, DRF 119, DRF 132 and DRF 244 or department approved equivalent. An advanced drafting course that covers mechanics dealing with motion. Topics include design concepts of linkages, levers, cams, gears, belt and chain drives.</td>
</tr>
<tr>
<td><strong>DRF 252</strong> Logic Schematic Drafting, 3 cr.—</td>
<td>Prerequisite: DRF 112, DRF 116, DRF 119, DRF 132 and DRF 244 or department approved equivalent. Designed to introduce the student to systems designed to compare a combination of input signals for a desired control outcome. Topics will include electronic, electrical, hydraulic, fluidic and liquid control systems.</td>
</tr>
<tr>
<td><strong>DRF 253</strong> Electro/Mechanical Design/Drafting, 3 cr.—</td>
<td>Prerequisite: DRF 112, DRF 116, DRF 119, DRF 128, DRF 134, DRF 258, and DRF 132 or department approved equivalent. Course designed to introduce the student to specialized manufacturing drawings in the electronic environment. Not to be an electronic engineering course, the mechanical side of electronics will be the topic. Drawing arrangements and terminology found in this field of manufacture will be covered.</td>
</tr>
<tr>
<td><strong>DRF 254</strong> Drafting Design and Problem Solution, 4 cr.—</td>
<td>Prerequisite: DRF 244 or department approved equivalent. Includes dynamics, strength of materials and elementary physics applied to bodies in motion, forces causing motion, shaft design, beam stress, various states of matter (gas, liquid, solid), heat, and other problems.</td>
</tr>
<tr>
<td><strong>DRF 255</strong> Perspective Illustration, 2-point and Grid, 4 cr.—</td>
<td>Prerequisite: DRF 122 or instructor permission. Develops the knowledge and skills necessary to produce 2-point perspective drawings. Covers projected perspectives from orthographic prints and grid perspectives scaled from photographs.</td>
</tr>
<tr>
<td><strong>DRF 256</strong> Advanced AutoCAD, 3 cr.—</td>
<td>Prerequisite: DRF 136 or department approved equivalent. Examines customization of AutoCAD menu files. Includes buttons, pop, icon, screen and tablet sections, creation and implementation of user-defined AutoLISP functions, and basic file management techniques.</td>
</tr>
<tr>
<td><strong>DRF 257</strong> Computer Graphics in Industry II - Adobe on PC, 2 cr.—</td>
<td>Prerequisite: DRF 242 or department approved equivalent. Graphics manipulation. Includes placing scanned images into Adobe for modification and combining with text for placement into desktop publishing.</td>
</tr>
<tr>
<td><strong>DRF 258</strong> Geometric Dimensioning &amp; Tolerancing, 3 cr.—</td>
<td>Prerequisite: DRF 132, employment in the field, or department approved equivalent. Technical language based on ANSI Y14.5-1982, an international system designed to define the functional parameters of any set of related mechanical parts. This system is used by engineers, designers, drafters, machinists, tool and die/jig and other related manufacturers.</td>
</tr>
<tr>
<td><strong>DRF 260</strong> Tool and Fixture Design/Drafting, 2 cr.—</td>
<td>Prerequisite: DRF 112, DRF 116, DRF 119, DRF 128, DRF 132, DRF 134, DRF 138, DRF 240, DRF 251 and DRF 258, or department approved equivalent. Covers manufacturing aids used in repetitive manufacturing. Requires a knowledge of materials, shop practices, mechanical ingenuity and skill in drafting. Includes design concepts of fixtures, jigs and mechanisms such as clamps, centering devices, etc.</td>
</tr>
<tr>
<td><strong>DRF 261</strong> Electronic Pkg Dsgn/Drafting, 3 cr.—</td>
<td>Prerequisite: DRF 112, DRF 116, DRF 119 or 126, DRF 132, DRF 138, DRF 244, DRF 240, DRF 128, DRF 258, and DRF 253. Packaging or containing of electronic and scientific systems considering mechanical and electrical protection, ergonomic design, manufacture, costs, materials and processes. Includes applications of dimensioning and tolerancing per ANSI Y14.5-1982, plastics design, standards in packaging design, rack mount and freestanding, hardware/ fasteners and accepted practices of PC Board/controls mounting.</td>
</tr>
<tr>
<td><strong>DRF 262</strong> Machine Design Drafting, 3 cr.—</td>
<td>Prerequisite: DRF 112, DRF 116, DRF 119 or 126, DRF 128, DRF 129, DRF 132, DRF 134, DRF 240, DRF 244, DRF 251, DRF 258 and DRF 254, or department approved equivalent. Covers design considerations to make up a working machine scaled to large to mass production.</td>
</tr>
<tr>
<td><strong>DRF 263</strong> Printing Orientation, 2 cr.—</td>
<td>Survey of the mechanics involved from original design through print production. Explores techniques used for the application of illustrations and text in the publishing profession. Includes one-color vs. multi-color printing, printing processes, and paper selection. Emphasizes communication between technical illustrators and printing professionals.</td>
</tr>
<tr>
<td><strong>DRF 264</strong> Computer Presentation Graphics, 2 cr.—</td>
<td>Introduces graphics software used to prepare 35mm slides, overhead transparencies and other promotional materials. Includes charts and graphs used at sales meetings, convention booths and group demonstrations.</td>
</tr>
<tr>
<td><strong>DRF 265</strong> Perspective Illustration-Residential, 2 cr.—</td>
<td>Prerequisite: ADT 111 or instructor approval. Introduces skills necessary for projection of 2-point perspective drawings. Includes drawing perspectives from orthographic prints and traced in ink.</td>
</tr>
<tr>
<td><strong>DRF 280A</strong> CE: Drafting, 10 cr.—</td>
<td>Prerequisite: Completion of first year program and department approval. Offered for variable credit. Develops drafting knowledge and skills in a department-approved work setting. The work experiences are designed to be closely aligned with the students’ on-campus educational program.</td>
</tr>
<tr>
<td><strong>DRF 280B</strong> CE: Drafting - Seminar, 1 cr.—</td>
<td>Supplements the field experience through feedback sessions relating to on-the-job experiences and the campus instructional program.</td>
</tr>
</tbody>
</table>
DRF 299 Technical Publication Production, 4 cr.—Prerequisite: Sixth term standing or department approved equivalent. Survey of the various disciplines involved in technical publication production through lectures, industry visits and applied lab work. Includes technical writing, format design, illustration, process photography, typesetting specification, mechanical production, printing specification and desktop publishing.

DRF 9853 Blueprint Reading & Sketching, 2 cr.—Prerequisite: Basic reading and writing skills. Basic machine blueprint concepts. Includes formats, view projection and symbols of lines. Emphasizes freehand sketching to supplement visual information for improved understanding.

DS - Diesel Service Technology

DS 101 Shop Practice, 6 cr.—Use of hand tools, pullers, taps, dies, drill press, grinder, sanding, and commonly used measuring instruments. Emphasizes safe and efficient operation of hand and power equipment.

DS 102 Truck Power Train, 6 cr.—Introduces gear transmissions, differentials and clutches involved in the application of diesel-powered vehicles.

DS 103 Fuel Injection Systems, 6 cr.—Theory of rebuild and calibration procedures for all major fuel injection devices and supply pumps. Introduces the operations of these devices and how they affect engine performance.

DS 104 Fundamentals of Electricity, 6 cr.—Fundamentals of electricity, electrical circuitry and components. Practice on electrical components and live circuitry.

DS 105 Fundamentals of Hydraulics, 6 cr.—Fundamentals of hydraulics in theory and shop practice. Provides a solid background in the many applications of hydraulics in the trucking and heavy equipment industry.

DS 106 Engine Diagnostic Tune-up, 6 cr.—Analyze and diagnose each supporting system of the diesel engine to properly tune the engine for peak performance. Develops an understanding of how each of these systems relates to one another.

DS 107 Live Equipment & Lab, 6 cr.—Prerequisite: Department approval. Repair of customer-owned (live) equipment under a minimum of supervision.

DS 201 Diesel Engine Rebuild, 6 cr.—Provides the basic knowledge and skills required to service diesel engines and fuel systems. Demonstrate understanding and proficiency in the theories, principles and operating procedures of hand tools and precision measuring, and test instruments necessary to properly service diesel engines and supporting systems.

DS 202 Heavy Duty Power Train, 6 cr.—Advanced theory and application on automatic and power shift transmissions as used in the heavy equipment industry.

DS 203 Fuel Injection Pumps, 6 cr.—Advanced diesel fuel systems and theory. Includes the skills necessary to accurately disassemble-assemble, measure, reassemble and calibrate all major fuel systems.

DS 204 Diesel Starting & Charging Systems, 6 cr.—Prerequisite: DS 104. Overhaul system components and practice live troubleshooting of heavy duty electrical and electronic systems.

DS 205 Mobile & Hydrostatic Hydraulics, 6 cr.—Prerequisite: DS 105. Covers advanced hydraulics and hydrostatics used on heavy equipment, farm machinery, marine equipment, hydraulic cranes, backhoes and other equipment. Emphasizes troubleshooting.

DS 206 Brakes, Suspension & Steering, 6 cr.—Air brake systems as used on heavy duty trucks. Includes the function of common air valves, various types of suspension systems and steering systems. Focuses on adjustments of these systems emphasizing troubleshooting.

DS 280A CE: Diesel Service Technology, 10 cr.—Prerequisite: Department approval. On-the-job work experience related to the individual's education and career goals. Receive one credit for 40 hours of work.

DS 280B CE: Diesel Service Technology - Seminar, 2 cr.—Prerequisite: Department approval. Share and receive feedback on experiences from other students and instructors. Discuss job survival skills.

DS 9103 Fuel Injection Systems, 2 cr.—Theory of rebuild and calibration procedures for all major fuel injection devices and supply pumps. Introduces the operations of these devices and how they affect engine performance.

DS 9104 Fundamentals of Electricity, 2 cr.—Fundamentals of electricity and electronics. Practice on electrical components and live circuitry.

DS 9105 Fundamentals of Hydraulics, 2 cr.—Covers basic hydraulic theory and its practical application in various systems such as power steering, hydrostats, and backhoes.

DS 9107 Automotive Diesel Engine Tune-up, 2 cr.—Prerequisite: Department approval. Analyze and diagnose each supporting system of the automobile diesel engine to properly tune the engine for peak performance.

DS 9109 Diesel Electronic Control System, 2 cr.—Trouble-shooting and fault code diagnosis for Cummins ECI, Detroit Diesel DDEC, and Caterpillar PEEC systems.

DS 9112 Small Marine Diesel Engine Preventive Maintenance and Tune-up, 2 cr.—Analyze and diagnose each supporting system of the small diesel engine to properly tune the engine for maximum performance.

DS 9113 Caterpillar Diesel Engine Tune-up, 2 cr.—Covers tune-up procedures on Caterpillar truck engines.

DS 9114 Detroit Diesel Engine Tune-up, 2 cr.—Covers familiarization and tune-up procedures for the 71 series, 92 series and the series 6. A Pro-link 9000 will be used.

DS 9205 Mobile Hydraulics, 2 cr.—Specific components of mixer, truck, application and hydraulic system diagnosis.

DT - Dental Technology

DT 101 Dental Technology Lab I, 6 cr.—Initial skill development in the use and operation of dental laboratory equipment, the application of safety principles, and introduction to the fabrication process of complete removable dentures.

DT 102 Dental Technology Lab II, 6 cr.—Prerequisite: DT 101. Continued skill development in complete denture construction. Articulators and immediate overdentures introduced.
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DT 103 Dental Technology Lab III, 6 cr.—Prerequisite: DT 102. Advanced complete denture construction to include alternative materials, occlusal patterns and denture individualization.

DT 120 Introduction to Dental Anatomy, 1 cr.—Study of the basic forms, structures and functions of teeth and their surrounding tissues.

DT 141 Denture Techniques I, 2 cr.—The history and philosophy of complete removable dentures with an introduction to the construction process. Artificial tooth selection and setting procedures emphasized.

DT 142 Denture Techniques II, 2 cr.—Prerequisite: DT 141. Continued study of denture construction including the use of articulators, finishing procedures and alternative techniques.

DT 143 Denture Techniques III, 2 cr.—Prerequisite: DT 142. Advanced study of denture construction including alternative occlusal patterns and materials.

DT 151 Science of Dental Materials I, 2 cr.—An overview of materials used in dentistry such as gypsum products, waxes and impression materials.

DT 152 Science of Dental Materials II, 3 cr.—Prerequisite: DT 151. Introduction to chemistry and physics, especially as they relate to dental materials. Measurement techniques and unit conversions are stressed.

DT 204 Dental Technology Lab IV, 6 cr.—Prerequisite: DT 103. Skill development in the processes and procedures associated with dental crown and bridge construction. Dental inlays included.

DT 205 Dental Technology Lab V, 6 cr.—Prerequisite: DT 204. The uses of porcelain and acrylic in crown and bridge construction with emphasis on color and form reproduction.

DT 253 Science of Dental Materials III, 2 cr.—Prerequisite: DT 252. Continued study of dental materials as related to cast metal alloys and crown and bridge construction.

DT 254 Science of Dental Materials IV, 2 cr.—Prerequisite: DT 253. Advanced study of dental materials including ceramics (porcelain) and high fusing metal alloys.

DT 270 Inlay Casting, Crown & Bridge, 3 cr.—Introduction to crown and bridge construction processes and techniques including preparation and waxes of dies, investing, casting, and finishing. Principles also applied to dental inlays.

DT 271 Partial, Clasp & Bar, 2 cr.—Prerequisite: DT 270. Study of the philosophy, materials, design and fabrication processes of removable partial dentures.

DT 272 Dental Ceramics, 3 cr.—Prerequisite: DT 103, DT 270 and DT 152. Study of dental ceramics (porcelain) including the philosophy, structure, properties, uses, and laboratory procedures associated with this material.

DT 275 Dental Laboratory Management, 3 cr.—This course is designed to introduce the student to management skills and responsibilities as well as the problems associated with dental laboratory ownership.

DT 276 Dental Laboratory Mgmt Lab, 0 cr.—

DT 281 Professional Ethics, 1 cr.—The history of the dental profession and its auxiliary organizations, and the principles of ethics as they apply to the dental laboratory technician.

DT 284 Dental Specialties, 2 cr.—Prerequisite: Successful completion of the previous three terms of the program. A survey of dental specialties and advanced techniques that involve the dental laboratory technician.

DT 285 Dental Seminar, 2 cr.—Review of dental laboratory techniques and introduction to new and emerging technologies. Miscellaneous enrichment activities are included which will correlate with, and occasionally overlap course material in DT 284.

EC — Economics

EC 115 Outlines of Economics, 3 cr.—Surveys the principles of economics, government economic policies and institutions, and international issues. Emphasizes topics of particular interest to each class.

EC 200 Principles of Economics: Macro, Institutions & Philosophies, 3 cr.—Concepts involving scarcity and choice; the evolution of economic thought; the development of the industrial market system; the present U.S. economic structure; and international trade and finance.

EC 201 Principles of Economics: Microeconomics, 3 cr.—Covers the overall economy. Includes the basic reasons for and the problems of recession, inflation and stagnation; the use of monetary, fiscal, and incomes policies; and other economic management tools. Recommended prerequisite: EC 200.

EC 202 Principles of Economics: Macroeconomics, 3 cr.—Covers the overall economy. Includes the basic reasons for and the problems of recession, inflation and stagnation; the use of monetary, fiscal, and incomes policies; and other economic management tools. Recommended prerequisite: EC 200.


EC 216 Introduction to Labor Economics, 3 cr.—Theories and policies of manpower economics, unemployment and employment, wage determination, unions and collective bargaining. Includes negotiations, grievance procedures, and dispute resolution in both private and public sectors.

EC 230 Contemporary World Economic Issues: International Economics, 3 cr.—Selected issues and problems related to international economics and international economic institutions. Includes trade and the balance of payments, trade competition between Japan and the U.S., reform and restructuring of the Russian and Eastern European economies, economic development and problems of developing nations.

EC 280A CE: Economics, 4 cr.—Extends knowledge of Economics through work in settings which provide learning experiences supplementing classroom learning.

EC 280B CE: Economics - Seminar, 1 cr.—Forum to discuss work experiences with peers and instructor.

EC 298 Independent Study: Economics, 3 cr.—Prerequisite: instructor permission. Individualized study at an advanced level in areas of economics not considered in other courses to
meet special interests or program requirements. Students complete a term project and readings approved by the instructor. Recommended: prior study of economics.

ECE 299 Special Studies: Economics, 3 cr.—Special topics, activities, or projects in an area of economics not usually covered in depth in other economics courses. Recommended: prior study in economics and instructor approval.

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**ECE - Early Childhood Education**

**ECE 100 Applied Child Development, 3 cr.**—Focuses on children as they develop from one stage to another. The content is practical and applies to daily work with children from infancy through age 10.

**ECE 102 Guidance of Young Children, 3 cr.**—Focuses on age-appropriate guidance techniques for individual and groups of children six weeks to six years. Topics include the ongoing dynamics of relationships and how values and belief systems impact guidance decisions.

**ECE 103 Observation of Young Child, 3 cr.**—Examines the importance of record keeping and techniques of observing and recording behavior of infants through five-year olds. Covers observing the care giver's role in promoting development, including self-observation. HEC 226 or ECE 226 recommended prerequisite.

**ECE 110 Infant/Toddler Environments, 3 cr.**—For home or care centers with infants and toddlers. Includes the needs of the child; setting up and evaluating developmentally appropriate environments. Emphasizes the interdependence of the social/emotional/physical/learning components of the environment.

**ECE 111 Early Childhood Environments, 3 cr.**—For home or care centers with 2 1/2 - 5 year-old children. Includes the needs of the child; components of the physical and social environment; assessing, choosing, presenting and evaluating developmentally appropriate environments.

**ECE 112 Infant/Toddler Materials and Activities, 3 cr.**—For home or care centers with infants and toddlers. Includes needs of the child; selecting, presenting, and evaluating developmentally appropriate materials and activities.

**ECE 113 Early Childhood Materials and Activities, 3 cr.**—Focuses on selecting, presenting and evaluating developmentally appropriate materials and activities for 2 1/2-5 year-old children in home or center based care.

**ECE 150 Infant/Toddler Practicum I (Seminar), 1 cr.**—Corequisite: ECE 151-156. Reviews lab experiences and observations. Focuses on the role of the teacher in carrying out a developmental philosophy of early childhood education.

**ECE 151 Infant/Toddler Practicum I, 1 cr.**—Prerequisite: HEC 226 or ECE 100. Pre or corequisite: ECE 102. Develops skills in working with infants/toddlers in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development and planning a schedule and curriculum.

**ECE 152 Infant/Toddler Practicum I, 2 cr.**—Prerequisite: HEC 226 or ECE 100. Pre or corequisite: ECE 102. Develops skills in working with infants/toddlers in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development and planning a schedule and curriculum.

**ECE 153 Infant/Toddler Practicum I, 3 cr.**—Prerequisite: HEC 226 or ECE 100. Pre or corequisite: ECE 102. Develops skills in working with infants/toddlers in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development and planning a schedule and curriculum.

**ECE 154 Infant/Toddler Practicum I, 4 cr.**—Prerequisite: HEC 226 or ECE 100. Pre or corequisite: ECE 102. Develops skills in working with infants/toddlers in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development and planning a schedule and curriculum.

**ECE 155 Infant/Toddler Practicum I, 5 cr.**—Prerequisite: HEC 226 or ECE 100. Pre or corequisite: ECE 102. Develops skills in working with infants/toddlers in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development and planning a schedule and curriculum.

**ECE 156 Infant/Toddler Practicum I, 6 cr.**—Prerequisite: HEC 226 or ECE 100. Pre or corequisite: ECE 102. Develops skills in working with infants/toddlers in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development and planning a schedule and curriculum.

**ECE 160 Early Childhood Practicum I (Seminar), 1 cr.**—Corequisite: ECE 161. Review lab experiences and observations. Focuses on the role of the teacher in carrying out a developmental philosophy of early childhood education.

**ECE 161 Early Childhood Practicum I, 1 cr.**—Prerequisite: HEC 226 or ECE 100. Pre or corequisite: ECE 102. Develops skills in supervision of children in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods.

**ECE 162 Early Childhood Practicum I, 2 cr.**—Prerequisite: HEC 226 or ECE 100. Pre or corequisite: ECE 102. Develops skills in supervision of children in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development; supporting and planning schedule and curriculum.

**ECE 163 Early Childhood Practicum I, 3 cr.**—Prerequisite: HEC 226 or ECE 100. Pre or corequisite: ECE 102. Develops skills in supervision of children in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development; supporting and planning schedule and curriculum.
ECE 164 Early Childhood Practicum I, 4 cr.—Prerequisite: HEC 226 or ECE 100. Pre or corequisite: ECE 102. Develops skills in supervision of children in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development; and supporting and planning schedule and curriculum.

ECE 165 Early Childhood Practicum I, 5 cr.—Prerequisite: HEC 226 or ECE 100. Pre or corequisite: ECE 102. Develops skills in supervision of children in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development; and supporting and planning schedule and curriculum.

ECE 166 Early Childhood Practicum I, 6 cr.—Prerequisite: HEC 226 or ECE 100. Pre or corequisite: ECE 102. Develops skills in supervision of children in a group setting in the PCC Child Care Center. Includes teamwork and communication skills using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development; and supporting and planning schedule and curriculum.

ECE 200 The Professional in Early Childhood Education, 3 cr.—Placement into WR 121. History, current programs and practices, and future issues of early childhood education. Includes professionalism, historic and current issues, types of programs for young children, parent interaction, job opportunities, ethical/legal issues and community resources. Develops a professional philosophy.

ECE 201 Nutrition in Early Childhood Education, 2 cr.—Prerequisite: MTH 20. Foods and nutrients, and their relationship to health, growth and development. Covers planning and serving food to young children, and nutrition education for young children and their parents.

ECE 226 Child Development, 3 cr.—Basic theories, research and principles of physical, cognitive, language, social and emotional development of children from the prenatal period through adolescence. Includes observation and classroom processes.

ECE 230 Family Child Care: Programs and Practices, 2 cr.—Provides the basic information necessary to manage a family day care business. Includes local rules and regulations, small business practices, children’s growth and development, learning activities, food, health, and safety.

ECE 231 Family Child Care: Business and Professional Practices, 2 cr.—Builds on family child care practices learned in ECE 230. Focuses on business aspects of family child care including finances, taxes, business licenses, and organization. Develops marketing and professional skills.

ECE 233 Cultural Diversity in Early Childhood Education, 3 cr.—Develops an awareness of cultural and ethnic issues as they relate to the early childhood classroom teacher. Focuses on ethnocentrism, racism and discrimination. Includes techniques for developing multi-cultural, anti-bias curriculum.

ECE 234 Exceptional Children and Families in Early Childhood Education, 3 cr.—Provides an overview of the characteristics and needs of various handicapping conditions in young mainstreamed children. Covers working with the total child, the family and adapting the preschool environment.

ECE 235 Music and Movement in Early Childhood Education, 3 cr.—Learn and experience a variety of music and movement activities, techniques and materials appropriate for young children from six weeks to six years of age.

ECE 236 Language and Literacy in Early Childhood Education, 3 cr.—Overview of language and literacy development in children from infancy to age 6. Design and use a variety of language and literacy development activities with young children.

ECE 237 Science and Math in Early Childhood Education, 3 cr.—Develop activities and create and maintain a classroom in which young children, 6 weeks to 6 years, can discover and explore scientific and mathematical processes.

ECE 238 Administration of Early Childhood Programs, 3 cr.—Designed for those administering or planning to administer a center-based early childhood program. Covers program planning, organization, financial management, personnel management, and public relations.


ECE 240 Exploring the Child Development Associate, 3 cr.—Prerequisite: One year of experience (part-time or full-time) working in a center with preschool children. Explores the Child Development Associate Credential System. Students evaluate current competencies and training needs in relation to CDA standards, and develop a portfolio to document this evaluation.

ECE 250 Advanced Practicum - Seminar, 2 cr.—Prerequisite: Level II Certificate and instructor permission. Corequisite: ECE 251-259 and ECE 270-279. Refine skills and assume responsibility in supporting the total development of young children. A minimum of two credits are required.

ECE 251 Advanced Practicum II (Lab), 1 cr.—Prerequisite: Level II Certificate. Corequisite: ECE 250. Refine skills in supporting the total development of young children in a group setting and in the integration of child development theory and practice. This course may be taken off campus at an approved site. A minimum of six credits is required.

ECE 252 Advanced Practicum II (Lab), 2 cr.—Prerequisite: Level II Certificate and WR 115 or above. Corequisite: ECE 250. Refine skills in supporting the total development of young children in a group setting and in the integration of child development theory and practice. This course may be taken off campus at an approved site. A minimum of six credits is required.

ECE 253 Advanced Practicum II (Lab), 3 cr.—Prerequisite: Level II Certificate and WR 115. Corequisite: ECE 250. Refine skills in supporting the total development of young children in a group setting and in the integration of child development theory and practice. This course may be taken off campus at an approved site. A minimum of six credits is required.

ECE 254 Advanced Practicum II (Lab), 4 cr.—Prerequisite: Level II Certificate and WR 115 or above. Corequisite: ECE 250. Refine skills in supporting the total development of young children in a group setting and in the integration of child development theory and practice. This course may be taken off campus at an approved site. A minimum of six credits is required.
ECE 255 Advanced Practicum II (Lab), 5 cr.—Prerequisite: Level II Certificate and WR 115 or above. Corequisite: ECE 250. Refine skills in supporting the total development of young children in a group setting and in the integration of child development theory and practice. This course may be taken off campus at an approved site. A minimum of six credits is required.

ECE 256 Advanced Practicum II (Lab), 6 cr.—Prerequisite: Level II Certificate and WR 115 or above. Corequisite: ECE 250. Refine skills in supporting the total development of young children in a group setting and in the integration of child development theory and practice. This course may be taken off campus at an approved site. A minimum of six credits is required.

ECE 257 Advanced Practicum II (Lab), 7 cr.—Prerequisite: Level II Certificate and WR 115 or above. Corequisite: ECE 250. Refine skills in supporting the total development of young children in a group setting and in the integration of child development theory and practice. This course may be taken off campus at an approved site. A minimum of six credits is required.

ECE 258 Advanced Practicum II (Lab), 8 cr.—Prerequisite: Level II Certificate and WR 115 or above. Corequisite: ECE 250. Refine skills in supporting the total development of young children in a group setting and in the integration of child development theory and practice. This course may be taken off campus at an approved site. A minimum of six credits is required.

ECE 259 Advanced Practicum II (Lab), 9 cr.—Prerequisite: Level II Certificate. Corequisite: ECE 250. Refine skills in supporting the total development of young children in a group setting and in the integration of child development theory and practice. This course may be taken off campus at an approved site. A minimum of six credits is required.

ECE 270 Integrating Theory and Practice I, 3 cr.—Prerequisite: WR 121, Level II Certificate, one additional Early Childhood or Infant/Toddler Environments or Materials and Activities course, or instructor permission. Focuses on planning to meet the needs of individual children from infancy through age five. Apply knowledge learned in ECE Certificate Level I and II courses. Includes the comprehensive process involved in gathering relevant information, setting environments, developing curriculum and intervention plans for individual children.

ECE 271 Integrating Theory and Practice II, 3 cr.—Prerequisite: WR 121, Level II Certificate and one additional Infant/Toddler or Early Childhood Environments or Materials and Activities course. ECE 270 suggested. Focuses on integrating knowledge of child growth and development, communication, environments, and curriculum in planning developmentally appropriate programs for groups of children from infancy through age five. Apply knowledge learned in ECE Certificate Level I and II courses.

ECE 273 Supervision and Team Building in Early Childhood Education, 3 cr.—Students develop skills in building, maintaining, and working in teams and supervising others in early childhood settings.

ED 102 Educational Media Production I, 5 cr.—Includes making overhead transparencies; use of the hot press; designing and making displays and bulletin boards; basic computer graphics; use of copy machines; and other related areas.

ED 103 Educational Media Production II - Computers, 5 cr.—Covers how to operate Macintosh computers. Introduces students to Desktop Publishing in the library - education fields.

ED 104 Educational Media Production III - Photography, 5 cr.—Covers photographic composition, basic camera operation, designing and production of photographic stories.

ED 105 Television Production I, 3 cr.—Operate video tape recorders. Includes operation, program productions, sets and backgrounds.

ED 109 Library Procedures, 3 cr.—Covers acquisition, cataloging, processing and circulation skills as procedures for operating libraries. Demonstrate proficiency by performing the appropriate tasks in a model situation.

ED 110 Educational Psychology of Learning, 3 cr.—Uses psychology for the improvement of performance as instructors. Becomes aware and develops familiarity with the discipline and applying it to instruction. Comprehends basic principles of educational psychology and expecting to utilize information necessary to solve problems in the classroom to design effective learning experiences for students.

ED 111 Selection of Library Materials, 3 cr.—Covers the criteria for selecting print and non-print materials. Focuses on some of the problems in selection. Identify and use basic reference materials, and become acquainted with materials for teaching library skills and promoting interest in literature.

ED 112 Intro to Juvenile Literature, 3 cr.—Covers some of the best known authors and illustrators of books for children and young people using a textbook and reading books for juveniles. Focuses on the components of a literary work (theme, characterization, setting, unity). Introduces classic and current works in the field and related sources of audio-visual materials.

ED 114 Reference Materials, 3 cr.—Identify and use general reference works and selected special reference materials in various subject areas.

ED 115 Storytelling, 2 cr.—Demonstrate sources and methods of oral presentation of literature for children and young adults.

ED 123 Math for Young Children, 2 cr.—This course will present the “Math Their Way” philosophy to math instruction. Students will learn instructional methods and activities for addition, subtraction, place value, carrying and borrowing.

ED 124 Math for Young Children, 1 cr.—This course will present the “Math Their Way” philosophy to math instruction. Students will learn instructional methods and activities for addition, subtraction, place value, carrying and borrowing.

ED 125 Techniques for Tutoring Adults, 3 cr.—Individualized instruction in teaching required skills. Provides opportunities to practice these skills to become an effective tutor of adult learners. Includes reading, writing, spelling, mathematics and English as a second language.

ED 126 Math for Young Children, 3 cr.—This course will present the “Math Their Way” philosophy to math instruction. Students will learn instructional methods and activities for addition, subtraction, place value, carrying and borrowing.
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ED 129 Whole Language Approach to Reading, 1 cr.—Covers various instructional methodologies, practice in theme unit planning, integration of content areas, focus on authors in children's literature, practice and instruction in cooperative groups.

ED 130 Whole Language Approach to Reading, 2 cr.—Covers various instructional methodologies, practice in theme unit planning, integration of content areas, focus on authors in children's literature, practice and instruction in cooperative groups.

ED 131 Whole Language Approach to Reading, 3 cr.—Covers various instructional methodologies, practice in theme unit planning, integration of content areas, focus on authors in children's literature, practice and instruction in cooperative groups.

ED 132 Evaluation Techniques, 3 cr.—Analyzes attributes and shortcomings of several different types of test items for assessing cognitive performance and examines various evaluation procedures necessary to measure pupil achievement on written, oral, or performance skill tests.

ED 133 Media and Materials, 3 cr.—Provides the basic skills and knowledge of using instructional media in a school classroom. Use audio-visual equipment, design and make displays and bulletin boards, transparencies, and handouts. Learn basic computer use.

ED 136 Computers in Education, 3 cr.—Teaches basic computer use, including word processing, data base and spreadsheet on Macintosh computers.

ED 151 Braille I, 2 cr.—Emphasizes developing skills in reading and writing of braille. Focuses on developing a positive attitude toward braille as a medium of communication.

ED 152 Braille II, 2 cr.—Continuation of ED 151.

ED 158 Multicultural Education and the Paraprofessional, 3 cr.—Students will explore working with diverse cultures, teaching techniques and collaborating with school staff.

ED 171 Computers in Education II, 3 cr.—Teaches advanced educational desktop publishing techniques.

ED 200 Introduction to Education, 3 cr.—Examines daily experiences in the schools. Includes discussing personal responses to school/library situations, students, personnel, the roles of public schools/libraries in American society and financial, legal and administrative implications for instructional/library assistants.

ED 205 Tutoring Principles and Practices, 5 cr.—Prepares to assist teachers in developing the following skills in children: reading, math, spelling, handwriting, social studies, language arts and reading comprehension. Focuses on learning and motivational theories which apply to instructional situations. Includes creating and studying activities for specific learning problems.

ED 206 Seminar: Advanced Education Techniques, 3 cr.—Provides time and direction for investigating particular problems brought out in the supervised practicum experience.

ED 207 Seminar: Adaptive Sign for Special Populations, 3 cr.—Survival signs and alternative communication modes. Includes techniques to teach these signs. Focuses on shaping, adapting signs and breaking signs down into component parts.

ED 209 Practicum, 3 cr.—Spend twelve hours per week in a supervised field experience after an orientation.

ED 210 Practicum, 3 cr.—Spend twelve hours per week in a supervised field experience after an orientation.

ED 211 Practicum, 3 cr.—Spend twelve hours per week in a supervised field experience after an orientation.

ED 214 Practicum: Outdoor School, 3 cr.—Gain training and experience teaching and counseling sixth graders in an outdoor setting. Requires attending two evening training sessions; spending one week at an outdoor camp; keeping a journal and submitting a summation paper to the PCC coordinator.

ED 215 CAM Practicum, 3 cr.—Technical area professionals wishing to teach in high school Certificate of Advanced Mastery situations take this course to expand knowledge and expertise in their fields of work.

ED 251 Overview of Handicapping Conditions, 3 cr.—Introduces a variety of handicapping conditions of students in public schools. Identifies and defines the severely emotionally disturbed, mentally retarded, learning disabled, speech and language disabled, vision and hearing impaired, physically and health impaired.

ED 252 Behavior Management, 3 cr.—Behavior terminology. Demonstrate and practice baselining, setting up a program, reinforcing, modeling, shaping, chaining, monitoring and graphing data.

ED 258 Multicultural Education, 3 cr.—Studies the cultures of people of color, disabled and other groups subject to discrimination. Investigates means of enriching learning processes by utilizing unique skills and experiences possessed by people of color and other groups subject to discrimination, and seeks to understand pervasive influence of poverty on individuals.

ED 267 Intro Legislation, History & Certification Proc of Special Ed, 3 cr.—Prerequisite: ED 251 or instructor permission. Covers legislation, history, certification for special education, services available and current rules and regulations affecting handicapped persons.

ED 268 Introduction to Mental Retardation, 3 cr.—Provides background information on teaching techniques, expected achievement levels, goals and objectives for working with educable, trainable and severely retarded students. Emphasizes physical and mental development from birth and familiarity with the known causes, classifications and terminology of mental retardation.

ED 269 Introduction to Teaching the Learning Disabled Student, 3 cr.—Defines terms associated with learning disabilities and behavior disorders. Includes diagnostic procedures, remedial programs, and approaches and resources.

ED 281 Philosophy and Techniques of Teaching At a Community College, 3 cr.—Develops the capacity to effectively use and manage instructional resources in achieving the learning objectives of vocational programs.

ED 292 Curriculum Design and Development, 3 cr.—Studies strategy of developing effective instruction based on measurable objectives/outcomes, selects or writes appropriate learning goals, write objectives for a unit of instruction, formulates daily lessons, adapts lessons for the variety of students in the classroom, modifies pace and content of instruction to achieve unit and lesson outcomes, and uses techniques that promote critical thinking and problem solving.

ED 295 Leisure for Special Populations, 3 cr.—Provides information on programming and teaching recreational activities that meet the needs of the exceptional individual.
ED 298 Special Projects in Education, 5 cr.—This is a course designed to allow a student to do an in depth study in education. The student will be required to develop his/her contract with an assigned instructor. Studies may be made in a wide range of topics such as current issues in education, special programs, multicultural education or curriculum development projects.

ED 298C Special Projects in Education, 3 cr.—

**EDO** — Emergency Dispatch Operator — 911

EDO 101 Introduction to Criminal Justice System - Police, 3 cr.—Covers American and foreign criminal justice agencies. Analyze the criminal justice process from detection and arrest through prosecution, adjudication, sentencing and imprisonment or probation and parole. Includes major theories of crime cause and the role of police in society.

EDO 103 Introduction to Criminal Law, 3 cr.—Covers the origin, structure and definitions of common law and statutory crimes, the Oregon Criminal Code and criminal court procedures.

EDO, 105 Crisis Intervention, 3 cr.—Focuses on the needs of local police, dispatchers and other in-service practitioners or pre-service students in crisis intervention. Includes discussing and demonstrating some tools and techniques of crisis intervention through simulation and role playing.

EDO 108 Transcription for Telecommunicators, 1 cr.—Prerequisite: Instructor permission. Covers how to transcribe information received aurally using actual tape recorded radio transmissions, or recorded scripted exercises. Emphasizes accuracy, spelling and completeness of message.

EDO 109 Public Safety Emergency Telecommunications I, 3 cr.—Introduces the field of emergency communications. Includes history, role of the dispatcher, field operations (police, fire and emergency medical), radio broadcasting, telephone techniques, radio codes and equipment operation. Presents an overview of federal, state and local law enforcement computer systems.

EDO 110 Public Safety Emergency Telecommunications II, 3 cr.—Study the basic principles of call taking and radio broadcasting as it applies primarily to police dispatching. Includes types and classifications of crimes, criminal and civil complaints, interrogation of callers, assignment and direction of field units. Stresses use of departmental policy and procedures, and application of chain of command rules as they pertain to communications.

EDO 111 Public Safety Emergency Telecommunications III, 3 cr.—Develops communications skills necessary to deal with fire and medical emergencies. Focuses on fire terminology, knowledge of fire apparatus, department protocols, triage principles, and medical pre-arrival instructions. Emphasizes the use of resource materials. Includes the interrelationship between field units, police, fire, and medical and their roles at incident scenes.

EDO 120 Emergency Medical Service: First Responder, 3 cr.—Designed for those who are usually first at the scene of trauma or medical emergencies, such as police and fire personnel. Knowledge and skills are developed in procedures to provide basic care to trauma, medical and environmental emergencies. The evaluation of scene and patient(s) and accessing the Emergency Medical Services (EMS) system is emphasized.

EDO 227 Communication Center Operations I, 2 cr.—Prerequisite: EDO 109. Introduces operational procedures used in emergency communications and hands-on use of communication center equipment, such as two-way radios, multline telephones, recorders and computers, including record keeping and data retrieval.

EDO 228 Communication Center Operations II, 2 cr.—Prerequisite: EDO 109. Focuses on use of the Oregon Law Enforcement Data System and computer software simulating Computer Aided Dispatch programs.

EDO 280A CE: 9-1-1, 2 cr.—Observe various 9-1-1 and police/fire/emergency medical agencies to learn how they work. Develops emergency dispatch/operator skills in the 9-1-1 simulator. Students will be certified in Emergency Medical Dispatch and Law Enforcement Data System Computer as part of Cooperative Education.

EDO 280B CE: 9-1-1 - Seminar, 1 cr.—Provides a link between the classroom, work and the field experience.

**EET** — Electronic Engineering Technology

EET 101 Introduction to Circuit Analysis, 3 cr.—Corequisite: EET 102, MTH 111, WR 121. International System of Units; engineering notation and prefixes; definitions of current, voltage, resistance, power, work and efficiency; Ohm’s and Kirchhoff’s Laws; series and parallel circuit principles; series-parallel, DC resistive networks.

EET 102 Introduction to Circuit Analysis Lab, 1 cr.—Corequisite: EET 101. Laboratory companion to EET 101. Theoretical concepts discussed in lecture will be verified using available components and instrumentation. This course must be taken during the same quarter as EET 101. Written laboratory reports required.

EET 103 Circuit Analysis I, 4 cr.—Prerequisite: EET 101 with a "C" grade or better. Corequisite: MTH 112, EET 104. Mesh and nodal analysis of DC circuits; network theorems; superposition, Thévenin, Norton, maximum power, Millman; capacitance; transient analysis of RC circuits, magnetic circuits; inductance; transient analysis of RL circuits; the sine wave, average and effective values; AC response of R, L and C elements, average power and power factor; phasors.

EET 104 Circuit Analysis I (Lab), 2 cr.—Prerequisite: EET 102 with a "C" grade or better. Corequisite: EET 103. Laboratory companion to EET 103. Theoretical concepts discussed in lecture will be verified using available components and instrumentation. This course must be taken during the same quarter as EET 103. Written laboratory reports required.
Course Descriptions

EET 105 Circuit Analysis II, 4 cr.—Prerequisite: EET 103 with a "C" grade or better. Corequisite: EET 106. AC circuit analysis. Series and parallel characteristics, impedance and admittance diagrams; series-parallel networks; mesh and nodal analysis; dependent sources; network theorems; superposition, Thévenin, Norton, maximum power transfer; power; series and parallel resonant circuits; filters; high-pass, band-pass, band-reject; transfer functions and Bode plots; transformers.

EET 106 Circuit Analysis II (Lab), 2 cr.—Prerequisite: EET 104 with a "C" grade or better. Corequisite: EET 105. Laboratory companion to EET 105. Theoretical concepts discussed in lecture will be verified using available components and instrumentation. An introduction to computer simulation will be included. This course must be taken the same quarter as EET 135. Written laboratory reports required.

EET 201 Semiconductor Devices, 4 cr.—Prerequisite: EET 105 with a C grade or better. Corequisite: EET 202. Analytical and graphical analysis of PN diode characteristics, diode circuit applications, rectification and zener diode voltage regulation. Introduces to bipolar transistors, amplification, biasing configurations and biasing stability. Common-emitter, common-base and common-collector amplifiers including input and output impedance, AC circuit parameters, current, voltage and power gain design calculations.

EET 202 Semiconductor Devices (Lab), 2 cr.—Prerequisite: EET 106 with a "C" grade or better. Corequisite: EET 201. Laboratory companion to EET 201. Theoretical concepts discussed in lecture will be verified using available components and instrumentation. This course must be taken during the same quarter as EET 201. Written laboratory reports required. Computer simulation of selected circuits.

EET 211 Analog Devices and Circuits, 4 cr.—Prerequisite: EET 201 with a "C" grade or better. Corequisite: EET 212. Review of BJT circuits, frequency effect prediction of BJT and FET circuits. Introduction to JFET and MOSFET devices. Basing and small signal circuit AC models. Input and output impedance, voltage, current and power gain design calculations. Multistage circuits, equivalent models, AC Parameters. Bode plot response predictions.

EET 212 Analog Devices and Circuits (Lab), 2 cr.—Prerequisite: EET 202 with a "C" grade or better. Corequisite: EET 211. Laboratory companion to EET 211. Theoretical concepts discussed in lecture course will be verified using available components and instrumentation. The course must be taken the same quarter as EET 211. Written laboratory reports required. Computer simulation of selected circuits.

EET 227 Introduction to Microcontrollers, 3 cr.—Prerequisite: Programming language or consent of instructor. Corequisite: EET 228. A study of Motorola's 68HC11 microprocessor: Internal structure, registers, busses, control unit. External busses, address, data and control. Clock, machine and instruction cycle timing. Interrupts and DMA. Instruction set mnemonics and function. Memory ICs, read/write, ROM, PROM, EPROM, EEPROM. Address decoding structure. Interfacing to external memory and I/O. Programmable peripheral device interfacing. Introduction to flowcharting and 68HC11 assembly language programming.

EET 228 Introduction to Microcontrollers (Lab), 2 cr.—Prerequisite: Programming language or consent of instructor. Corequisite: EET 227. A laboratory companion to EET 227. Theoretical concepts discussed in lecture will be verified in laboratory using available components and instrumentation. This course must be taken the same term as EET 227.


EET 232 Operational Amplifier (Lab), 2 cr.—Prerequisite: EET 212. Corequisite: EET 231. Laboratory companion to EET 231. Theoretical concepts discussed in lecture course will be verified using available components and instrumentation. The course must be taken the same quarter as EET 231. Written laboratory reports required. Computer simulation of selected circuits.

EET 241 Microcomputer Systems I, 4 cr.—Prerequisite: EET 267, EET 268, or equivalent. Covers hardware of a single-board microprocessor system and assembly language programming techniques. Structured programming techniques are used to write assembly language programs for an Intel 8086 family microprocessor. Labs include hardware analysis and troubleshooting using oscilloscopes and logic analyzers.

EET 243 Introduction to Digital Concepts, 3 cr.—Prerequisite: EET 201. Corequisite: EET 244. A basic course in digital concepts covering Boolean algebra, algebraic simplification, number systems, and various combinational circuit elements (AND, OR, XOR, NAND, NOR, NOT gates). The analysis of basic TTL and CMOS circuits implemented in integrated circuits is covered. Karnaugh Maps are used in the synthesis of combinational circuits.

EET 244 Introduction to Digital Concepts (Lab), 1 cr.—Prerequisite: EET 202. Corequisite: EET 243. A laboratory companion to EET 243. Circuits will be built in lab, using transistors and integrated circuits, to reinforce the theoretical concepts discussed in lecture. Computer simulation using PSPICE and OrCAD will be used.

EET 251 Microcomputer Systems II, 4 cr.—Prerequisite: EET 241. Microcomputer interfacing and use of programmable peripheral devices. Includes parallel port devices, interrupt controllers, timers, and other LSI interface devices. Labs include interfacing a microprocessor system to a variety of input and output devices such as keyboards, displays, relays, and data converters.

EET 255 Industrial Control/Robotics I, 4 cr.—Corequisite: EET 231, EET 232, EET 227 and EET 228 or department approved equivalent. An introductory course in robotic technology. Topics include an overview of robotic technology, mechanical considerations, drive methods, sensors for robots, controls and control methods.

EET 257 Optical Electronics I, 4 cr.—Prerequisite: MTH 111, MTH 112, and PHY 202 or department approved equivalent. Principal topics include energy and wave length relationships, LEDs, laser diodes, semiconductor photodiodes, detector amplifier circuits, and fiber optics including sources, fibers, detectors and applications.

EET 265 Digital Logic I, 2 cr.—Prerequisite: EET 243. Corequisite: EET 266. A continuation of EET 243. Combinational design using multiplexers, decoders, ROMs, and PLAs.
EET 266 Digital Logic I (Lab), 1 cr.—Prerequisite: EET 244. Corequisite: EET 268. Laboratory companion to EET 265. Combinational and sequential designs will be built using SSI, MSI, and LSI integrated circuits. The circuits will be tested and simulated using OrCAD.

EET 267 Digital Logic II, 2 cr.—Prerequisite: EET 265. Corequisite: EET 268. Sequential circuit elements (flip-flops) are presented along with applications such as counters and registers. Sequential network analysis and synthesis is presented including state tables, state graphs, reduction of tables and state assignments. Sequential machines are implemented using flip-flops, PLDs, EPROMs, and PGAs.

EET 268 Digital Logic II (Lab), 1 cr.—Prerequisite: EET 266 Corequisite: EET 267. Laboratory companion to EET 267. Combinational and sequential designs will be built using SSI, MSI, and LSI integrated circuits. The circuits will be tested and simulated using OrCAD.

EET 280A CE: Electronics Engineering Technology, 5 cr.—Prerequisite: Department approval. For students employed in an approved cooperative education position within a local electronic industry. Experiences are closely aligned with the student's on-campus educational program.

EL - Electronic Service Technology

EL 170 DC Fundamentals, 4 cr.—Prerequisite: Placement in MTH 70 and WR 121. Includes safety, math of electronics, series, parallel and series-parallel circuits, Ohm's and Kirchoff's laws, network theorems and power. Labs include use of standard test equipment, circuit evaluation and troubleshooting techniques, and basic soldering techniques.

EL 171 AC Fundamentals, 4 cr.—Prerequisite: EL 170. Includes math of electronics, reactive circuits, resonant and nonresonant filters, AC and LR transient circuits, dB applications and graphing techniques. Labs include use of standard test equipment, circuit evaluation and troubleshooting techniques.

EL 173 Diode and Power Supply Circuits, 4 cr.—Prerequisite: EL 171. Includes semiconductor theory, diodes, power supplies and elementary filters, clippers, clamper, zener regulators, peak detectors and an introduction to bipolar transistors. Labs include use of standard test equipment, circuit evaluation and troubleshooting techniques.

EL 174 Solid State Circuits, 4 cr.—Prerequisite: EL 173. Includes transistor biasing, small and large signal amplifiers, switches and cascading. Labs include use of standard test equipment, circuit evaluation and troubleshooting techniques.

EL 175 Advanced Circuits, 4 cr.—Prerequisite: EL 174. Includes FET's, analog switches, cascade and cascode amplifiers, negative feedback amplifiers, linear and non-linear operational amplifier applications, thyristors, oscillators, and voltage regulators and other linear integrated circuits. Labs include use of standard test equipment, circuit evaluation and troubleshooting techniques.

EL 176 Digital Fundamentals I, 3 cr.—Prerequisite: EL 171. Includes numbering systems, logic gates, multiplexers, latches and specialized test equipment. Labs include use of test equipment, circuit evaluation and troubleshooting techniques.

EL 177 Digital Fundamentals II, 3 cr.—Prerequisite: EL 176. Includes counters, registers, ROMs, RAMs, interfacing, analog and digital conversions and an introduction to microprocessors. Labs include use of test equipment, circuit evaluation and troubleshooting techniques.

EL 178 Microcomputer Systems Servicing, 3 cr.—Prerequisite: CST 106 and EL 177. Hands-on training in servicing IBM type microcomputers. Includes basic operational concepts, identification, installation, and configuration of microprocessors, memory, motherboards, power supplies, floppy and hard disk drives, video monitors, graphics cards, serial/parallel I/O cards, modems, and printers. System teardown and inspection, hardware and software technical service documentation.

EL 278 Audio and Electromechanical Systems, 3 cr.—Prerequisite: Fourth term student in Electronics Service Technology. Operation, analysis, repair, maintenance and calibration of mechanical and electromechanical systems. Includes using service information, mechanical breakouts, schematics, disk and tape drives, AC and DC motors, control systems and actuators, soldering and desoldering techniques.

EL 279 Advanced Microcomputer Systems, 3 cr.—Prerequisite: EL 178. Includes microprocessor architecture, memory architecture and memory management, BIOS and operating system, system maintenance and upgrades, system diagnostics, hardware and software troubleshooting, and introduction to local area networks.

EL 280A CE: Electronics Service Technology, 5 cr.—Prerequisite: Department approval. Develop electronics knowledge and skills in a department-approved work setting. Experiences are closely aligned with the student's on-campus educational program.

EL 280B CE: Electronics Service Technology - Seminar, 1 cr.—Prerequisite: Fourth term student in Electronics Service Technology. Discuss work-related topics including resume, job application, job interview, supervisor-worker relationships, peer relationships and safe work practices. Industry guests are invited to discuss relevant subjects.

EL 281 Audio Frequency Systems, 3 cr.—Prerequisite: EL 278. Operation, analysis, repair, maintenance and calibration of electronic and electromechanical systems. Includes using service information, schematics, disk and tape system electronics, record and playback equalization, noise reduction, audio power amplifiers, dB measurement and analysis, frequency response and evaluation techniques, system alignment and calibration.


EL 283 RF Communications, 4 cr.—Prerequisite: EL 281 and EL 282. Includes frequency domain analysis, noise, AM and FM modulation-demodulation, narrow band amplifiers, frequency converters, phase locked loops, AM and FM testing and alignment, and frequency division multiplexing. Labs include microprocessor controlled frequency synthesized AM/FM receivers, sweep frequency generators and specialized communications test equipment.
EMT - Emergency Medical Technology

EMT 100 Int Emer Med Service, 3 cr.—Overview of the EMT and Paramedic career. Topics include framework of EMS systems, EMT roles and responsibilities, ethics, medical-legal considerations, scene survey, OSHA regulations, and stress management.

EMT 101 EMT I Refresher/Recertification, 3 cr.—This course is designed to provide the Department of Transportation (DOT) Refresher Course training for EMT I's and is structured to meet objectives of the DOT and Oregon Health Division EMT I recertification requirements.

EMT 110 EMT 1 (Basic), 10 cr.—Prerequisite: PCC department application acceptance. Preparation for state EMT I (Basic) certification. Topics cover the DOT EMT I National Standard Curriculum, CPR training, patient assessment, prehospital care equipment, trauma and medical emergencies, cardiac defibrillation, blood glucose monitoring and analysis, subcutaneous injections, pediatric emergencies, ambulance and hospital emergency department observation.

EMT 111 EMT 2/2D-Intermediate, 9 cr.—Prerequisite: EMT I (Basic) certification. Preparation for state 2/2D (Intermediate) certification. Topics include intravenous administration of fluid and medications, advanced airway management, pharmacology, ECG monitoring and defibrillation, and protocols skills training. This course is designed for rural areas providing care beyond EMT I (Basic) levels.

EMT 112 EMT 3/4(Paramedic 1), 9 cr.—Prerequisite: EMT I (Basic) certification and PCC department application acceptance. Preparation for state and DOT EMT Paramedic National Standard curriculum certification. Includes patient assessment and management procedures, pathophysiology of shock, and laboratory and clinical experiences.

EMT 113 EMT 3/4(Paramedic 2), 9 cr.—Prerequisite: EMT 112. Preparation for state EMT Paramedic certification. Includes pharmacology, trauma procedures and a variety of medical emergencies with clinical and internship on rescue vehicles.

EMT 114 EMT 3/4(Paramedic 3), 9 cr.—Prerequisite: EMT 113. Preparation for state EMT Paramedic certification. Includes toxicology, geriatric care procedures, pediatrics and provides clinicals and internship on ambulances.

EMT 115 EMT 3/4(Paramedic 4), 9 cr.—Prerequisite: EMT 114. Preparation for state EMT Paramedic certification. Includes OB/GYN/Neonatal care techniques and procedures, behavioral emergencies with a variety of procedures to provide appropriate patient care, and clinical and field internships.

EMT 116 Intro Prehospital Doc, 2 cr.—Prerequisite: EMT 115. Effective prehospital report writing skills are developed. Includes report categories, special incident reports, prehospital medical abbreviations, use of trauma scores and burns charts.

ENG - English

Note: Prerequisite for all literature classes is placement into WR 121 or ASSET scores in Reading and Writing for placement into WR 121, or a score of 24 on the GCP English Placement Test.

ENG 104 Intro to Literature (Fiction), 3 cr.—Enhances enjoyment of short stories and novels, increases understanding of the conventions of fiction, and encourages exploration of human experience.

ENG 105 Intro to Literature (Drama), 3 cr.—Enhances enjoyment of plays - including tragedies and comedies - as literature, increases understanding of the conventions of drama and the theater, and encourages exploration of human experience.

ENG 106 Intro to Literature (Poetry), 3 cr.—Enhances enjoyment of poetry, increases understanding of the conventions of poetry and poetic forms, and encourages exploration of human experience.

ENG 107 World Literature - Western, 3 cr.—Introduces students to cultural contexts and content of literature from around the world and offers an introduction to literary analysis. Compares ideological and historical reference points and atti-
tures of diverse writers to provide insight into the contemporary Western world and contemporary ways of defining ourselves. Emphasizes the earliest writings of a variety of cultures.

ENG 108 World Literature - Western, 3 cr.—Introduces students to cultural contexts and content of literature from around the world while offering an introduction to literary analysis. Compares ideological and historical reference points and attitudes of diverse writers to provide insight into the contemporary Western world and contemporary ways of defining ourselves. Emphasizes literature dating from the European medieval period to the 1700s.

ENG 109 World Literature - Western, 3 cr.—Introduces students to cultural contexts and content of literature from around the world while offering an introduction to literary analysis. Compares ideological and historical reference points and attitudes of diverse writers to provide insight into the contemporary Western world and contemporary ways of defining ourselves. Emphasizes literature from the 1800s to the present.

ENG 195 Film as Literature (Film as Art), 3 cr.—Enhances visual literacy by exploring power of film image to shape and reflect culture and ideology in this and other countries; raises questions about film and its relationship to cultural values, self, other. Studies film genres and styles; spectatorship, representation, identification; aesthetics; film history; film as a collaborative medium; Hollywood and independent cinema; technique and grammar of film; major film theories. Focus and emphasis will vary with instructor.

ENG 196 Film as Literature (Great Directors), 3 cr.—Enhances visual literacy by exploring power of film image to shape and reflect culture and ideology in this and other countries; raises questions about film and its relationship to cultural values, self, other. Studies film as a construction of "reality"; the relationship of image to power; western and non-western points of view; issues of majority and minority representation as they relate to race and gender; roles of man, woman, and child in the cinematic gaze. Focus and emphasis will vary with instructor. Recommended prior coursework: Eng 195.

ENG 197 Film as Literature (Contemporary Cinema), 3 cr.—Enhances visual literacy by exploring power of film image to shape and reflect culture and ideology in this and other countries; raises questions about film and its relationship to cultural values, self, other. Studies various influences on contemporary film practice; ethnographic, experimental, feminist films; direct cinema; censorship; relationship of film to politics and economics; influence of television and video on film; post-structuralism and semiotics. Focus and emphasis will vary with instructor. Recommended prior coursework: Eng 195, 196.

ENG 201 Shakespeare, 3 cr.—Enhances understanding and appreciation of Shakespeare's achievement and contribution to literature. Focuses on five or more plays and selected non-dramatic poetry in order to introduce the study of Shakespeare's dramatic techniques, character development, and language. The works are chosen to reflect a broad range of patterns, themes, and genres. Recommended prior coursework: Eng 105 and 106.

ENG 202 Shakespeare, 3 cr.—Enhances understanding and appreciation of Shakespeare's achievement and contribution to literature. Focuses on five or more plays and selected non-dramatic poetry in order to introduce the study of Shakespeare's dramatic techniques, character development, and language. The works are chosen to reflect a broad range of patterns, themes, and genres. Recommended prior coursework: Eng 105, 106, and 201.

ENG 203 Shakespeare, 3 cr.—Enhances understanding and appreciation of Shakespeare's achievement and contribution to literature. Focuses on five or more plays and selected non-dramatic poetry in order to introduce the study of Shakespeare's dramatic techniques, character development, and language. The works are chosen to reflect a broad range of patterns, themes, and genres. Recommended prior coursework: Eng 105, 106, 201, and 202.

ENG 204 Survey of English Literature, 3 cr.—Literature of the British Isles: Medieval and Renaissance selections, from Beowulf to Shakespeare.

ENG 205 Survey of English Literature, 3 cr.—Literature of the British Isles: seventeenth, eighteenth, and early nineteenth century selections, from Donne through the Early Romantics.

ENG 206 Survey of English Literature, 3 cr.—Literature of the British Isles: nineteenth and twentieth century selections, beginning with Wordsworth and ending with contemporary works.

ENG 207 World Literature - Asian, 3 cr.—English translations of Indian literature from earliest times to modern. May include such works and authors as the Rigveda, the love stories and the battles of the Ramayana, and the twentieth century authors Tagore and Rushdie.

ENG 208 World Literature - Asian, 3 cr.—English translations of Chinese literature from earliest times to modern. May include such works and authors as The Book of Songs, Li Po, Tu Fu, The Journey to the West, and the twentieth century authors Lu Xun and Ding Ling.

ENG 209 World Literature - Asian, 3 cr.—English translations of Japanese literature from earliest times to modern. May include such works and authors as the Manyoshu, selections from Heian court diaries, The Tale of Genji, the No, Kabuki, and puppet theatres, and the twentieth century authors Kawabata, Tanizaki, Hayashi, Fumiko, and Mishima.

ENG 211 Contemporary African Literature, 3 cr.—Introduces a cross-section of the literature of Africa from 1960 to the present. Students read works of African authors who help readers understand the historical, geographical, and cultural tapestry that make up the African continent.

ENG 212 Biography, 3 cr.—Explores biography and autobiography from various places and periods.

ENG 214 Literature of the Northwest, 3 cr.—Studies fictional and non-fictional works by Northwest writers from the time of early exploration of the territory to present. Emphasizes influence of the Northwest setting on their work.

ENG 222 Images of Women in Literature, 3 cr.—Challenges students to explore images of women in literature. Focuses on portrayal of the feminine in mythology; conventional images in Western literature; literature of non-Western cultures or that of other groups within Western culture in relation to specific themes; or a combination of these. Students practice literary analysis.

ENG 240 Intro to Native American Literature, 3 cr.—Explores both traditional and contemporary American Indian literature, from creation myths and tales of trickster heroes to
more recent poetry and fiction recounting the contemporary Indian experience. Native literature from Oregon and the Pacific Northwest included.

ENG 250 Introduction to Folklore and Mythology, 3 cr.—Explores origins, nature and content of myth and folklore. Offers student ability to recognize and appreciate myths from any culture. Through selected readings, students become aware of questions about life as expressed in myth.

ENG 253 Survey of American Literature, 3 cr.—Studies literature of the United States from the beginning of European contact through the early nineteenth century.

ENG 254 Survey of American Literature, 3 cr.—Studies literature of the United States from mid-nineteenth century into the early twentieth century.

ENG 255 Survey of American Literature, 3 cr.—Studies literature of the United States from early twentieth century to the present.

ENG 256 African-American Literature, 3 cr.—An overview of African-American fiction, poetry, drama and expository prose.

ENG 260 Intro to Women Writers, 3 cr.—An examination of writing by women. Students read poetry, fiction, plays, diary and journal entries by women from various places and periods.

ENG 261 Literature of Science Fiction, 3 cr.—Introduces speculative fiction as myth, satire and apocalyptic literature. Students investigate themes and backgrounds of science fiction, including the interaction of science and art in the genre.

ENG 265 International Political Poetry, 3 cr.—Acquaints students with ways poets of the last two centuries have dealt with such issues as war, oppression, discrimination, and economic inequality, and how they have served as prophets, dissidents, and recorders of history. Students sample the work of poets from more than twenty countries.

ENG 275 Bible as Literature, 3 cr.—Examines selected Biblical literature which continues to influence literary imagination. Studies literary, cultural, and interpretive contexts in which Biblical literature was created, and in which it is currently read.

ENL - English as a Second Language

ENL 156 Intermediate Pronunciation, 3 cr.—Prerequisite: ENL placement test. Sounds of general American English, contractions, plural endings, basic intonation patterns, phrasing, word and sentence stress, reduced stress, and linking are presented.

ENL 150 Intermediate Reading, 5 cr.—Prerequisite: ENL placement test or instructor permission. Covers comprehension, structural analysis, word analysis and methods of evaluation.

ENL 154 Intermediate Speaking, 5 cr.—Prerequisite: ENL placement test. Concentrates on pronunciation, stress, intonation, vocabulary development, and control of grammatical structures. Consonant and vowel sounds are presented. Includes contractions, plural endings, basic intonation, phrasing, stress, linking, question formation, two-word verbs, modals and comparatives, basic verb tenses, count and non-count nouns.

ENL 158 Intermediate Vocabulary Building, 3 cr.—Prerequisite: ENL placement test or instructor permission. Designed to meet vocabulary needs of intermediate level non-native students. Word analysis, specialized vocabulary, and dictionary skill building emphasized. Basic sight words, homophones, synonyms, antonyms, application-form vocabulary government terminology, measurement terms, basic math terms, syllabication, pronunciation symbols, and alphabetization presented.

ENL 152 Intermediate Writing, 5 cr.—Prerequisite: ENL placement test. Helps reinforce, and expand control of sentence patterns, verb tenses, grammatical structures, and mechanics. Write controlled paragraphs in past, present and future tenses using simple and compound sentences. Describe a scene, activities, how not to do something, and narrate a sequence of events in time.

ENL 166 Upper Intermediate Pronunciation, 3 cr.—Prerequisite: ENL placement test or instructor permission. Special attention given to problems involving final stops, vowel production, voiced and unvoiced sounds, regular past tense endings, and possessives. Includes expansion of intonation patterns, continued work on phrasing, stress, reduced stress, and linking.

ENL 160 Upper Intermediate Reading, 5 cr.—Prerequisite: ENL placement test or instructor permission. Concentrates on comprehension, structural analysis, word analysis, and expanding skills in the methods of evaluation. Focuses on intermediate level skills by presenting paraphrasing and the interpretation of literature.

ENL 164 Upper Intermediate Speaking, 5 cr.—Prerequisite: ENL placement test or instructor permission. Concentrates on pronunciation, stress, intonation, vocabulary development, and control of grammatical structures such as subordinate clauses, subject/verb agreement, reported speech, and verb voice. Includes correction of problems involving consonant and vowel production. Emphasis placed on stress and intonation in longer words, phrases and sentences, reduced stress and linking.

ENL 168 Upper Intermediate Vocabulary Building, 3 cr.—Prerequisite: ENL placement test or instructor permission. Emphasizes word analysis, specialized vocabulary and dictionary skill building. Two-word verbs, compound words, stems and affixes, social science terminology, words shortened by common usage, grammatical terms, and test-taking vocabulary included.

ENL 162 Upper Intermediate Writing, 5 cr.—Prerequisite: ENL placement test or instructor permission. Includes an introduction to comparison/contrast, analyzing a process, analyzing cause and effect, writing description, and writing narration. Learn self-correction.

ENL 255 Advanced Speaking, 3 cr.—Prerequisite: ENL placement test or instructor permission. The English sound system is approached with an emphasis on problem areas. Complex intonation patterns and shifting stress are included with grammatical emphasis on causative verbs, two-word verbs, conditional usage, review of subordination, and verb tense and voice.

ENL 256 Advanced Pronunciation, 3 cr.—Prerequisite: ENL placement test or instructor permission. Consonant and vowel sounds are reviewed with focus on problem areas. Intonation practice with phrasing, stress, reduced stress, and linking skills are expanded.
ENL 250 Advanced Reading, 5 cr.—Prerequisite: ENL placement test or instructor permission. Focuses on summarizing, restating, inference, distinguishing fact from opinion, use of grammatical functions as context clues, sentence analysis, and paragraph structure. Emphasizes changing word classes, outlining, use of library materials, and interpreting longer readings such as short stories and novels.

ENL 254 Advanced Speaking, 5 cr.—Prerequisite: ENL placement test or instructor permission. The English sound system is approached with an emphasis on problem areas. Complex intonation patterns and shifting stress are included with grammatical emphasis on causative verbs, two-word verbs, conditional usage, review of subordination, and verb tense and voice.

ENL 258 Advanced Vocabulary Building, 3 cr.—Prerequisite: ENL placement test or instructor permission. Emphasizes word analysis, specialized vocabulary, and dictionary skill building. Homographs, synonyms, antonyms, analogies, advanced math, science, and social science vocabulary, and word origins are presented.

ENL 252 Advanced Writing, 5 cr.—Prerequisite: ENL placement test or instructor permission. Write controlled and original paragraphs and compositions using spatial, chronological, analytical, comparative, contrastive, and illustrative methods. Outlining, thesis sentence, and the essay are further developed. Self-correction, peer-correction, and audience awareness are part of this process. Instructor conferencing is required.

ENL 265 Upper Advanced Speaking, 3 cr.—Prerequisite: ENL placement test or instructor permission. Emphasis is on correcting persistent sound problems caused by omissions, substitutions, and additions of sound. Complex patterns are presented for control of intonation, phrasing, and stress. Parallelism, conditionals, idioms, and transitions used in spoken presentations of both formal and informal nature are highlighted.

ENL 267 Upper Advanced Pronunciation, 2 cr.—Prerequisite: ENL placement test or instructor permission. Review of phonetics with focus on problem areas stemming from omissions, substitutions, or additions. Intonation practice to increase control of complex patterns. Phrasing, stress, reduced stress, linking, elisions, and assimilation practiced.

ENL 266 Upper Advanced Pronunciation, 3 cr.—Prerequisite: ENL placement test or instructor permission. Review of phonetics with focus on problem areas stemming from omissions, substitutions, or additions. Intonation practice to increase control of complex patterns. Phrasing, stress, reduced stress, linking, elisions, and assimilation practiced.

ENL 260 Upper Advanced Reading, 5 cr.—Prerequisite: ENL placement test or instructor permission. Focuses on paraphrasing vs. plagiarism, evaluating the validation of arguments, and identifying tone and style. Emphasizes essay structure and inductive and deductive patterns. Concentrates on interpreting information and answering hypothetical questions, and interpreting short stories and novels.

ENL 264 Upper Advanced Speaking, 5 cr.—Prerequisite: ENL placement test or instructor permission. Emphasis is on correcting persistent sound problems caused by omissions, substitutions, and additions of sound. Complex patterns are presented for control of intonation, phrasing, and stress. Parallelism, conditionals, idioms, and transitions used in spoken presentations of both formal and informal nature are highlighted.

ENL 268 Upper Advanced Vocabulary Building, 3 cr.—Prerequisite: ENL placement test or instructor permission. Emphasizes word analysis, specialized vocabulary, and dictionary skill building. Homographs, synonyms, antonyms, analogies, advanced math, science, and social science vocabulary, and word origins are presented.

ENL 262 Upper Advanced Writing, 5 cr.—Prerequisite: ENL placement test or instructor permission. State a thesis, develop an outline, and construct a paper, emphasizing free composition rather than controlled writing. Emphasis on avoiding fragments/run-ons, improving use of transitions, using correct parallelism, and developing cohesiveness and unity in whole papers. Introduces methods of research papers and documentation.

ENL 272 Advanced Supplementary Writing, 5 cr.—Prerequisite: ENL 271 and instructor permission. Students who need a high level of writing competence are prepared for specific offerings in other subject areas at PCC. Emphasizes refinement and development of conscious control of English structure and correction of persistent personal errors in writing.

ESHM - Environmental, Safety and Hazardous Materials

ESHM 100 OSHA 1910.120 (40 Hr Training), 4 cr.—Provides training in the areas required by OSHA, 29 CFR 1910.120 for persons involved in hazardous waste operations. Covers regulatory review, toxicology, medical monitoring, chemistry, site characterization, site safety plan, air monitoring equipment, personal protective equipment, sampling, spill control, and emergency response. Uses hands-on exercises and scenarios to reinforce the training.

ESHM 101 Hazardous MaterialsRegs, 3 cr.—Introduces past and present governmental regulations which help shape environmental protection programs in the United States. Provides an overview of formative U.S. laws and relationships of these to hazardous materials management laws. Laws administered by the Environmental Protection Agency (EPA), Department of Transportation (DOT) and Occupational Safety and Health Administration (OSHA) will be studied in detail.

ESHM 110 Properties of Hazardous Mtls, 3 cr.—Prerequisite: CH 104. Applies the basic concepts of chemistry and physics that are fundamental to the characterization and management of chemical hazards. Recognition of dangers in fire fighting, storing and handling of hazardous materials is presented. Terminology used to identify hazards in Material Safety Data Sheets (MSDS), labeling and transportation will be developed.

ESHM 121 Plan for Haz Mtrls Incident, 3 cr.—Introduces techniques of planning, organizing and administering practical hazardous materials management programs. Emphasizes uncontrolled hazardous waste sites. Studies OSHA regulations (29 CFR 1910.120) and related Oregon rules. Covers the principles of site control, site modification, medical surveillance, personal protective equipment selection and use, site safety plans, emergency plans, training requirements, and management responsibility.
ESHM 219 Industrial/Environ Toxicology, 3 cr.—Prerequisite: CH 104. Understanding the affects on the human body of exposures from hazardous materials and wastes. Covers the routes of exposure, and effects on human target organisms and systems. Provides factors which influence toxicity, such as genetics, biologic, and chemical. Studies the principles of biological and toxicology test methods.

ESHM 220 Env. Compliance Documentation, 3 cr.—Concentrates on the importance of complete recordkeeping in environmental and hazardous materials management. The student will be provided sufficient background to design and manage a recordkeeping and reporting system that would allow an industry to comply with environmental regulations in Oregon.

ESHM 230 Source Reduction & Waste Min, 4 cr.—Provides an overview of major industrial processes where hazardous materials are used and hazardous waste is generated. Emphasis is placed on methods for minimizing the production of hazardous waste, material recovery, treatment and disposal technologies are covered. The economics of source reduction is explored. Field trips and applied projects are included.

ESHM 244 Intro to Environmental Engr, 3 cr.—Provides the student with an introduction to pollutants that adversely affect the environment and human health. Methods for quantifying the amount and impact on pollutants is presented. The students are taught equipment sizing and selection of biological/chemical controls.

ESHM 254 Environ Sampling and Analysis, 4 cr.—Studies field sampling, measurements and analytical testing. Presents procedures for handling samples to ensure proper preservation and compliance with quality assurance/quality control programs. Explores common mediums for sampling water, waste water, contaminated sites, air dischargers and hazardous substances.

ESHM 257 Site Characteristics & Remediation, 3 cr.—Includes basic environmental regulations, audits and how to identify environmental concerns and liabilities. The effect of industrial and commercial activities on future property use and real estate transfer is covered. An in-depth evaluation of environmental clean-up activities including: types/sources of contaminants; site investigation; endangerment assessments; and feasibility studies.

ESHM 258 Safety Laws and Standards, 3 cr.—Introduces the fundamentals of safety in the workplace. The student will be introduced to the Occupational Safety and Health Administration codes which includes confined space, machine guarding, Workers’ Compensation and fire safety.

ESHM 281 Elements of Industrial Hygiene, 3 cr.—Introduces the fundamentals of industrial hygiene, including safety and health in the workplace. Covers Communication Standards (29 CFR 1910.1200), which are designed to require employers to provide a safe working environment. Discusses employee right-to-know information on Material Safety Data Sheets (MSDS) with protective clothing and respiratory protection. Includes issues involving worker safety and ergonomics.

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**FN - Dietetic Technology**

**FN 110 Managing Quantity Food Services, 2 cr.**—Corequisite: FN 111. Covers basic concepts of supervision and management in the quantity food service setting. Includes styles of organization, leadership, communication, human resources management, rules and regulations of licensing agencies, and evaluation techniques. Course information is applied through assignments completed at an approved training site.

**FN 111 Field Experience I, 2 cr.**—Corequisite: FN 110. Covers application of theory, principles and techniques studied in Managing Quantity Food Services course. Assignments and site activities are coordinated and completed in an approved food service facility.

**FN 112 Safety/Sanitation, 3 cr.**—Course addresses employee hygiene; food sanitation, purchases, equipment selection; waste management; selected legal topics; first aid and accident prevention. Required course for Dietetic Technician Program. Open to public and food service employees for occupational upgrading.

**FN 130 Managing Food Production, 2 cr.**—Corequisite: FN 131M. Introduces quantity food service supervision concepts and preparation techniques. Includes menu planning and preparation methods, equipment maintenance and use, purchasing, cost control, and merchandising. Students apply course information through assignments completed at an approved training site.

**FN 131M Field Experience II, 2 cr.**—Corequisite: FN 130. Covers application of theory, principles and techniques studied in Managing Food Production course. Assignments and site activities are coordinated and completed in an approved food service facility.

**FN 131T Field Experience II, 4 cr.**—Corequisite: FN 130. Covers application of theory, principles and techniques studied in Managing Food Production course. Assignments and site activities are coordinated and completed in an approved food service facility.

**FN 132A Food Labeling & Regulations, 1 cr.**—Overview of laws and agencies that monitor and regulate the labeling of food products in the marketplace. Special emphasis is on nutrition labeling and product comparisons for nutritional content to prepare students for client counseling regarding food choices. This is a required course for the Dietetic Technician program. Also open to public and food service employees for occupational upgrading.

**FN 132B Food Processing & Preservation, 1 cr.**—Covers basic principles of safe food storage and preservation. Includes regulations and technology utilized in the food manufacturing industry. Provides the student with guidelines for combating food and nutrition misinformation to assist clients in purchasing and preserving food items. This is a required course for the Dietetic Technician program. Also open to public and food service employees for occupational upgrading.

**FN 132C Cultural Foodways, 1 cr.**—Provides basic knowledge of preparation and recognition of foods common to various cultures and the relationship of food patterns to social customs and rituals. Students research and present a paper on
economic, agricultural, historical and nutritional implications of an assigned culture. This is a required course for the Dietetic Technician program. Also open to public and food service employees for occupational upgrading.

**FN 150 Normal Nutrition, 2 cr.**—Corequisite: FN 151M. Explores basic concepts in human nutrition. Includes the nutrient's source, as well as its utilization within the human body. Additional emphasis on nutritional needs, menu planning, and cultural implications in pregnancy, infancy, adolescence, and geriatrics. Assignments completed at an approved training site. Student may substitute FN 225 with instructor permission.

**FN 151M Field Experience III, 2 cr.**—Corequisite: FN 150. Covers application of theory, principles and techniques studied in Nutrition course. Assignments and site activities are coordinated and completed in an approved food service facility.

**FN 151T Field Experience III, 4 cr.**—Corequisite: FN 225. Covers application of theory, principles and techniques studied in Nutrition course. Assignments and site activities are coordinated and completed in an approved food service facility.

**FN 152A Quantity Foods: Cost Control, 1 cr.**—Includes quantity food service procedures for determining amount of food to order, recipe adjustment, pricing, calculating yields, portion control and purchasing techniques. Also open to food service employees for occupational upgrading.

**FN 152B Quantity Foods: Catering Management, 1 cr.**—Presents principles of cost effective in-house catering and buffet operations. Includes menu planning, preparation, service, dining area layout, contracts and pricing. Students plan a simulated catering project and present to the class. Also open to public and food service employees for occupational upgrading.

**FN 153 Special Diet Preparation, 2 cr.**—Includes theory and practical application of food preparation techniques utilized in preparing special diet menu items. Covers basic diet modifications for altering fat, calorie, sodium, texture and gluten content. Students critique and adjust recipes to meet special diet needs and learn a standardized recipe format. Also open to public and food service employees for occupational upgrading.

**FN 210 Diet and Disease, 2 cr.**—Prerequisite: FN 150 or FN 225. Corequisite: FN 211M or FN 211T. Focuses on nutritional assessment, diet therapy and menu selection used in treatment of diabetes, weight control, cardiovascular disease, gastrointestinal, renal, allergy, cancer, and physical impairment.

**FN 211M Field Experience IV, 3 cr.**—Corequisite: FN 210. Covers application of theory, principles and techniques studied in Diet and Disease course. Assignments and site activities are coordinated and completed in an approved food service facility.

**FN 211T Field Experience IV, 4 cr.**—Corequisite: FN 210. Covers application of theory, principles and techniques studied in Diet and Disease course. Assignments and site activities are coordinated and completed in an approved food service facility: nursing home.

**FN 225 Nutrition, 4 cr.**—Students identify factors that affect food and nutrient intake and contribute to nutrient retention in food during processing, the role of digestion and absorption, and components of an adequate diet. In a term project, students apply these factors by evaluating intake in relation to personal nutrient needs.

**FN 230 Diet Therapy, 2 cr.**—Prerequisite: FN 210 or instructor approval. Student practices tools of nutritional assessment, interpretation of laboratory values, evaluation of comprehensive diet histories, and calculation of nutritional needs. With instructor approval, experienced food and nutrition services personnel may register for occupational upgrading.

**FN 231 Field Experience V, 4 cr.**—Corequisite: FN 230. Covers application of theory, principles and techniques studied in Diet Therapy course. Assignments and site activities are coordinated and completed in an approved food service facility: hospital.

**FN 250A Nutrition: Contemporary Issues, 1 cr.**—Prerequisite: FN 150, FN 225, or instructor approval. Evaluates fad diets, weight control regimes, vegetarianism and what constitutes adequate nutritional support for athletes. Additional contemporary nutrition concerns are included. With instructor approval, experienced food and nutrition services personnel may register for occupational upgrading.

**FN 250B Nutrition: Life Cycle, 1 cr.**—Prerequisite: FN 150, FN 225, or instructor approval. Emphasizes contemporary nutritional concerns for the healthy public at large. Analyzes nutritional needs involved in seven life cycle stages and studies implications of adverse food and drug interaction. With instructor approval, experienced food and nutrition services personnel for occupational upgrading.

**FN 251 Field Experience VI, 4 cr.**—Corequisite: FN 250A and FN 250B. Covers application of theory, principles and techniques studied in Contemporary and Life Cycle courses. Assignments and site activities are coordinated and completed in an approved food service facility: community agency.

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**FP - Fire Protection**

**FP 101 Intro to Fire Protection, 3 cr.**—Studies the history and development of fire service as well as safety and security movements. Identifies general fire hazards and their causes and how to apply fire protection principles.

**FP 111 Firefighting Skills I, 5 cr.**—Studies basic tools, procedures, techniques and safety precautions utilized by the fire fighter during fire ground operations. Cardiopulmonary Resuscitation, Hazardous Materials awareness and FSAB Basic Fire Fighter training requirements.

**FP 112 Firefighting Skills II, 5 cr.**—Continues to develop basic fire fighter skills learned in FP 111 while increasing technical knowledge of fire ground operations. Emphasizes team skills performed as an evolution by an engine company. Ladder and hose evolutions, power tools, rescue practices and procedures requiring teamwork are practiced.

**FP 113 Firefighting Skills III, 3 cr.**—Prerequisite: FP 111 and FP 112. Studies advanced fire fighting skills and applies these skills during weekly drill activities. Equipment and procedures learned in FP Skills I & II are utilized in an operational format. Students function as a firefighter, apparatus operator, company officer, and training officer during drill activities.

**FP 121 Fire Science I, 3 cr.**—Prerequisite: Math competency. Studies characteristics and behavior of fire, fundamentals of physical laws and chemical reactions occurring in fire and fire suppression. Analyzes factors contributing to fire - its cause, rate of burning, heat generation and travel, by-products of combustion, and its confinement, control, and extinguishment.
Course Descriptions

Fall Term 1994 — Summer Term 1995

FP 122 Fundamentals of Fire Prevention, 3 cr.—Studies fundamentals of fire inspection standards and techniques of evaluation, identification of hazards, and making practical recommendations. Students write reports and conduct on-site inspections of buildings to locate hazards and recommend improvements. Students study fire prevention and education programs and conduct presentations.

FP 123 Hazardous Materials Technician I, 3 cr.—Reviews basic chemistry. Studies the identity of hazardous materials by color, symbol and marking. Covers recommended practices for storage and handling of solids, liquids and gases, and study fire control methods for these materials. Meets FSAB standards for awareness and operations level.

FP 131 Intro High Angle Rescue 0.5 cr.—Students will study practical procedures, techniques, and safety procedures utilized by rescue personnel during rope rescue. Organization of a rope rescue team, equipment requirements, scene evaluation, and rescuer safety will be covered. Basic rappel, delay and victim retrieval techniques will be practiced.

FP 132 Fire App/Pump Construction Operation and Hydraulics, 3 cr.—Studies practical procedures, techniques, and safety precautions utilized during apparatus operations. Engine capabilities, pump construction, procedures for operation and hydraulic formulas utilized to calculate flow requirements are covered. FSAB P&P II (05-08), (15-08) FSAB Apparatus Operator I (16-01), (16-02), (16-03).

FP 133 Natural Cover/Forest Firefighting, 3 cr.—Studies tools and equipment used in natural cover fire fighting as well as tactics and procedures of federal, state and local organizations.

FP 141 Intro Water Rescue 0.5 cr.—Students will study practical procedures, techniques, and safety precautions utilized by rescue personnel during water rescue response. Organization of a water rescue team, equipment requirements, scene evaluation, and rescuer drown-proofing will be covered. Basic victim retrieval techniques will be practiced.

FP 143 Assessment Center Training, 1 cr.—Designed to familiarize students with the procedures and techniques utilized for evaluating and assessing individuals for promotion. Students practice role playing, prioritize information, make presentations, simulate fire command, and practice interviews.

FP 151 Aircraft Crash and Rescue Basics 0.5 cr.—Studies aircraft and airport systems, practical procedures, techniques, and safety precautions utilized by rescue personnel during aircraft crash and rescue response. Organization of a crash rescue team, equipment requirements, scene evaluation, and tactical and strategic considerations are covered.

FP 161 Vehicle Extr Basics 0.5 cr.—Students study procedures utilized for extrication of injured victims from motor vehicles, tools, equipment and hazards associated with vehicle extrication and safety considerations during rescue operations.

FP 171 Haz Mat Awareness 0.5 cr.—This course is designed to provide emergency service first responder personnel with the knowledge and skills to detect and identify hazardous materials and handle minor incidents.

FP 181 Intro to Natural Cover Fire Protection 0.5 cr.—Studies tools, equipment and supplies utilized during natural cover fire suppression. Students will be familiarized with command procedures, tactics, strategies and safety precautions used by personnel during natural cover fire suppression operations. Emphasis is on inter-agency response and urban interface operations.

FP 201 Emergency Service Rescue, 4 cr.—Prerequisite: FP 111 and FP 112. Studies a variety of procedures, equipment, and tools utilized by emergency rescue personnel. Students will become familiar with building search, auto extrication, aircraft crash, high angle, and water rescue.

FP 202 Fixed Systems and Extinguishers, 3 cr.—Studies portable extinguisher equipment, fire alarm and detection systems, sprinkler systems and standpipe systems, protection systems for special hazards, explosion release, ventilation systems, inert atmospheres and static bonding.

FP 203A Intro to Firefighting Tactics & Strategy, 3 cr.—A study of fireground tactics and strategy, responses and size-up, protection of exposures, containment, extinguishment, the command post, combined operations, analysis and post-mortem evaluation, pre-fire surveys and planning.

FP 211 Bldg Constr for Firefighters, 3 cr.—Offers knowledge and skills in the various construction features of buildings. Includes structural features affecting fire spread and building collapse, the effect of fire on materials, fire stops and ratings. Use of blueprints and plans to understand building features and pre-fire planning is emphasized.

FP 212 Fire Investigation (Cause Determination), 3 cr.—Studies burning characteristics of combustibles. Interprets dyes and burn patterns leading to point of origin. Identifies incendiary indications, sources of ignition and materials ignited and how to preserve the fire scene evidence.

FP 213 Principles of Supervision for Firefighters, 3 cr.—Studies fireline supervision. Future fire supervisers concentrate on the responsibilities of and opportunities for supervision, develop an understanding of human relations and study how to stimulate personal development of supervisory skills.

FP 231 Aircraft Crash Rescue Practices, 3 cr.—Studies current techniques of aircraft firefighting and rescue, principles associated with aircraft design and mock situations involving various aircraft disasters.

FP 232 Pump Construction and Hydraulics II, 2 cr.—Practical procedures, techniques, and safety precautions utilized during apparatus operations. Covers the history and development of fire apparatus capabilities, pump construction, procedures for operation and hydraulic formulas used to calculate flow requirements. Operational techniques required to operate an engine at a multiple alarm fire will be practiced. FSAB Apparatus Operator II (26-01), (26-02), (26-03).

FP 233 Aerial Ladder Operations for Firefighters, 3 cr.—Studies the concepts of aerial ladder operation and becomes familiar with equipment used in construction, operation and maintenance. Situations involving field use, deployment and operation of equipment are explored.

FP 234 Flammable, Explosive, And Toxic Materials, 3 cr.—Studies electrical exotic metal fires and space age fuel fires; how to handle radioactive materials involved in fire, the use of monitoring equipment and personnel safety practices.

FP 243 Laws Affecting Fire Fighting, 1 cr.—Covers various federal, state and local statues, codes and ordinances that have a bearing on firefighters. Personal and organizational responsibilities will be covered. Equal employment opportunity, operation of emergency vehicles and fire codes are included.

FP 252 High Angle Rescue I, 3 cr.—Offers knowledge and skills to select, maintain, inspect and use basic high angle rescue equipment. Hands-on experience helps the student develop
### Course Descriptions

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP 9060</td>
<td>Fire Science II Chem, 3 cr.</td>
<td></td>
<td>Studies response and size-up, fire-ground tactics and analysis, post-mortem, pre-fire survey and planning, combined operations, mutual aid, disaster planning and problems in unusual fire operations.</td>
</tr>
<tr>
<td>FP 9070</td>
<td>Major Emergency Strategy/Tactics, 3 cr.</td>
<td></td>
<td>Studies response and size-up, fire-ground tactics and analysis, post-mortem, pre-fire survey and planning, combined operations, mutual aid, disaster planning and problems in unusual fire operations.</td>
</tr>
<tr>
<td>FP 9080</td>
<td>Fire Fighting Safety &amp; Survival for Company Officers, 1 cr.</td>
<td></td>
<td>Covers safety on the fireground, the officer's role in modifying behavior and identifying hazardous situations. Identifies state safety rules.</td>
</tr>
<tr>
<td>FP 9090</td>
<td>Incident Command, 2 cr.</td>
<td></td>
<td>Covers current incident command systems and how to improve fireground operational techniques through a structured process.</td>
</tr>
<tr>
<td>FP 9120</td>
<td>Fire Codes &amp; Related Ordinances, 3 cr.</td>
<td></td>
<td>Studies fire, building, exit, flammable liquid and other fire prevention codes. Students go on supervised building inspection field trips. Primarily for fire department inspectors.</td>
</tr>
<tr>
<td>FP 9130</td>
<td>Hazardous Materials Inspection, 3 cr.</td>
<td></td>
<td>Students study state codes and regulations pertaining to hazardous material storage, labeling, incident reporting, inspection and handling. Characteristics and identification of hazardous materials, hazards associated with flammable, explosive, toxic, radioactive, corrosive and oxidizing agents will be discussed.</td>
</tr>
<tr>
<td>FP 9150</td>
<td>Advanced Fire and Arson Investigation, 4 cr.</td>
<td></td>
<td>Introduces common law, statutory law and case law pertaining to arson and other willful burning. Arson as an economic crime and a part of organized crime operation is also discussed.</td>
</tr>
<tr>
<td>FP 9250</td>
<td>Advanced Fire and Arson Investigation, 4 cr.</td>
<td></td>
<td>Examines areas of knowledge necessary for the identification and investigation of specific causes of fires. Designed to expand on information introduced in FP 207.</td>
</tr>
<tr>
<td>FP 9330</td>
<td>Fire Service Hydraulics, 3 cr.</td>
<td></td>
<td>Covers various fire apparatus used in the fire service, the construction of fire pumps, and the utilization of this equipment. Fireground hydraulics and other calculations are studied.</td>
</tr>
<tr>
<td>FP 9340</td>
<td>Water Distribution Systems, 3 cr.</td>
<td></td>
<td>Studies water main systems and hydrants in residential and commercial districts, fire flow requirements, pumping stations, high pressure systems, storage tanks and cisterns and mobile supplies.</td>
</tr>
<tr>
<td>FP 9410</td>
<td>Public Relations for Fire Service, 3 cr.</td>
<td></td>
<td>Studies the fundamentals of public relations as they pertain to fire service, including emergency operations, general public appearances, writing news releases, articles and speeches and general media contact.</td>
</tr>
<tr>
<td>FP 9420</td>
<td>Managing Fire Personnel, 1 cr.</td>
<td></td>
<td>Covers the appointment/promotional process to include desirable traits of personnel. Discusses motivation and counseling as well as the legal responsibilities of management and utilization of employees.</td>
</tr>
<tr>
<td>FP 9500</td>
<td>Public Relations Information and Education, 1 cr.</td>
<td></td>
<td>Covers company officer responsibilities for a basic understanding of public relations, information and fire education. Designed to offer a brief overview of these topics.</td>
</tr>
</tbody>
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**Fall Term 1994 — Summer Term 1995**
FR - French

FR 101 First Year French, 4 cr.—Listening, speaking, reading, writing, culture. Pronunciation, structure, vocabulary. Emphasizes active communication in French. For beginners.

FR 102 First Year French, 4 cr.—Prerequisite: FR 101, FR 150 or equivalent. Continues work of FR 101. Emphasizes active communication in French.

FR 103 First Year French, 4 cr.—Prerequisite: FR 102 or the equivalent. Continues the work of FR 102. Emphasizes active communication in French.

FR 111A First Year French Conversation, 3 cr.—Prerequisite: First year French at the college level or instructor permission. Practice of structures and vocabulary of first year French in a conversational format.

FR 111B First Year French Conversation, 2 cr.—Prerequisite: First year French at the college level or instructor permission. Practice of structures and vocabulary of first year French in a conversational format.

FR 111C First Year French Conversation, 1 cr.—Prerequisite: First year French at the college level or instructor permission. Practice of structures and vocabulary of first year French in a conversational format.

FR 112A First Year French Conversation, 3 cr.—Prerequisite: First year French at the college level or instructor permission. Continuation of FR 111A.

FR 112B First Year French Conversation, 2 cr.—Prerequisite: First year French at the college level or instructor permission. Continuation of FR 111B.

FR 112C First Year French Conversation, 1 cr.—Prerequisite: First year French at the college level or instructor permission. Continuation of FR 111C.

FR 113A First Year French Conversation, 3 cr.—Prerequisite: First year French at the college level or instructor permission. Continuation of FR 112A.

FR 113B First Year French Conversation, 2 cr.—Prerequisite: First year French at the college level or instructor permission. Continuation of FR 112B.

FR 113C First Year French Conversation, 1 cr.—Prerequisite: First year French at the college level or instructor permission. Continuation of FR 112C.

FR 150 First Year French, 6 cr.—Listening, speaking, reading, writing, culture. Pronunciation, structure, vocabulary. Emphasizes active communication in French. For beginners.

FR 151 First Year French, 6 cr.—Prerequisite: FR 101, FR 150 or equivalent. Continues the work of FR 150. Emphasizes active communication in French.

FR 201 Second Year French, 4 cr.—Prerequisite: First year French at the college level or the equivalent. Continues the work of first year French, reviewing, expanding, and perfecting pronunciation, structure, and vocabulary for the purpose of active communication.

FR 202 Second Year French, 4 cr.—Prerequisite: FR 201 or the equivalent. Continuation of FR 201. Emphasizes active communication in French. Increasing emphasis on writing.

FR 203 Second Year French, 4 cr.—Prerequisite: FR 202 or the equivalent. Continuation of FR 202. Emphasizes active communication in French. Increasing emphasis on writing.

FR 211A Intermediate French Conversation, 3 cr.—Prerequisite: Completion of or simultaneous enrollment in FR 201 or instructor permission. Stresses conversational skills at the second year level.

FR 211B Intermediate French Conversation, 2 cr.—Prerequisite: Completion of or simultaneous enrollment in FR 201 or instructor permission. Stresses conversational skills at the second year level.

FR 211C Intermediate French Conversation, 1 cr.—Prerequisite: Completion of or simultaneous enrollment in FR 201 or instructor permission. Stresses conversational skills at the second year level.

FR 212A Intermediate French Conversation, 3 cr.—Prerequisite: Completion of or simultaneous enrollment in FR 202 or instructor permission. Continuation of FR 211A.

FR 212B Intermediate French Conversation, 2 cr.—Prerequisite: Completion of or simultaneous enrollment in FR 202 or instructor permission. Continuation of FR 211B.

FR 212C Intermediate French Conversation, 1 cr.—Prerequisite: Completion of or simultaneous enrollment in FR 202 or instructor permission. Continuation of FR 211C.

FR 213A Intermediate French Conversation, 3 cr.—Prerequisite: Completion of or simultaneous enrollment in FR 203 or instructor permission. Continuation of FR 212A.

FR 213B Intermediate French Conversation, 2 cr.—Prerequisite: Completion of or simultaneous enrollment in FR 203 or instructor permission. Continuation of FR 212B.

FR 213C Intermediate French Conversation, 1 cr.—Prerequisite: Completion of or simultaneous enrollment in FR 203 or instructor permission. Continuation of FR 212C.

FR 250 Second Year French, 6 cr.—Prerequisite: First year French at the college level or the equivalent. Continues the work of first year French, reviewing, expanding, and perfecting pronunciation, structure, and vocabulary for the purpose of active communication.

FR 251 Second Year French, 6 cr.—Prerequisite: FR 250 or the equivalent. Continuation of FR 250. Emphasizes active communication in French. Increasing emphasis on writing.

FR 255 Accelerated French, 8 cr.—Covers the material of FR 101 and FR 102 in an accelerated format. Listening, speaking, reading, writing, culture. Pronunciation, structure, vocabulary. Emphasizes active communication in French. Recommended to the highly motivated student.

FR 256 Accelerated French, 8 cr.—Prerequisite: FR 102 or FR 255 or instructor permission. Covers the material of FR 103 and FR 201 in an accelerated format. Emphasizes active communication in French.
FR 260C French Culture, 1 cr.—Prerequisite: One term of second year French at the college level or instructor permission. Study and discussion of contemporary thought and life of the French speaking world.

FR 261A French Culture, 3 cr.—Prerequisite: Two terms of second year French at the college level or instructor permission. Continuation of FR 260A.

FR 261B French Culture, 2 cr.—Prerequisite: Two terms of second year French at the college level or instructor permission. Continuation of FR 260B.

FR 261C French Culture, 1 cr.—Prerequisite: Two terms of second year French at the college level or instructor permission. Continuation of FR 260C.

FR 262A French Culture, 3 cr.—Prerequisite: Second year French at the college level or instructor permission. Continuation of FR 261A.

FR 262B French Culture, 2 cr.—Prerequisite: Second year French at the college level or instructor permission. Continuation of FR 261B.

FR 262C French Culture, 1 cr.—Prerequisite: Second year French at the college level or instructor permission. Continuation of FR 261C.

FR 270A Readings in French Literature, 3 cr.—Prerequisite: Second year French at the college level, simultaneous enrollment in FR 203, 251 or 257, or instructor permission. Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry.

FR 270B Readings in French Literature, 2 cr.—Prerequisite: Second year French at the college level, simultaneous enrollment in FR 203, 251 or 257 or instructor permission. Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry.

FR 270C Readings in French Literature, 1 cr.—Prerequisite: Second year French at the college level, simultaneous enrollment in FR 203, 251 or 257 or instructor permission. Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry.

FR 271A Readings in French Literature (African & Caribbean), 3 cr.—Prerequisite: Second year French at the college level, simultaneous enrollment in FR 203, 251 or 257, or instructor permission. Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry written by African and Caribbean writers.

FR 271B Readings in French Literature (African & Caribbean), 2 cr.—Prerequisite: Second year French at the college level, simultaneous enrollment in FR 203, 251, or FR 257, or instructor permission. Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry written by African and Caribbean writers.

FR 271C Readings in French Literature (African & Caribbean), 1 cr.—Prerequisite: Second year French at the college level, simultaneous enrollment in FR 203, FR 251, or FR 257, or instructor permission. Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry written by African and Caribbean writers.

FR 272A Readings in French Literature (Women Writers), 3 cr.—Prerequisite: Second year French at the college level, simultaneous enrollment in FR 203, FR 251, or FR 257, or instructor permission. Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry written by women.

FR 272B Readings in French Literature (Women Writers), 2 cr.—Prerequisite: Second year French at the college level, simultaneous enrollment in FR 203, FR 251, or FR 257, or instructor permission. Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry written by women.

FR 272C Readings in French Literature (Women Writers), 1 cr.—Prerequisite: Second year French at the college level, simultaneous enrollment in FR 203, FR 251, or FR 257, or instructor permission. Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry written by women.

FR 290A French Composition, 3 cr.—Prerequisite: Successful completion of second year French at the college level or instructor permission. Expands and perfects skills learned in second year French. Emphasizes speaking and writing, but students also practice listening and reading.

FR 290B French Composition, 2 cr.—Prerequisite: Instructor permission and either second year college French with grades of A or B or native or near native ability in French. Practice in developing composition skills.

FR 290C French Composition, 1 cr.—Prerequisite: Instructor permission and successful completion of either second year college French with grades of A or B or native or near native ability in French. Practice in developing composition skills.

FR 290A French Composition, 3 cr.—Prerequisite: Instructor permission. Practice in developing composition skills.

FR 290B French Composition, 2 cr.—Prerequisite: Instructor permission. Continuation of FR 290B.

FR 290C French Composition, 1 cr.—Prerequisite: Instructor permission. Continuation of FR 290C.

FR 291A French Composition, 3 cr.—Prerequisite: Instructor permission. Continuation of FR 291A.

FR 291B French Composition, 2 cr.—Prerequisite: Instructor permission. Continuation of FR 291B.

FR 291C French Composition, 1 cr.—Prerequisite: Instructor permission. Continuation of FR 291C.

G - Geology

G 201 Physical Geology, 4 cr.—Introduces physical geology which deals with minerals, rocks, internal structure of the earth, and volcanoes.

G 202 Physical Geology, 4 cr.—Introduces physical geology which deals with mass wasting, streams, glaciers, and structural geology.

G 203 Historical Geology, 4 cr.—Introduces historical geology which deals with geologic time, fossils, stratigraphic principles, plate tectonics, and the geologic history of the North American continent.

G 207 Geology of the Pacific Northwest, 3 cr.—The course provides an introduction to the regional geology of the Pacific Northwest with emphasis on Oregon geology. Includes basic geologic principles, earth materials and geology of Pacific Northwest provinces.
G 208 Volcanoes and Their Activity, 3 cr. — Covers the origin, activity, products, classification and hazards of volcanoes.
G 291 Elements of Rocks and Minerals, 4 cr. — Introduces the study of rocks and minerals that includes their classification, origin and identification. Recommended for persons interested in rock and mineral collecting, mining and prospecting.

**GD - Graphic Design**

GD 120 Graphic Tools and Layout Techniques, 3 cr. — Introduces students to basic concepts of graphic design with special emphasis on techniques used in developing an idea from a thumbnail sketch to a comprehensive design. This is the screening course for Graphic Design majors. A final grade of "B" or better is required to continue in the program.

GD 122 Layout and Mechanicals, 3 cr. — Prerequisite: GD 120. Placement permission slip required. Corequisite: GD 224. Designed to expand upon information and competencies developed in GD 120. Basic design concepts, drawing skills and production tools are used to develop concepts from rough layouts, through presentation comprehensives and camera ready mechanicals.

GD 124 Graphic Production, 3 cr. — Prerequisite: GD 120 and GD 122. Placement permission slip required. Challenges students to create and "make-ready" for print, a multi-page publication. Each page carries specific information and elements and will require students to develop competencies in areas of printing and bindery not covered in GD 120 and GD 122.

GD 140 Intro to Computer Graphics Software, 3 cr. — Prerequisite: Some computer experience, Pagemaker and Microsoft Word preferred. Introduces current industry software used in the preparation of Macintosh computer generated graphics. Basic skills and knowledge are developed through step-by-step hands-on exercises, tutorials and general instruction in Quark, Freehand, Photoshop and/or other current software programs.

GD 221 Graphic Design I, 3 cr. — Prerequisite: Second year status. Required: Placement permission form. Corequisite: GD 237 and GD 240. Includes conceptualization, design and production of publication covers, signage and point of purchase displays in black and white and color, using both hands-on and computer generated images.

GD 222 Graphic Design II, 3 cr. — Prerequisite: Second year status and GD 221. Placement permission slip required. Includes development of graphic images for corporations and institutions, newspaper and magazine advertisements, catalog covers, logos, labels, and truck signage. Students apply both hands-on and computer generated techniques.

GD 223 Graphic Design III, 3 cr. — Prerequisite: Second year status and GD 222. Placement permission slip required. Corequisite: GD 238 and GD 241. Includes development of a self-promotion package, calendar and other product designs which utilize special bindery and printing techniques. Students apply both hands-on and computer generated techniques.

GD 224 Designing with Type, 3 cr. — Prerequisite: GD 120, or instructor permission. Corequisite: GD 122. Offers an overview of the printing process and type composition. Assignments stress the designer's use of type styles and their effect on communication. Measurement and copy fitting are introduced.

GD 228 Professional Studio Practices, 3 cr. — Prerequisite: Second year status. Includes numerous industry field trips, guest speakers, practice job interviews and role playing by students using video equipment, preparation of portfolio and resume, and additional information on how and where to successfully find work in the graphic design field.

GD 237 B & W Illustration Techniques, 3 cr. — Prerequisite: Second year status or instructor permission. Introduces materials and techniques used to produce camera ready black and white line illustration. Focuses on line illustrations of products and subjects suitable for insertion into magazines and catalogs. Uses a variety of dry and wet media and textured and smooth drawing surfaces to create images involving perspective, realism and abstract ideas.

GD 238 Color Illustration Techniques, 3 cr. — Prerequisite: Second year status in Graphic Design program and completion of GD 237. Tools and techniques used to produce color product design. Line art is combined with wash using a variety of wet and dry media including gouache, watercolor, dyes, colored paper and special markings and color films which includes airbrush techniques.

GD 239 Illustration for Publication, 3 cr. — Prerequisite: Second year status and completion of GD 237 and GD 238. Uses basic design, drawing and painting skills to create solutions for specific problems involved with editorial, book and advertising illustration. Continuity between the assigned project and media choice (including acrylic, watercolor, ink, computer generated images, etc.).

GD 240 Computer Graphics I, 3 cr. — Prerequisite: Second year status. Placement permission slip required. Introduces the Graphic Design student to the computer as a graphic tool. Explores design and production possibilities on the Macintosh computer. Students apply skills on the computer system, how graphic devices are used with the computer and keyboard graphics.

GD 241 Computer Graphics II, 3 cr. — Prerequisite: Second year status and GD 240. Placement permission slip required. Acquaints students with "paint" systems and how they are used to process visual information. Uses Macintosh computers. Recommended skills: prior computer experience.


**GE - General Engineering**

GE 105 HP Programming, 1 cr. — Prerequisite: Placement in WR 121 and MTH 111. Calculator required. Covers use of and programming on a Hewlett Packard scientific, programmable, graphing calculator.

GE 110 Engineering Orientation - Introduction, 4 cr. — Prerequisite: Placement in WR 121 and MTH 251. Calculator required. Surveys engineering disciplines with emphasis on problem solving techniques. Engineering education, registration laws and engineering ethics are also covered. Students will work together on an assigned engineering design project.
GE 112 Engineering Orientation - FORTRAN, 3 cr.—Prerequisite: Placement in WR 121 and MTH 251. Introduces FORTRAN with application to engineering problems. Recommended: GE 110.

GE 113 Engineering Orientation - PASCAL, 4 cr.—Prerequisite: Placement in WR 121 and MTH 251. Introduces structured programming using PASCAL with application to engineering problems. Recommended: GE 110.

GE 115 Engineering Graphics, 2 cr.—Prerequisite: WR 115 and MTH 95. Introduces skills needed for producing engineering drawings. Freehand orthographic sketching and pictorial communications are emphasized.

GE 116 Introduction to CAD, 2 cr.—Prerequisite: GE 115 and DOS knowledge. Introduces CAD as a drafting tool. Hardware configuration and operation, data manipulation from the system's CPU, and creation, storage, retrieval and modification of drawings are covered.

GE 171 Introduction to Logic Design, 5 cr.—Prerequisite: GE 110, Corequisite: GE 221. Introduces switching theory and logic design. Number systems, logic families, Boolean algebra, minimization, flip-flops, registers and counters, are covered. Analysis and design of finite state machines with discrete and programmable devices.

GE 211 Statics, 4 cr.—Prerequisite: GE 110, MTH 252, PHY 211 and one of the following: GE 105, GE 112, or GE 113. Calculator required. Analysis of forces acting on particles and rigid bodies. Force systems, centroids, and moments of inertia are covered.

GE 212 Dynamics, 4 cr.—Prerequisite: GE 211. Calculator required. Kinematics and kinetics of particles and rigid bodies are analyzed by Newton's laws, work-energy and impulse-momentum methods.

GE 213 Strength of Materials, 4 cr.—Prerequisite: GE 211. Calculator required. Relationships between stress and strain in deformable solids are studied. Analysis is applied to axially-loaded members, circular shafts, beams and columns. Combined stresses, statically indeterminate systems and properties of structural materials are included.

GE 221 Electrical Circuits I, 5 cr.—Prerequisite: GE 110, MTH 252 and PHY 213. DC and AC circuit analysis using loop, nodal, and superposition methods, including dependent sources and operational amplifiers. Norton's and Thevenin's Theorems. Power and energy considerations. Includes laboratory experiments with PSpice computer analysis. Recommended: MTH 253.


GE 226 Plane Surveying, 4 cr.—Prerequisite: Placement in WR 121 and MTH 251. Calculator required. Basic concepts of plane surveying are introduced. Includes use of tape, level and transit, notekeeping, horizontal and vertical control networks. Includes calculations and adjustments, angles and bearings, and topographic surveying and mapping. Recommended: GE 110.

GE 231 Material Science, 4 cr.—Prerequisite: MTH 252 and CH 201. Selection of materials for modern engineering applications. Structure and properties of metals, ceramics and polymers starting with fundamental atomic arrangements. Microstructural control through thermal and mechanical processing and effects of service environment are covered. Recommended: GE 110.

GE 262 Manufacturing Processes, 3 cr.—Prerequisite: Placement in WR 121 and MTH 251. The interaction of design with industrial materials and processes is considered in connection with technical and economic feasibility, trade-offs and automation. Recommended: GE 110.

GE 271 Digital Systems, 5 cr.—Prerequisite: GE 171. Introduction to computer architecture. Analysis and design of the CPU's control unit, microprogram ROM, RAM, and ALU. Microcomputer macrostructure included buses, interrupt mechanisms, input/output devices, memory systems, and interfacing.

GE 275 Microprocessor Systems, 4 cr.—Prerequisite: GE 171. Introduction to microprocessor architecture, assembly language programming and basic microcomputer system design. Use specialized software development tools to write applications programs and test/debug programs in prototype systems.

GE 280A CE: Engineering, 5 cr.—Prerequisite: Department approval. For students employed in an approved co-op education position with a local company. Credits do not ordinarily transfer for an engineering degree.

GEO - Geography

GEO 105 Intro to Human Cultural Geography, 3 cr.—Themes include a concern for global resource issues, a spatial examination of cultural landscapes, and a discussion of the uniqueness of various regions of the world.

GEO 106 Intro to Human Cultural Geography, 3 cr.—Themes include the study of population and settlement geography, the spatial examination of cities and cultural landscapes, and human uses and modifications of the environment.

GEO 107 Intro to Human Cultural Geography, 3 cr.—Covers spatial analyses and cross-cultural comparisons of international cities and regions with an emphasis on population, urbanization, and development.

GEO 206 Geography of Oregon, 3 cr.—Examines various historical, social, economic and geographic factors that have made the Oregon landscape unique. Slides, films, videos, and overhead transparencies are utilized.

GEO 208 Physical Geography: Geomorphology, 3 cr.—Examines the processes of landform evolution and their expression on the surface of the earth. Humankind's modification of physical processes and resulting environmental impact are studied.

GEO 209 Physical Geography: Weather and Climate, 3 cr.—Examines the processes of the atmosphere, the distribution and character of climate types, climate change and human kind as a modifier of climate.

GEO 214 Geography of Mexico, 3 cr.—Examines the various historical, social, economic and geographic factors that make the Mexican landscape unique. Reviews Mexico's changing pat-
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GEO 221 Field Geography: The Local Landscape, 3 cr.—Includes use of field research methods; preparation of field base maps and cartographic presentation of results of field studies in the local area.
GEO 280A CE: Geography, 4 cr.—Enables students to extend their knowledge of Geography through work in settings which provide learning experiences that are not available in the classroom, but which supplement classroom learning. Under the employer’s supervision the student learns to apply classroom theory to actual work situations.
GEO 280B CE: Geography - Seminar, 2 cr.—Provides a forum in which to discuss work experiences with peers and instructor.
GEO 290 Environmental Problems, 3 cr.—Provides an opportunity to carry out geographic research related to the resource, urban and environmental problems examined in GEO 105, GEO 106, GEO 107, GEO 208, and GEO 209.
GEO 298 Independent Study: Geography, 3 cr.—Prerequisite: Instructor consent. Offers individualized study at an advanced level in areas of geography not considered in other courses to meet special interests or program requirements. Students complete a term project and readings approved by the instructor. Recommended: prior study of geography.
GEO 299 Special Studies: Geography, 3 cr.—Special topics, activities, or projects in an area of geography not usually covered in depth in other geography courses. Instructor approval may be required. Recommended: prior study of geography.

GER – German

GER 101 First Year German, 4 cr.—Emphasizes active communication in German which includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture.
GER 102 First Year German, 4 cr.—Prerequisite: GER 101 or instructor permission. Continues the work of GER 101. Emphasis on active communication in German.
GER 103 First Year German, 4 cr.—Prerequisite: GER 102 or instructor permission. Continues the work of GER 102. Emphasizes active communication in German.
GER 111A First Year German Conversation, 3 cr.—Prerequisite: First year German at the college level or instructor permission. Practice of structures and vocabulary of first year German in a conversational format.
GER 111B First Year German Conversation, 2 cr.—Prerequisite: First year German at the college level or instructor permission. Practice of structures and vocabulary of first year German in a conversational format.
GER 111C First Year German Conversation, 1 cr.—Prerequisite: First year German at the college level or instructor permission. Practice of structures and vocabulary of first year German in a conversational format.
GER 112A First Year German Conversation, 3 cr.—Prerequisite: First year German at the college level or instructor permission. Continuation of GER 111A.
GER 112B First Year German Conversation, 2 cr.—Prerequisite: First year German at the college level or instructor permission. Continuation of GER 111B.
GER 112C First Year German Conversation, 1 cr.—Prerequisite: First year German at the college level or instructor permission. Continuation of GER 111C.
GER 113A First Year German Conversation, 3 cr.—Prerequisite: First year German at the college level or instructor permission. Continuation of GER 112A.
GER 113B First Year German Conversation, 2 cr.—Prerequisite: First year German at the college level or instructor permission. Continuation of GER 112B.
GER 113C First Year German Conversation, 1 cr.—Prerequisite: First year German at the college level or instructor permission. Continuation of GER 112C.
GER 150 First Year German, 6 cr.—Emphasizes active communication in German. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture. For beginners.
GER 151 First Year German, 6 cr.—Prerequisite: GER 150 or instructor permission. Continues the work of GER 150. Further emphasis on active communication in German.
GER 201 Second Year German, 4 cr.—Prerequisite: First year German at the college level or instructor permission. Continues work of first year German, reviewing, expanding, and perfecting pronunciation, structure, and vocabulary for the purpose of active communication.
GER 202 Second Year German, 4 cr.—Prerequisite: GER 201 or instructor permission. Continuation of GER 201. Emphasizes active communication in German with additional practice in reading and writing.
GER 203 Second Year German, 4 cr.—Prerequisite: GER 202 or instructor permission. Continuation of GER 202. Emphasizes active communication in German with additional practice in reading and writing.
GER 211A Intermediate German Conversation, 3 cr.—Prerequisite: Completion of one term of second year German at the college level or instructor permission. Stresses conversational skills at the second year level.
GER 211B Intermediate German Conversation, 2 cr.—Prerequisite: Completion of one term of second year German at the college level or instructor permission. Stresses conversational skills at the second year level.
GER 211C Intermediate German Conversation, 1 cr.—Prerequisite: Completion of one term of second year German at the college level or instructor permission. Stresses conversational skills at the second year level.
GER 212A Intermediate German Conversation, 3 cr.—Prerequisite: Completion of GER 211 or instructor permission. Continuation of GER 211A.
GER 212B Intermediate German Conversation, 2 cr.—Prerequisite: Completion of GER 211B or instructor permission. Continuation of GER 211B.
GER 212C Intermediate German Conversation, 1 cr.—Prerequisite: Completion of GER 211C or instructor permission. Continuation of GER 211C.
GER 213A Intermediate German Conversation, 3 cr.—Prerequisite: GER 212 or instructor permission. Continuation of GER 212.
GER 213B Intermediate German Conversation, 2 cr.—Prerequisite: GER 212B or instructor permission. Continuation of GER 212B.

GER 213C Intermediate German Conversation, 1 cr.—Prerequisite: GER 212C or instructor permission. Continuation of GER 212C.

GER 250 Second Year German, 6 cr.—Prerequisite: Completion of first year German at the college level or instructor permission. Continues the work of first year German, reviewing, expanding, and perfecting pronunciation, structure, and vocabulary for the purpose of active communication. Includes practice in reading and writing.

GER 251 Second Year German, 6 cr.—Prerequisite: GER 250 or instructor permission. Continuation of GER 250. Emphasizes active communication in German with additional practice in reading and writing.

GER 255 Accelerated German, 8 cr.—Covers material of GER 101 and GER 102 in an accelerated format. Listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture are stressed. Emphasizes active communication in German. This class for beginners is recommended to the highly-motivated student.

GER 256 Accelerated German, 8 cr.—Prerequisite: GER 102 or GER 255 or instructor permission. Covers materials of GER 103 and GER 201 in an accelerated format. Emphasizes active communication in German. Additional practice with reading and writing skills.

GER 257 Accelerated German, 8 cr.—Prerequisite: GER 201 or GER 256 or instructor permission. Covers materials of GER 202 and GER 203 in an accelerated format. Emphasis remains on active communication in German with additional practice in reading and writing skills.

GER 260A German Culture, 3 cr.—Prerequisite: One term of second year German at the college level or instructor permission. Studies and discusses contemporary thought and life of the German speaking world. Conducted in German.

GER 260B German Culture, 2 cr.—Prerequisite: One term of second year German at the college level or instructor permission. Studies and discusses contemporary thought and life of the German speaking world. Conducted in German.

GER 260C German Culture, 1 cr.—Prerequisite: One term of second year German at the college level or instructor permission. Studies and discusses contemporary thought and life of the German speaking world.

GER 261A German Culture, 3 cr.—Prerequisite: GER 260 or instructor permission. Continuation of GER 260.

GER 261B German Culture, 2 cr.—Prerequisite: GER 260B or instructor permission. Continuation of GER 260B.

GER 261C German Culture, 1 cr.—Prerequisite: GER 260C or instructor permission. Continuation of GER 260C.

GER 262A German Culture, 3 cr.—Prerequisite: GER 261 or instructor permission. Continuation of GER 261.

GER 262B German Culture, 2 cr.—Prerequisite: GER 261B or instructor permission. Continuation of GER 261B.

GER 262C German Culture, 1 cr.—Prerequisite: GER 261C or instructor permission. Continuation of GER 261C.

GER 270A Readings in German Literature, 3 cr.—Prerequisite: Second year German at the college level or instructor permission. Students read and discuss literary works of German prose and poetry. Skills for reading in German are also emphasized. Conducted in German.

GER 270B Readings in German Literature, 2 cr.—Prerequisite: Second year German at the college level or instructor permission. Students read and discuss literary works of German prose and poetry. Skills for reading in German are also emphasized. Conducted in German.

GER 270C Readings in German Literature, 1 cr.—Prerequisite: Second year German at the college level or instructor permission. Students read and discuss literary works of German prose and poetry. Skills for reading in German are also emphasized. Conducted in German.

GER 270A Readings in German Literature, 3 cr.—Prerequisite: GER 270 or instructor permission. Continuation of GER 270.

GER 271B Readings in German Literature, 2 cr.—Prerequisite: GER 270B or instructor permission. Continuation of GER 270B.

GER 271C Readings in German Literature, 1 cr.—Prerequisite: GER 270C or instructor permission. Continuation of GER 270C.

GER 272A Readings in German Literature, 3 cr.—Prerequisite: GER 271 or instructor permission. Continuation of GER 271.

GER 272B Readings in German Literature, 2 cr.—Prerequisite: GER 271B or instructor permission. Continuation of GER 271B.

GER 272C Readings in German Literature, 1 cr.—Prerequisite: GER 271C or instructor permission. Continuation of GER 271C.

GER 270A Readings in German Literature, 3 cr.—Prerequisite: GER 270 or instructor permission. Continuation of GER 270.

GER 290B German Composition, 2 cr.—Prerequisite: Instructor permission and completion of second year college German with grades of A or B or native or near native ability in German. Practice in developing composition skills. Conducted in German.

GER 290C German Composition, 1 cr.—Prerequisite: Instructor permission and completion of second year college German with grades of A or B or native or near native ability in German. Practice in developing composition skills. Conducted in German.

GER 290A German Composition, 3 cr.—Prerequisite: Instructor permission and completion of second year college German with grades of A or B or native or near native ability in German. Practice in developing composition skills. Conducted in German.

GER 290B German Composition, 2 cr.—Prerequisite: Instructor permission and completion of second year college German with grades of A or B or native or near native ability in German. Practice in developing composition skills. Conducted in German.

GER 290C German Composition, 1 cr.—Prerequisite: Instructor permission and completion of second year college German with grades of A or B or native or near native ability in German. Practice in developing composition skills. Conducted in German.

GER 290A German Composition, 3 cr.—Prerequisite: GER 290 or instructor permission. Continuation of GER 290.

GER 291B German Composition, 2 cr.—Prerequisite: Instructor permission. Continuation of GER 290B.

GER 291C German Composition, 1 cr.—Prerequisite: Instructor permission. Continuation of GER 290C.

GER 292A German Composition, 3 cr.—Prerequisite: Instructor permission. Continuation of GER 291.

GER 292B German Composition, 2 cr.—Prerequisite: Instructor permission. Continuation of GER 291B.

GER 292C German Composition, 1 cr.—Prerequisite: Instructor permission. Continuation of GER 291C.
GS - General Science

GS 101 Survey of Astronomy, 3 cr.—A non-lab course offered via television. Topics covered are the same as those in GS 107.

GS 106 Physical Science (Geology), 4 cr.—Covers minerals, rocks, volcanism, earthquakes, plate tectonics, movement of the earth's crust, erosion and deposition by wind, streams, glaciers and weathering.

GS 107 Physical Science (Astronomy), 4 cr.—A survey of astronomy which includes historical development of the universe, earth as a planet, earth's moon, planets of the solar system, the sun, stars and galaxies.

GS 108 Physical Science (Oceanography), 4 cr.—Includes the chemical, biological, physical and geological nature of the oceans.

GS 109 Physical Science (Meteorology), 4 cr.—Covers characteristics of our atmosphere, air pressure and winds, atmospheric moisture, large air masses, violent storms, the effect of oceans on weather, and climates.

GS 171 Environment Sci:Bio Perspectives, 4 cr.—Develop an understanding of environmental topics that are primarily biological in nature. Covered topics include human population issues, matter and energy resources, ecosystems, environmental ethics, and food and land resources. The associated laboratories will illustrate these topics.

GS 172 Environment Sci:Chem Perspectives, 4 cr.—Develop an understanding of environmental topics that are primarily chemical in nature. Covered topics include air pollution, global warming, toxicity, risk assessment, water pollution, and hazardous waste. The associated laboratories will illustrate these topics.

GS 173 Environmental Sci:Geo Perspective, 4 cr.—Develop an understanding of environmental topics that are primarily geological in nature. Covered topics include geology basics, soil resources, hydrogeology, nonrenewable mineral and energy resources, perpetual energy resources, and solid waste. The associated laboratories will illustrate these topics.

HEC - Consumer and Family Studies

HEC 111 Beginning Clothing Construction, 3 cr.—Designed for individuals with little or no sewing experience. Use the sewing machine to apply basic techniques of clothing construction in the production of simple garments.

HEC 131 Draping I, 3 cr.—Introduction to fashion design using draping procedures. Basic silhouettes are draped in muslin on a dress form. Emphasis is on developing skill in principles of draping and the interrelationships between fabric, garment design and the human form.

HEC 141 Flat Pattern Making I, 3 cr.—Covers basic skills needed to design patterns using the flat pattern method. Use of a sloper to design women's skirts, dresses and blouses.

HEC 151 Basic Fitting and Alterations, 4 cr.—The student will develop knowledge and skills in fitting and alterations in order to provide sewing and/or alteration services. The student will be required to demonstrate an understanding of specific fitting and alteration skills and principles.

HEC 157 Parenting Skills, 1 cr.—Designed for parents or prospective parents to examine the current issues affecting the role of parents in today's society. Studies the stages of child development, influences parents have on their child's development and how those influences can shape their child's development over time.

HEC 191 Careers in Fashion and Interiors, 1 cr.—Explores career opportunities in the field of fashion, textiles and interior design, the knowledge and skills required for entry-level positions and advancement. Designed to provide guidance for student self-analysis in academic and career decisions.

HEC 210 Clothing Construction, 3 cr.—Studies and demonstrates the principles, methods and techniques of clothing construction, pattern alteration and fitting. Students construct simply styled garments with emphasis on choices of patterns, fabrics, findings, construction practice and techniques.

HEC 211 Advanced Clothing Construction, 3 cr.—Uses special fabrics which have specific structural characteristics such as silks, silk-likes, velvets, leather, quilted materials, knits and suedes. Special emphasis will be placed on creativity in making articles like sportswear and lingerie.

HEC 221 Contemporary Tailoring, 4 cr.—The student will develop knowledge and skills in the application of basic principles and techniques of pattern alteration, fitting, tailoring and related consumerism. The student will be required to demonstrate an understanding of specific contemporary tailoring skills and principles.

HEC 222 Traditional Tailoring, 4 cr.—The student will develop knowledge and skills in the application of basic principles and techniques of pattern alteration, fitting, tailoring and related consumerism. The student will be required to demonstrate an understanding of specific traditional tailoring skills and principles.

HEC 231 Draping II, 3 cr.—Prerequisite: HEC 131. Builds on skills developed in HEC 131. Advanced fashion-design problems such as tailored collars and soft silhouettes are included. Students drape original designs, cut and sew them.
HEC 241 Flat Pattern Making II, 3 cr.—Prerequisite: HEC 141. Builds on the basic skills needed to design patterns which students studied in Flat Pattern Making I. Use of a sloper to design more complex women’s skirts, dresses and blouses as well as jackets and pants is covered.

HEC 250 Textiles, 4 cr.—Studies various aspects of textiles including fiber, yarns, fabrics, structure, properties, care and uses.

HEC 251 Professional Practices in Fitting and Alterations, 4 cr.—Prerequisite: HEC 151 or instructor permission. The student will develop knowledge and skills in fitting and alterations of Menswear and Womenswear in order to offer sewing and alterations services at home or to work for a retail operation. Skills in alterations and fitting of Menswear are further developed. Study in maintaining a small home business and in establishing efficient office and sewing-work space is included.

HEC 272 Fashion and Society, 4 cr.—Surveys cultural, sociological, psychological, economic and aesthetic influences on fashion and the fashion process.

HEC 9402 Parents and Child Learn Together, 1 cr.—Parents participate with their child in a class designed to meet the developmental needs of preschool aged children. Parents also participate in supervised activities with their child and a parent study group.

HEC 9420 Living and Learning with Your Baby, 1 cr.—This course is a participation class for parents of infants from birth to beginning walkers. Parents bring child to class, where they participate in supervised age appropriate activities and a parent study group.

HEC 9421 Living and Learning with Your Toddler, 1 cr.—Designed for parents and their children between the walking stage and two and one-half years of age. Parents observe and participate with their children in developmentally designed activities. In addition, they participate in a parent seminar focusing on parenting topics and needs.

HEC 9422 Living and Learning with Your Two Year Old, 1 cr.—Parents participate with their child in a class designed to meet the developmental needs of the two-year-old. Parents also participate in supervised activities with their child and a parent study group.

HOR - Horticulture

HOR 112 Landscape Industry - Orientation, 1 cr.—Introduces educational and business opportunities outside the college. The student does research and is encouraged to join professional organizations, visit gardens, etc.

HOR 226 Plant Materials - Deciduous, 4 cr.—Covers field identification, cultural requirements and landscape uses of plants with a concentration on deciduous plant material.

HOR 227 Plant Materials - Evergreens, 4 cr.—Covers field identification, cultural requirements and landscape uses of plants with a concentration on evergreen plants and conifers.

HOR 228 Plant Materials - Flowering, 4 cr.—Covers field identification, cultural requirements and landscape uses of plants with a concentration on flowering trees and shrubs.

HOR 255 Plant Materials - Annuals and Perennials, 3 cr.—Emphasizes the identification of those flowering herbaceous annual and perennial plants used most frequently in the landscape. Approximately 125-150 plant varieties and species are discussed and information is given concerning care and culture, including treatment of pests and diseases.

HOR 290 Intro to Landscape Design, 3 cr.—Prerequisite: MTH 60 or instructor approval. Covers the basic elements of landscape design and uses the implementation of landscape drawings in the field to complete a landscape project.

HOR 291 Landscape Design Process, 3 cr.—Prerequisite: completion of first year sequence or instructor approval. Covers the basic design procedure needed to layout landscape designs. Emphasis is placed on establishing specific design criteria and goals and on the creation of final design solutions that embody those criteria.

HPE - Health and Physical Education

HPE 295 Health and Fitness for Life, 3 cr.—Students attend two lecture hours and three activity hours per week with emphasis on wellness, fitness, cardiovascular health, nutrition and stress.

HPE 296 Health and Fitness for Industry I, 2 cr.—Covers wellness, cardiovascular health, physical fitness, stress management and nutrition.

HPE 297 Health and Fitness for Industry II, 2 cr.—Covers wellness, cardiovascular health, physical fitness, stress management and nutrition.

HST - History

HST 101 Western Civilization: Ancient World to 1200, 3 cr.—Studies the ancient civilizations of Egypt, Mesopotamia, Greece and Rome. Covers development of Christianity and Medieval Europe.

HST 102 Western Civilization: 1200-1789, 3 cr.—Studies early Modern Europe including Renaissance, Reformation, Scientific Revolution and the French Revolution.

HST 103 Western Civilization: 1789 to the Present, 3 cr.—Studies history of the 19th and 20th centuries, including the Industrial Revolution, nationalism, imperialism, socialism, world wars, the Russian Revolution and Nazism.

HST 104 History of Eastern Civilization: Middle East, 3 cr.—Surveys the Middle East from ancient to modern times. Includes political, economic, social, religious and diplomatic events from pre-history to modern times.

HST 105 History of Eastern Civilization: India and Subcontinent, 3 cr.—Surveys India and Subcontinent. Includes political, economic, social, religious, and diplomatic events from pre-history to modern times.

HST 106 History of Eastern Civilization: Far East, 3 cr.—Surveys the Far East regions of Asia. Includes political, social, religious, and diplomatic events from pre-history to modern times.
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HST 201 History of the United States: Colonial Period to 1840, 3 cr.—Studies cause and effect, and significant trends and movements related to political, social and economic ideas and events from Colonial times to 1840.

HST 202 History of the United States: 1840 to 1914, 3 cr.—Studies cause and effect, and significant trends and movements related to political, social and economic ideas and events from 1840 to 1914.

HST 203 History of the United States: 1914 to Present, 3 cr.—Studies cause and effect, and significant trends and movements related to political, social and economic ideas and events from 1914 to present.

HST 204 History Women-U.S.: Colonial/1865, 3 cr.—Examines women's work, both domestic and in the labor force, education, religion, voluntary activities, social reform, and suffrage. Explores class, ethnic, racial and regional diversity.

HST 205 History Women U.S.:1865/Present, 3 cr.—Examines women in social reform after the Civil War, in a maturing industrial economy, in the inter-war decades, and in the contemporary United States.

HST 218 Native American Indian History, 3 cr.—Explores examples of Indian culture, general history of Indian life during the white occupation of North America and nature and effects of Native American and European American contact and conflict.

HST 220 Labor History, 3 cr.—Surveys the American labor movement beginning with Colonial times. Emphasizes the development of labor organizations and their effectiveness in improving the life of the American worker. Explores the changing roles of economic forces, technology and politics.

HST 225 History of Women, Sex, and the Family, 3 cr.—Examines the role of women, sex and family in the social development of Europe and America from ancient time to present.

HST 240 Oregon's Social History, 3 cr.—Studies how people lived throughout different periods of Oregon history, focusing on various social factors and institutions that influence the lives of people in Oregon.

HST 246 Religion in the United States to 1840, 3 cr.—Studies basic features of native American religions, European backgrounds of Christianity in the United States, development of different religious groups in America and their impact on American life, and trends and development of religion in the United States in the first half of the 19th century.

HST 247 Religion in the United States since 1840, 3 cr.—Covers basic features of native American religions, European backgrounds of Christianity, development of different religious groups in the United States and their impact on American life.

HST 274 African Origins to 1877, 3 cr.—Offers students a factual framework and conceptual foundation to analyze the Black experience from its early origins in Africa and the New World, especially the United States.

HST 275 Afro-American History: 1877 to 1932, 3 cr.—Focuses on historical interpretation of events of the Black experience from 1877 to 1932. Examines forces which altered a rich cultural heritage.

HST 276 Afro-American History: 1933 to Present, 3 cr.—Offers a historical perspective of political, economic, social and cultural development of the Black experience in the United States from 1933 to present.

HST 277 Oregon Trail, 3 cr.—Covers predecessors of the route, motivations of the people who used the route, the trail and its variations, life along the trail, and impact of the migration.

HST 280A CE: History, I cr.—Offers students the chance to extend their knowledge of History through work in settings which provide learning experiences supplementing classroom learning.

HST 280B CE: History - Seminar, 2 cr.—Provides a forum in which to discuss work experiences with peers and instructor.

HST 298 Independent Study: History, 3 cr.—Prerequisite: Instructor approval. Offers individualized study at an advanced level. Emphasizes areas of history not considered in other courses which meet special interests or program requirements. Students complete a term project and readings approved by the instructor. Recommended: Prior study of history.

HST 299 Special Studies: History, 3 cr.—Includes special topics, activities, or projects in an area of history not usually covered in depth in other history courses. Recommended: Prior study in history. Instructor approval may be required.

ID - Interior Design

ID 120 Interior Products/Materials I, 3 cr.—Analyze and evaluate products utilized in the design profession including selecting case goods and upholstered goods. Emphasis on measuring and specifying floor coverings, window treatments, and wall coverings.

ID 121 Interior Products/Materials II, 3 cr.—Prerequisite: ID 120. Analyze materials utilized in interior design including the characteristics, care and use of specific materials such as Oriental carpets, glass, plastic, wood, metal, rattan, ceramics, bedding, and ceilings.

ID 122 History of Furniture-Ancient to 1800, 3 cr.—Study and analyze styles of furnishings from antiquity through the 18th century. Includes contemporary usage as well as the mixing of period furniture styles.

ID 123 History of Furniture-1800 to Present, 3 cr.—Prerequisite: ID 122. Study and analyze furnishings from the 19th century to the present. Includes contemporary usage as well as the mixing of period furniture styles.

ID 131 Introduction to Interiors, 3 cr.—Covers design elements and principles as applied to interiors. Includes skill development in drawing floor plans, analyzing furniture arrangement, and basic techniques for creating interior design presentation boards including floor plans, color boards, and elevation drawings.

ID 132 Planning Interiors, 3 cr.—Prerequisite: ID 131. Covers designing interiors utilizing design and furniture arrangement skills, and developing skills in selection of furniture, floor coverings, wall and window treatments, color, fabric and pattern, lighting and accessories.
ID 133 Space Planning and Design, 3 cr.—Prerequisite: ID 131. Study of the factors that affect housing selection. Emphasis given to housing and environmental aspects as relate to the needs of individuals, families and special groups. Includes: functional and aesthetic design requirements in residential space planning, kitchens, storages and energy conservation.

ID 135 Professional Practice/Interior, 3 cr.—Covers the business aspects in creating interiors. Includes topics on ethics, contracts, licensing, ordering, client-designer relationships, costs, billing and fee structures, and legal considerations.

ID 234 Advanced Interiors, 3 cr.—Prerequisite: ID 131 and ID 132. Creative problems in interior design intended to develop an analytical approach to interiors. Based upon individual projects and includes advanced presentation skills.

ID 236 Lighting Design, 3 cr.—Prerequisite: ID 131 or occupational experience in design field. Study of interior lighting as relates to both residential and commercial interiors including terminology, lamps, fixtures, cost factors, developing lighting plans, design techniques, and energy-saving concerns.

ID 240 Interior Design Internship, 3 cr.—Prerequisite: ID 131, ID 132, ID 133, ID 135, and ID 234. Supervised and educationally directed internship. Weekly lectures relate on-the-job experiences with academic program.

ID 299 Special Topics: Interiors, 3 cr.—An update on current trends in interiors. Designed to meet specific needs of employers and employees.

**ITP - Sign Language Interpretation**

**ITP 101 American Sign Language I, 3 cr.**—Develops conversational competence. Includes visual readiness skills, basic vocabulary and grammar used for meeting communication needs such as exchanging personal information, talking about surroundings, and asking for help.

**ITP 102 American Sign Language II, 3 cr.**—Prerequisite: ITP 101. Develops conversational competence. Includes basic American Sign Language vocabulary and grammar used for meeting basic communication needs such as opening conversations, clarifying, justifying opinions, confirming, giving reasons, requesting, declining, complaining, suggesting, negotiating, agreeing, hedging, exchanging personal information, narrating family history, correcting and elaborating.

**ITP 120 Fingerspelling I, 2 cr.**—Prerequisite: ITP 102. Designed to develop beginning receptive and expressive fingerspelling skills.

**ITP 121 Fingerspelling II, 2 cr.**—Prerequisite: ITP 211. Continues ITP 6.110. Covers skills in reading and producing fingerspelling in more depth.

**ITP 130 Current Issues in Deafness, 3 cr.**—Introduces the following topics from two points of view to develop an awareness of current perspectives of deafness: education, services, employment, signaling devices, attitudes toward language and hearing competence, various communication systems, legislation, interlocutors, interpreters, and the reality of hearing loss.

**ITP 131 Deaf Culture, 4 cr.**—Prerequisite: ITP 130 and admission into the SLIP. This course studies the values and social customs of Deaf culture; cross-cultural issues and of deaf-hearing interaction; and current perspectives held by Deaf and hearing people about deaf culture and community.

**ITP 150 American Sign Language Linguistics I, 3 cr.**—Prerequisite: ITP 131 or department permission. The course will focus on research proving ASL is a naturally occurring language and will cover the phonology, morphology and syntax of ASL.

**ITP 151 American Sign Language Linguistics II, 2 cr.**—Prerequisite: ITP 150. This course is a continuation of ITP 150 and will cover additional morphology and syntax, as well as semantics and discourse organization of ASL.

**ITP 180 Field Experience, 1 cr.**—Prerequisite: Third term standing in ITP. Offers practical experience through observation of professional interpreters, attendance at professional workshops and social/cultural events for and with deaf people, and weekly recitations with instructors. Emphasizes interaction with Deaf people on a regular basis in natural language settings. Weekly journals are kept.

**ITP 201 American Sign Language IV, 3 cr.**—Prerequisite: ITP 103. Develops conversational competence. Includes basic American Sign Language vocabulary and grammar used for meeting communication needs such as asking for meaning, defining, describing objects, expressing feelings, telling about disrupted plans, using numbers to 1,000, directing and maintaining attention, controlling conversational pace, resuming an interrupted conversation, and asking for help.

**ITP 202 American Sign Language V, 3 cr.**—Prerequisite: ITP 201. Develops conversational competence. Includes American Sign Language vocabulary and grammar used for meeting communication needs as described in ITP 201 as they relate to more intermediate conversational skills.
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**ITP 202 American Sign Language V, 3 cr.** — Prerequisite: ITP 201. Develops conversational competence. Includes American Sign Language vocabulary and grammar used for meeting communication needs as described in ITP 201 as they relate to more intermediate conversational skills.

**ITP 211 American Sign Language IV, 3 cr.** — Prerequisite: ITP 113. Designed for majors in Interpreter Training Program. Develops conversational competence. Includes basic American Sign Language vocabulary and grammar used for communication such as asking for meaning, defining, describing objects, expressing feelings, telling about disrupted plans, using numbers to 1,000, directing and maintaining attention, controlling conversational pace, resuming an interrupted conversation, and asking for help.

**ITP 212 American Sign Language V, 3 cr.** — Prerequisite: ITP 211. Designed for majors in Interpreter Training Program. Develops conversational competence. Includes American Sign Language vocabulary and grammar used for meeting communication needs as described in ITP 211 as they relate to more intermediate conversational skills.

**ITP 240 Process Management, 3 cr.** — Prerequisite: Admission into the SLIP. This course focuses on the development of memory and retention skills necessary for consecutive and simultaneous interpretation: concentration, representation, production, development of function with two modalities/languages simultaneously presented.

**ITP 260 Interpreting Theory I, 4 cr.** — Prerequisites: ITP 6.250. Introduces the profession of interpreting. Covers the role and function of an interpreter, the National Registry of Interpreters for the Deaf Code of Ethics, professionalism, history of the profession, and basic theories, principles and practices of interpreting.

**ITP 261 Interpreting Theory II, 3 cr.** — Prerequisites: ITP 213. Focuses on the role and function of interpreters and interpreting theories, principles and practices in educational settings: K-12 and community college.

**ITP 262 Interpreting Theory III, 4 cr.** — Prerequisites: ITP 214. Focuses on theories, principles and practices of interpreting, interpreters’ role and function in relation to specialized interpreting settings and consumer needs, including oral, deaf/blind, minimal language competency, telephone, religious, performing arts, social service, medical, mental health and legal. Covers free-lance practices.

**ITP 270 Interp Process I: Text Analysis, 4 cr.** — Prerequisite: ITP 6.240. Studies text analysis for context, content, register, style and affect ranging from casual to technical discourse. Focuses on developing translation skills.

**ITP 271 Interpreting Process II, 4 cr.** — Prerequisite: ITP 6.310. Develops consecutive interpreting skills which are prerequisite to simultaneous interpreting. The text will range in difficulty from casual to technical discourse.

**ITP 272 Interpreting Process III, 6 cr.** — Prerequisite: ITP 6.320. Combines text analysis, auditory memory and dual task in the development of simultaneous interpreting skills. Texts will range in difficulty from casual to formal discourse.

**ITP 273 Interpreting Process IV, 6 cr.** — Prerequisite: ITP 6.330. Focuses on the ability to simultaneously interpret. Texts will range in difficulty from formal to informal discourse.

**ITP 274 Interpreting Process V: Children, 4 cr.** — Prerequisite: ITP 272. This course will focus on providing interpretation services to children. English-based sign systems will be introduced. Materials will be those produced by children or by adults for children.

**ITP 275 Specialized Discourse I, 3 cr.** — Prerequisite: ITP 113. This course will introduce formal and technical registers of ASL for continued ASL comprehension and expression competency.

**ITP 276 Specialized Discourse II, 3 cr.** — Prerequisite: ITP 275. This course will continue the development of language competence using formal and technical ASL registers for comprehension and expression.

**ITP 281 Mock Interpreting I, 1 cr.** — Prerequisite: ITP 270. Students interpret live speakers without impacting actual consumers. Students apply text and discourse analysis and research actual or anticipated content. Students take the Qualifying Exam at the end of this course to establish readiness to enroll in ITP 283.

**ITP 282 Mock Interpreting II, 2 cr.** — Prerequisite: ITP 281. Students will interpret in ongoing settings without impacting consumers. Readiness to enroll in ITP 283 Community Interpreting Internship will be assessed at the end of this course.

**ITP 283 Community Interpreting Internship, 3 cr.** — Prerequisite: Pass the Qualifying Exam the term prior to enrollment. Students will be placed in business or agency settings to gain practical experience assuming the role of a professional interpreter in a structured setting with on-going feedback from professional interpreters acting as mentors.

**ITP 284 Educational Interpreting Internship, 3 cr.** — Prerequisite: Completion of ITP 283. Students will be placed in educational settings to gain practical experience assuming the role of an educational interpreter in a structured setting with on-going feedback from professional educational interpreters acting as mentors.

**ITP 285 Interpreting: Pro Upgrading, 3 cr.** — Prerequisite: As determined in the contract. This course is offered to professional interpreters for the purpose of upgrading interpreting skills. The focus is on individual skill development. Curriculum will be custom designed to fit individual and/or group needs. Contact and credit hours may be adjusted to fit specific needs.

**IVP — Video Production Internship**

**IVP 101 Video Production I, 9 cr.** — Offers experience in setting up and operating studio and portable cameras, setting up and operating video recorders which include audio, setting up lighting for studio and field production, setting up and operating sound equipment, operating the character generator, performing routine post-production editing, performing routine maintenance on equipment, scheduling equipment and facilities as required, providing assistance with productions, as required, providing input on and assistance in set design/construction, make-up and costuming, and performing other duties as required.
IVP 102 Video Production II, 9 cr.—Provides opportunity to supervise the mechanical operations of the production as required by the producer, assist in storyboards and script writing, be responsible for detail and continuity in the various production segments, direct sub-scenes of the video production, perform off-line editing in roughing out a video production, and perform post-production tasks as required by the producer.

IVP 103 Video Production III, 9 cr.—Allows students to receive production ideas, interview client and establish target audience and production purpose; establish production calendar and timelines; investigate and identify all resources; scout locations; develop the production concept and sell it to the client; assemble resources and supervise pre-production, production, and post-production activities; present the finished video to the client and evaluate its effectiveness.

IVP 280A CE: Video Production, 5 cr.—Persons, currently enrolled or having completed the Video Production Internship, may extend their knowledge and skills through work in settings which provide learning experiences beyond the formal PCC-IVP Internship environment.

IVP 280B CE: Video Production - Seminar, 1 cr.—Provides opportunity for the student to share and receive feedback on experiences from other students and/or instructors.

**J - Journalism**

J 216 Reporting I, 3 cr.—Prerequisite: Satisfactory completion of the English placement test. Covers the fundamentals of reporting, including gathering and writing news for newspapers. Emphasizes accuracy, objectivity, clarity of writing and standards required by newspapers.

J 217 Reporting II, 3 cr.—Prerequisite: J 216. Expands on J 216. Emphasizes advanced reporting and writing skills.

J 218 Copy Editing & Makeup, 3 cr.—Introduces editing. Studies copy editing. Includes accuracy, completeness, fairness, libel, appropriate use of grammar and Associated Press style. Also, page makeup including headline writing, the use of art and principles of page design are covered.

**JPN - Japanese**

JPN 101 First Year Japanese, 4 cr.—Corequisite: Concurrent enrollment in JPN 111C. Emphasizes the spoken language of Japanese. Skills of listening, speaking, reading, and writing are developed with emphasis on active use of these skills. Hiragana and Katakana syllabaries are introduced. Information is offered to help gain cultural awareness and appreciation. For beginners.

JPN 102 First Year Japanese, 4 cr.—Prerequisite: JPN 101 or equivalent. Corequisite: Concurrent enrollment in JPN 112C. Expands communicative use of Japanese and cultural awareness. Practice of Hiragana and Katakana syllabaries continued. Communicative proficiency is the main objective of the sequence.

JPN 103 First Year Japanese, 4 cr.—Prerequisite: JPN 102 or equivalent. Corequisite: Concurrent enrollment in JPN 113C. Expands further the communicative use of Japanese and cultural awareness. Kanji characters are introduced. Communicative proficiency is the main objective of the sequence.

JPN 111A First Year Japanese Conversation, 3 cr.—Corequisite: Concurrent enrollment in JPN 101. Offers a review of and additional practice with structures and vocabulary presented during regular class JPN 101.

JPN 111B First Year Japanese Conversation, 2 cr.—Corequisite: Concurrent enrollment in JPN 150. Provides extended practice for better understanding of the materials presented in JPN 150.

JPN 111C First Year Japanese Conversation, 1 cr.—Corequisite: Concurrent enrollment in JPN 101. Provides extended practice for better understanding of the materials presented in JPN 101.

JPN 112A First Year Japanese Conversation, 3 cr.—Prerequisite: JPN 111 or instructor approved equivalent. Corequisite: Concurrent enrollment in JPN 102. Offers a review of and additional practice with structures and vocabulary presented during the regular class JPN 102.

JPN 112B First Year Japanese Conversation, 2 cr.—Corequisite: Concurrent enrollment in JPN 103. Provides extended practice for better understanding of the materials presented in JPN 103.

JPN 112C First Year Japanese Conversation, 1 cr.—Corequisite: Concurrent enrollment in JPN 102. Provides extended practice for better understanding of the materials presented in JPN 102.

JPN 113A First Year Japanese Conversation, 3 cr.—Prerequisite: JPN 112 or instructor approved equivalent. Corequisite: Concurrent enrollment in JPN 103. Offers a review of and additional practice with structures and vocabulary presented during the regular class JPN 103.

JPN 113B First Year Japanese Conversation, 2 cr.—Corequisite: Concurrent enrollment in JPN 103. Provides extended practice for better understanding of the materials presented in JPN 103.

JPN 113C First Year Japanese Conversation, 1 cr.—Corequisite: Concurrent enrollment in JPN 103. Provides extended practice for better understanding of the materials presented in JPN 103.

JPN 150 First Year Japanese, 6 cr.—Corequisite: Concurrent enrollment in JPN 111B. Emphasizes the spoken language of Japanese. Skills of listening, speaking, reading, and writing are developed with emphasis on active use of these skills. Hiragana and Katakana syllabaries are introduced. Offers to enhance cultural awareness and appreciation. For beginners.

JPN 151 First Year Japanese, 6 cr.—Prerequisite: JPN 150 or equivalent. Corequisite: Concurrent enrollment in JPN 112B. Continuation of JPN 150. Expands the communicative use of Japanese and cultural awareness. Practice of Hiragana and Katakana syllabaries are continued. Kanji characters are introduced.

JPN 201 Second Year Japanese, 4 cr.—Prerequisite: First year Japanese at the college level or three years high school Japanese or instructor approval. Corequisite: Concurrent enrollment in JPN 211C. Development of the four skills of listening, speaking, reading, and writing is continued. Kanji characters are further explored. Offers to expand cultural awareness and appreciation.

JPN 202 Second Year Japanese, 4 cr.—Prerequisite: JPN 201 or equivalent. Corequisite: Concurrent enrollment in JPN 212C. Continues work begun in JPN 201, expanding the communicative use of Japanese and cultural awareness. Study of Kanji characters is further explored.
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JPN 203 Second Year Japanese, 4 cr.—Prerequisite: JPN 202 or equivalent. Corequisite: Concurrent enrollment in JPN 213C. Continues work begun in JPN 201 and 202, expanding further the communicative use of Japanese and cultural awareness. Kanji characters are further explored.

JPN 211A Intermediate Japanese Conversation, 3 cr.—Corequisite: Concurrent enrollment in JPN 201. Offers a review and additional practice with structures presented in the regular class JPN 201.

JPN 211B Intermediate Japanese Conversation, 2 cr.—Corequisite: Concurrent enrollment in JPN 201. Designed to provide extended practice for better understanding of the materials presented in JPN 250.

JPN 211C Intermediate Japanese Conversation, 1 cr.—Designed to provide extended practice for better understanding of the materials presented in JPN 201.

JPN 212A Intermediate Japanese Conversation, 3 cr.—Prerequisite: JPN 211 or instructor approved equivalent. Corequisite: Concurrent enrollment in JPN 202. Offers a review and additional practice with structures presented in the regular class JPN 202.

JPN 212B Intermediate Japanese Conversation, 2 cr.—Corequisite: Concurrent enrollment in JPN 251. Designed to provide extended practice for better understanding of the materials presented in JPN 202.


JPN 213A Intermediate Japanese Conversation, 3 cr.—Prerequisite: JPN 212 or instructor approved equivalent. Corequisite: Concurrent enrollment in JPN 203. Offers a review and additional practice with structures presented in the regular class JPN 203.

JPN 213B Intermediate Japanese Conversation, 2 cr.—Corequisite: Concurrent enrollment in JPN 203. Designed to provide extended practice for better understanding of the materials presented in JPN 203.

JPN 213C Intermediate Japanese Conversation, 1 cr.—Corequisite: Concurrent enrollment in JPN 203. Designed to provide extended practice for better understanding of the materials presented in JPN 203.

JPN 250 Second Year Japanese, 6 cr.—Prerequisite: First year Japanese at the college level or three years of Japanese in high school or instructor approved equivalent. Corequisite: Concurrent enrollment in JPN 211B. Emphasizes the spoken language of Japanese. Skills of listening, speaking, reading, and writing are continued. Kanji characters are further explored. Offers to expand cultural awareness and appreciation.

JPN 251 Second Year Japanese, 6 cr.—Prerequisite: JPN 250 or equivalent. Corequisite: Concurrent enrollment in JPN 212B. Continues work begun in JPN 250, expanding the communicative use of Japanese and cultural awareness. Kanji characters are further explored.

JPN 260A Japanese Culture, 3 cr.—Prerequisite: JPN 203, JPN 251, or instructor permission. Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking, and vocabulary usage and to gain cultural awareness.

JPN 260B Japanese Culture, 2 cr.—Prerequisite: JPN 203, JPN 251, or instructor permission. Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking, and vocabulary usage and gain cultural awareness.

JPN 260C Japanese Culture, 1 cr.—Prerequisite: JPN 203, JPN 251, or instructor permission. Provides advanced students of Japanese the opportunity to study Japanese culture and to increase skills in listening, reading, speaking, and vocabulary usage.

JPN 261A Japanese Culture, 3 cr.—Prerequisite: JPN 203, JPN 251, or instructor permission. Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking, and vocabulary usage and to gain cultural awareness.

JPN 261B Japanese Culture, 2 cr.—Prerequisite: JPN 203, JPN 251, or instructor permission. Provides advanced level students of Japanese with opportunity to increase skills in listening, reading, speaking, and vocabulary usage.

JPN 261C Japanese Culture, 1 cr.—Prerequisite: JPN 203, JPN 251, or instructor permission. Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking, and vocabulary usage and to gain cultural awareness.

JPN 262A Japanese Culture, 3 cr.—Prerequisite: JPN 203, JPN 251, or instructor permission. Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking, and vocabulary usage and gain cultural awareness.

JPN 262B Japanese Culture, 2 cr.—Prerequisite: JPN 203, JPN 251, or instructor permission. Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking, and vocabulary usage.

JPN 262C Japanese Culture, 1 cr.—Prerequisite: JPN 203, JPN 251, or instructor permission. Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking, and vocabulary usage and to gain cultural awareness.

LA – Legal Assistant

LA 101 Intro to Law - Fundamentals, 3 cr.—Prerequisite: WR 121. Covers the sources and function of law in the United States, court systems and procedure, introductory legal analysis, and an overview of civil and administrative law.

LA 102 Intro to Law - Substantive Areas, 3 cr.—Prerequisite: LA 101. Continues the study of several substantive areas of law.

LA 103 Intro to Law - Ethics and Problems, 3 cr.—Prerequisite: LA 101 and LA 102. Covers Oregon ethics rules and their practical application for the legal assistant.

LA 104 Investigation Techniques for Legal Assistants, 3 cr.—Covers fundamentals of investigation, theory and history from occurrence to courtroom with emphasis on techniques appropriate to specific cases involving legal assistants.
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LA 105 Litigation I, 3 cr.—Prerequisite: LA 101. Covers the litigation process with emphasis on civil litigation. Includes a study of tort law principles focusing on the trial process (investigation, discovery and motion practice) emphasizing preparation of documents and pleadings.

LA 106 Intro to Computer Assisted Legal Research, 2 cr.—Prerequisite: LA 203. Covers how and when to use computers for legal research and operational content differences between Westlaw and Lexis. Includes retrieving specific documents, checking citations, and practice research.

LA 107 Techniques of Interview, 3 cr.—Prerequisite: WR 121, LA 101 or may be taken concurrently. Students study and conduct simulated interviews.

LA 109 Estate Planning, 3 cr.—Approaches to estate planning, including wills, trusts, shared ownership, gifts and life insurance are covered. Includes objectives people have for estate planning, probate and the estate, and structures and results of different estate plans.

LA 111 Probate Practice, 3 cr.—Covers the preparation and filing of necessary papers used to administer an estate under Oregon state law.

LA 113 Income Tax Law, 3 cr.—Students study how to assist the attorney in preparation of income tax returns for estates, trusts and individuals and study Oregon and federal income tax law.

LA 116 Real Property Law I, 3 cr.—Covers introductory principles and procedures in real and personal property law including possessory interests, estates, deeds, contracts, servitudes, real estate transactions, zoning and land use planning.

LA 124 Law Office Management, 3 cr.—Studies law office organization and management, personnel management, accounting, procedural and automated systems, and other aspects of law office management.

LA 128 Legal Correspondence and Forms, 3 cr.—Prerequisite: WR 121, WR 122, LA 101 and LA 102. Covers basic forms of legal writing generally required of a legal assistant in a general law practice. Uses writing techniques and tools common to internal law office communications as well as communicating techniques between lawyer and client.

LA 203 Legal Research and Library Use, 3 cr.—Prerequisite: LA 101 and LA 102. Covers the function of the law library and develops research skills through the use of digests, encyclopedias, reporter systems and practice manuals. Departmental approval required to register.

LA 208 Family Law, 3 cr.—Covers theory, procedure, and practical aspects of a domestic relations practice. Includes dissolution of marriage, issues of custody, visitation, property and debts, adoption, guardianship, domestic violence, and prenuptial and co-habitation agreements.

LA 210 Advanced Estate Planning, 3 cr.—Prerequisite: LA 109. Studies estate planning as it applies to estate building. Includes pensions and business interests, retirement concerns including the living trust, taxation, entitlement, insurance, residence choices, use of charities. Also covers the interrelationship of the complexities of acquiring, using, protecting and passing an estate.

LA 214 Fiduciary Tax & Accounting, 3 cr.—Prerequisite: LA 113. Covers basic federal and Oregon income taxation of estates and trusts and skills necessary to prepare required docu-

ments. The basic form of fiduciary accounting for filing of accounts with the court is also covered.

LA 215 Employee Benefits Programs, 3 cr.—Introduces various types of employee benefits programs emphasizing tax qualified retirement plans. Non-qualified plans and other types of employee benefits are covered as time allows.

LA 217 Real Property Law II, 3 cr.—Prerequisite: LA 116. Examines key real estate transaction forms and concepts including earnest money agreements, mortgages, deeds and title insurance.

LA 219 Consumer Law, 3 cr.—Studies current consumer law, examines the legal assistant's role in consumer law and explores the need for improvement in existing laws and possible ways to implement these improvements.

LA 220 Worker's Compensation, 3 cr.—Covers the law and legal assistant's role in preparation of a case from initial interview to hearing.

LA 221 Bankruptcy Law, 3 cr.—Covers Bankruptcy Code, Rules of Procedure, types of bankruptcy relief, exempt and non-exempt property, discharge ability of debts, and legal assistant's role in preparing bankruptcy forms.

LA 222 Corporate Law Practice, 3 cr.—Covers the most significant state corporation law, how to assist in preparation and filing of documents necessary to form a corporation, how to draft resolutions for corporate shareholders and directors' meetings, and how to pay dividends to shareholders or to terminate business and distribute property.

LA 225 Advanced Law Office Management, 3 cr.—Prerequisite: LA 124. Examines practical solutions to law office management problems through application of theory and concepts discussed using a case study approach.

LA, 226 Criminal Law for Legal Assit, 3 cr.—Prerequisite: CJA 112. Examines general criminal law and procedure to gain a basic understanding of the criminal justice system as well as the legal assistant's role in the criminal justice system.

LA 280A CE: Legal Assistant, 3 cr.—Prerequisite: Complete core courses, or at least, 18 credit hours in the Legal Assistant program, or department approval. Students work at approved job sites to receive as varied and complete a job experience as possible under job conditions. Designed to meet the needs of the individual student and the conditions of the work site.

LAT - Landscape Technology

LAT 104 Pesticides, 3 cr.—Prerequisite: MTH 60 or instructor approval. Covers laws, safety, pesticide application equipment, types of pesticides and alternatives to pesticides.

LAT 106 Basic Horticulture, 4 cr.—Examines plant growth within its environment and the effects of soil and water management upon plant growth.

LAT 108 Landscape Irrigation I, 3 cr.—Prerequisite: MTH 60 or instructor approval. Studies materials, construction and maintenance of irrigation systems for residential work.
LAT 109 Plant Propagation, 3 cr.—Introduces plant reproduction including ornamental landscape plants. Labs cover propagation of plants.

LAT 110 Grounds Maintenance, 5 cr.—Prerequisite: MTH 60 or instructor approval. Covers maintenance operations and equipment used in the industry. Emphasizes scheduling of a seasonal, yearly approach to maintenance operations and hands-on practical class experience.

LAT 111 Landscape Construction Practices, 3 cr.—Prerequisite: MTH 60 or instructor approval. Covers the basic methods of landscape structure with emphasis on identifying materials used in landscape construction using wood, concrete and stone.

LAT 214 Plant Composition I, 3 cr.—Prerequisite: Completion of first year sequence or instructor approval. Examines the various aspects of plant arrangement in a landscape design. Emphasizes colors, textures, form and size of plants and how these factors influence plant arrangement in the landscape project.

LAT 217 Landscape Drafting, 3 cr.—Designed to teach basic drafting skills and layout needed to produce quality designs. Includes equipment, linear work, lettering and drafting shortcuts.

LAT 218 Landscape Design: Small Properties, 3 cr.—Prerequisite: First year sequence and LAT 217 or instructor approval. Introduces design problem solving techniques associated with small properties such as the single family residence, small apartment areas, commercial sites and small public areas such as neighborhood parks.

LAT 220 Landscape Construction Details, 3 cr.—Prerequisite: Completion of first year sequence and LAT 217 or instructor approval. Introduces development of working drawings of various parts of a landscape design and drawing of detail sheets of wood decks, concrete walks, concrete patios, retaining walls, etc.

LAT 221 Landscape Design Problems, 3 cr.—Prerequisite: Completion of first year sequence and LAT 217 or instructor approval. Emphasizes dealing with actual design clients. Information on portfolios, resumes, and sales techniques to obtain clients is presented.

LAT 222 Landscape Site Grading, 3 cr.—Prerequisite: MTH 60 or instructor approval. Covers the layout and drawing of contour maps and grading plans. Emphasizes site drainage and drainage systems. Studies cut and fill computations for soil.

LAT 223 Site Surveying and Analysis, 3 cr.—Prerequisite: MTH 60 or instructor approval. Studies and applies basic surveying techniques to landscape sites and studies techniques for interpreting measuring and recording site information that will affect landscape operations.

LAT 232 Landscape Irrigation II, 4 cr.—Prerequisite: MTH 60 and LAT 108 or instructor approval. Course covers the information and calculations needed to design and layout both conventional and drip irrigation systems. Programming and auditing of irrigation systems are also covered.

LAT 233 Turfgrass Identification, 3 cr.—Introduces characteristics of soils and environmental adaptation, propagation, specific uses and management of grasses.

LAT 235 Tree Care I, 3 cr.—Students are introduced to the principles and practices of modern arboriculture. Topics include tree biology, planting, diagnosing tree problems, basic rope work and tree climbing with rope and saddle.

LAT 236 Landscape Math Tutorial, 3 cr.—Prerequisite: MTH 60 or instructor approval. Tutorial class designed to upgrade the technical computational skills required in the landscape industry and landscape technology courses. Focus on technical problems as actually applied in industry.

LAT 240 Tree Care II, 3 cr.—Students are introduced to the principles and practices of modern arboriculture. Topics include pruning, plant growth regulators, fertilization, tree appraisal, construction protection, cabling, and hazard tree management.

LAT 241 Turfgrass Cultural Practices, 3 cr.—Prerequisite: LAT 233, instructor approval. Studies selection, application, and proper use of soils and fertilizers for specific types of turf. Includes characteristics and application of fertilizers. Considers management systems, budgeting, recordkeeping, labor supervision, equipment and pesticides.

LAT 243 Landscape Business Operations, 3 cr.—Presents requirements for beginning and successfully operating a small business in the horticultural industry.

LAT 250 Plant Diseases, Insects and Weed Identification, 3 cr.—Prerequisite: Completion of LAT 104, or instructor approval. Examines specific diseases, insects and weeds affecting the normal development of horticultural plants. Students determine the proper pesticides to be used for control.

LAT 262 Native Plants of Oregon, 3 cr.—Examines common native plants and plant communities of Oregon and offers students a better understanding of plant composition and landscape design. Requirement: Field trips around the state to augment classroom slides and instruction.

LAT 263 Bonsai-Saikei, 3 cr.—Covers beginning knowledge and skills in the planting, maintenance and aesthetic use of Bonsai-Saikei plants.

LAT 264 Landscape Estimating and Bidding, 3 cr.—Prerequisite: MTH 60 or instructor approval. Presents basic techniques of estimating and calculating materials and time requirements for landscape operations. Techniques for bidding and recordkeeping are applied to those requirements.

LAT 268 Wetlands, 3 cr.—Introduces functions and types of wetlands. Wetland development, restoration and enhancement is studied.

LAT 280A CE: Landscape, 10 cr.—Prerequisite: Departmental approval. Provides actual landscape work experience at approved job sites or on Rock Creek grounds.

LAT 280B CE: Landscape - Seminar, 2 cr.—Provides opportunity to share work experiences with other students and the instructor. Recommended: concurrent enrollment in LAT 280A.

LAT 299 Special Topics - Landscape, 3 cr.—Focuses on alternative pest control methods that cover areas such as tolerance levels, biological controls, sanitation and companion plantings. Recommended prerequisite: LAT 104.

LAT 299C Special Topics - Integrated Pest Management, 3 cr.—Prerequisite: Instructor approval only. Focuses on alternative pest control methods that cover areas such as tolerance levels, biological controls, sanitation and companion plantings. Recommended prerequisite: LAT 104.

LAT 9801 Nursery Certification, 2 cr.—Designed to aid students in preparation for the Oregon Association of Nurserymen’s “Oregon Certified Nursery Professional” exam.
MCH - Machine Manufacturing Technology

MCH 110 Basic Machine Technology I, 15 cr. — Covers safety practices, shop procedures, tools, materials and project prints. Introduces hand tools and bench practices and use of the drill press, lathe and milling machine. Reviews basic blueprint reading, mathematical processes and applications of math to the lathe.

MCH 111 Basic Machine Technology I-A, 6 cr. —
MCH 112 Basic Machine Technology I-B, 6 cr. —
MCH 113 Basic Machine Technology I-C, 3 cr. —
MCH 120 Basic Machine Technology II, 15 cr. — Prerequisite: MCH 110 or instructor approval. Studies cutting fluids, standard milling machine practices, cutter types, layout tools and procedures, tooling and operation of the radial drill press. Lathe practices are included. Includes mathematics of thread and taper problems, milling machine feeds and speeds for cutters, and advanced blueprint reading.

MCH 121 Basic Machine Technology II-A, 6 cr. —
MCH 123 Basic Machine Technology II-C, 3 cr. —
MCH 130 Basic Machine Technology III, 15 cr. — Prerequisite: MCH 110, MCH 120, or instructor approval. Studies metallurgy, carbide cutting tools, surface grinding setups and techniques, contour band sawing, blade welding procedures and application of indexing head to milling. Introduces jig and fixture application and types. Includes milling machine mathematics, basic trigonometry, indexing problems and advanced blueprint reading.

MCH 131 Basic Machine Technology III-A, 6 cr. —
MCH 132 Basic Machine Technology III-B, 6 cr. —
MCH 133 Basic Machine Technology III-C, 3 cr. —
MCH 234 Project Machine Technology, 10 cr. — Covers special projects set up by students and instructor.

MCH 240 Advanced Machine Technology IV, 15 cr. — Prerequisite: MCH 110, MCH 120, MCH 130, or instructor approval. Studies advanced materials, indexing head problems, cutting spur, helical and rack gears, carbide milling conditions and setups, tool and cutter grinding setups, tracer lathe work, job setups, the machinability of basic metals, basic turret lathe practices, external and internal thread forming, and cutting practices. Includes engine lathe, milling machine and surface grinder. Studies mathematical calculations of gears, the speed ratios of pulleys and gears, and solutions for shop trigonometry.

MCH 241 Advanced Machine Technology IV-A, 6 cr. —
MCH 242 Advanced Machine Technology IV-B, 6 cr. —
MCH 243 Advanced Machine Technology IV-C, 3 cr. —
MCH 250 Advanced Machine Technology V-N/C-C.N.C., 15 cr. — Prerequisite: Grade of C or better in MCH 110, MCH 120, and MCH 130, or instructor permission. Examines basic knowledge and manipulative skills necessary for programming, setup, and operation of vertical N/C and C.N.C. Includes Milling Machines, Numerical Control Computer Lathe work, how to calculate tool paths to produce desired shapes, tool length compensations, radius compensations used in mill and lathe work, plus subroutines and do-loops.

MCH 251 Advanced Machine Technology V-A N/C-C.N.C., 5 cr. —
MCH 252 Advanced Machine Technology V-B N/C-C.N.C., 5 cr. —
MCH 253 Advanced Machine Technology V-C N/C-C.N.C., 5 cr. —
MCH 260 Advanced Machine Technology VI C.A.M., 15 cr. — Prerequisite: MCH 250 or CNC experience. Examines processes, procedures and operations of programmable computers as they apply to Computer Aided Manufacturing (C.A.M.). Uses hands-on computer training in designing parts to be manufactured and conversion of data to a usable language that the particular machine tool requires to make the completed part.

MCH 261 Advanced Machine Technology VI-A C.A.M., 5 cr. —
MCH 262 Advanced Machine Technology VI-B C.A.M., 5 cr. —
MCH 263 Advanced Machine Technology VI-C C.A.M., 5 cr. —

MET - Mechanical Engineering Technology

MET 110 Statics, 4 cr. — Prerequisite: Completion of MTH 65 and placement in WR 115. Corequisite: MET 111, MET 112, and MET 113. Covers fundamental concepts of mechanics relating to forces acting on rigid bodies. Includes problems related to actions and reactions on structures and machines in two and three dimensions. Also covers friction, moments of inertia, and centroids.

MET 111 Engineering Technology Orientation, 4 cr. — Co-requisites: MET 110, 112 and 113. A rigorous, practical approach to techniques and problems encountered in the field of engineering technology. Offers abundant opportunity to solve engineering problems.

MET 112 Technical Algebra/Trigonometry, 4 cr. — Prerequisite: Placement in WR 115 and completion of MTH 60. Includes algebra and trigonometry used in MET 110 and 111 emphasizing simultaneous linear equations, quadratic equations, and applied problems.

MET 113 Engineering Technology Graphics, 3 cr. — Prerequisite: Placement in WR 115 and completion of MTH 60. Introduction to and study of the basic skills of drafting, and the use of drafting equipment for proper pictoral communication as used by industry.

MET 121 Strength of Materials, 4 cr. — Prerequisite: MET 110, MET 111, and MET 112. Corequisite: MET 122 and MET 123. Covers the relationship between stress and strain in deformable solids. Analysis is applied to circular shafts, beams, columns and pressure vessels. Combined stresses, statically indeterminate systems and properties of structural materials.
MET 122 Technical Engineering Physics, 4 cr.—Co-requisite: MET 121 and 123. Introduces physical properties of matter and energy including properties of solids, liquids and gases, and heat transfer.

MET 123 Technical Algebra with Analytic Geometry, 4 cr.—Prerequisite: MET 112. Covers algebra and geometry of special interest to engineering technicians including solving higher order equations, determinants, matrix operations, logarithms and trigonometric identities. Plane analytical geometry is introduced in preparation for calculus, emphasizing development of skills and confidence to solve advanced pre-calculus problems.

MET 124 Technical Chemistry, 3 cr.—Prerequisite: MET 112. Introduces basic chemistry with emphasis on solution and metallurgical chemistry used in engineering technology.

MET 131 Applied Calculus, 8 cr.—Prerequisite: MET 121, MET 122, and MET 123. Introduces differential and integral calculus, with applications to engineering problems.

MET 133 Materials Technology, 1 cr.—Prerequisite: MET 121, MET 122, MET 123, and MET 124. Relates microstructure to mechanical properties of materials common to engineering technology including ceramics, polymers, and composites. Develops lab techniques of metallography in order to prepare samples for microstructural examination and hardness testing.

MET 212 Fundamentals of Thermodynamics, 4 cr.—Prerequisite: MET 124 and MET 131. Covers principles of classical thermodynamics. Develops understanding of energy, heat, work, efficiency, ideal and real thermodynamic cycles. Teaches first and second laws of thermodynamics, perfect gas law and the general energy equation.

MET 213 Fluid Mechanics, 3 cr.—Prerequisite: MET 131. Covers fluid properties, laws of fluid mechanics, and energy relationships in incompressible flow in closed conduits including pressure losses, flow measurement, hydrodynamic forces, and pump selection. Includes open channel flow and measurement structures.

MET 214 Manufacturing/Robotics, 3 cr.—Prerequisite: MET 131 and MET 133. Covers today's global economy, and solutions to problems of manufacturing enterprise. Factors addressed; statistical process/quality control, robotics, CAD, CAM, DFA/DFM, and CIM.

MET 222 Thermodynamics: Heat Engines, 3 cr.—Prerequisite: MET 212. Covers application of laws and principles of thermodynamics to heat engines and heat pumps. Analyzes performance and design of internal and external combustion engines, steam generators, compressors, heat exchange and refrigeration machinery. Includes combustion equation analysis and applications.

MET 223 Project Management, 3 cr.—Prerequisite: WR 121 and MET 123. SP 100 or SP 111 is a recommended prerequisite. Administration of engineering projects. Covers owner-design professional-constructor relationships, law and contracts, specifications writing and interpretation, cost estimating, engineering economy, and planning and scheduling (CPM and time-scaled arrow diagrams).

MET 224 Computer Aided Design II, 2 cr.—Prerequisite: DRF 126. To introduce more advanced aspects of computer aided drawing, relating to disciplines common to Civil and Mechanical Engineering; using software techniques to produce engineering drawings meeting industry standards.

MET 226 Dynamics, 3 cr.—Prerequisite: MET 131. Covers kinematics and kinetics principles relating to the motion of particles and rigid bodies. Examines force, mass, acceleration and velocity relationships. Practical linear and curvilinear motion problems are solved.

MET 232 Thermodynamics: HVAC, 3 cr.—Prerequisite: MET 222. Covers application of the laws and principles of thermodynamics to analysis, design and control of mechanically controlled environments for human comfort and process control. Includes computation of heating and cooling loads, psychrometrics, humidity control, heating and refrigeration.

MET 233 Computer Aided Design III, 2 cr.—Prerequisite: MET 224. Presents advanced topics in mechanical computer aided drawing emphasizing HVAC systems.

MET 235 Machine Design, 3 cr.—Prerequisite: MET 226. Examines fundamentals of machine design, including analysis and design of mechanical components. Covers shafts, fasteners, belt and chain drives, brakes, gears, springs and bearings. Also covers predicting static and fatigue failures for various loadings and materials.

MFG 101 Mfg Enterprise Functions, 4 cr.—Covers organization of a modern manufacturing enterprise and how the various business functions are integrated.

MFG 103 Computers in Mfg, 4 cr.—Introduces the computer hardware and software that is used in manufacturing engineering and manufacturing enterprises.

MFG 105 Team Building/Problem Solving, 3 cr.—Covers basic concepts of how to work within a team environment, analyze problems, communicate the results and implement changes.

MFG 107 Industrial Health and Safety, 3 cr.—Covers concepts of industrial health and safety regulations, compensation laws, and profitability of safety management.

MFG 110 Intro to Machine Manufacturing, 4 cr.—Covers the manipulative skills in basic metal cutting processes normally performed in the machine shop.

MFG 112 Intro to Joining and Welding, 4 cr.—Covers oxy/acetylene, electric arc welding (SMAW), gas metal arc welding (GMAW), gas tungsten arc welding (GTAW), plasma arc welding, and robotic welding.

MFG 212 Welding, 3 cr.—Covers joint design, fabrication of steels, and advanced applications of electric arc welding processes.

MFG 220 Machine Tool Processes, 4 cr.—Covers the operation of standard machine tools, cutter tool maintenance, automatic lathe setup and operation.
MFG 222 Casting and Molding Processes, 4 cr.—Covers pattern making, casting and molding methods, mold and core making, pouring, cleanup, sand conditioning, and testing.

MFG 230 Introduction to Numerical Control, 4 cr.—Introduces the techniques and methodology of numerical control programming.

MFG 274 Introduction to CAD, 2 cr.—Introduces the techniques and methodology associated with an integrated 2D/3D drafting and design system.

MFG 209 Total Quality Mgmt, 2 cr.—Introduces the principles of quality and how they apply to a modern manufacturing enterprise. Emphasizes the customer and manufacturing process environment.

MFG 211 Operational Performance Assessment, 2 cr.—Covers identification of performance measures relevant to the enterprise. Students identify comparable companies, perform data collection methods and develop action plans.

MFG 213 World Class Manufacturing, 2 cr.—Introduces enabling technologies, concepts, methods and philosophies that create World Class manufacturing environments. Students analyze current world class manufacturing companies.

MFG 215 Mfg Cost Management, 3 cr.—Covers the principles of activity based costing methods, evaluating economic impact of different production methods and the investment rules for new equipment acquisitions.

MFG 217 Mfg Standards, 3 cr.—Introduces industry manufacturing standards. Explores the impact on local, domestic and global markets.

MFG 219 Intro Mfg Resource Pln, 3 cr.—Introduces just-in-time concepts and other components of a material requirement planning system.

MFG 221 Project Management, 3 cr.—Introduces various project management tools such as PERT, CPM, and other decision-making project management methods.

MFG 223 New Product Intro, 3 cr.—Introduces all phases of a new product development cycle: quality function deployment and product specifications.

MFG 225 Mfg Process Technology, 3 cr.—Introduces manufacturing process technologies with focus on metals, plastics, and electronics manufacturing environments.

MFG 227 Mfg Application Software, 3 cr.—Presents the most current manufacturing application software, its use and its integration to other enterprise functions.

MFG 229 Design Assembly/Mfg, 3 cr.—Introduces design for manufacturability and assembly concepts and methodologies. Includes software tools.

MFG 231 CAD Tools, 4 cr.—Introduces Computer Aided Design (CAD) and Computer Aided Engineering (CAE) tools. Emphasizes mechanical and electronics design.

MFG 233 Design Document Control, 3 cr.—An introduction to the administration of design documentation, product structure, engineering changes and design compatibility.

MFG 235 Computer Aided Mfg, 5 cr.—Introduces Computer Aided Manufacturing (CAM) tools, numeric controlled machines, coordinate measurement machines (CMM), vision technology, robotics, and automated process control.

MFG 237 Mfg Process Analy/Planning, 3 cr.—Introduces the components of a Computer Aided Process Planning (CAPP) system, process analysis, and data collection (process attributes).

MFG 239 NC/CNC Programming, 3 cr.—Introduces NC/CNC programming and computer aided machining software tools.

MFG 241 Monitoring Mfg Proc, 3 cr.—Introduces statistical process control and manufacturing process monitoring systems. Includes data capture analysis and presentation.

MFG 243 Mfg Control/Planning, 3 cr.—Introduces resource planning of material, machines and personnel, factory simulations, scheduling and capacity planning.

MFG 245 Mfg Equip Tech/Maint, 4 cr.—Introduces manufacturing equipment for metals, electronics and plastics industries. Emphasizes technical features and maintenance.

MFG 247 Flex Mfg System/Auto, 3 cr.—Introduces flexible manufacturing/automation systems for the metals, electronics and plastics industries.

MFG 249 Intro to MRP II, 4 cr.—Explores concepts of Materials Resource Planning (MRP) as they apply to a World class manufacturing enterprise.

MFG 251 Purchasing I, 3 cr.—Presents the fundamentals of purchasing, including purchase descriptions and specifications, types of contract and ordering agreements specific to manufacturing.

MFG 253 Purchasing II, 3 cr.—This course provides students with more advanced purchasing concepts and techniques; vendor certification; supplier management.

MFG 255 Comm Networks, 3 cr.—Introduces communication networks and their components, network configurations and protocols. Emphasizes local area networks.

MFG 257 Mfg Database Design, 4 cr.—Covers implementing a database and data definition dictionaries. Focuses on the design of a neutral data engineering database.

MFG 259 MFG Information Center, 3 cr.—Addresses all aspects of data display (real time and off-line), screen displays, reports, and design of a manufacturing information center.

MFG 261 Computer System Integration, 4 cr.—Covers all aspects of the system integration process. Emphasizes machine interfaces, programmable logic controllers and on-line data collection.

**MFG — Manufacturing Enterprise Technology**

MFG 101 Mfg Enterprise Functions, 4 cr.—Covers organization of a modern manufacturing enterprise and how the various business functions are integrated.

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MFG 274 Introduction to CAD, 2 cr.—Introduces the techniques and methodology associated with an integrated 2D/3D drafting and design system.

MFG 280A CE: Manufacturing Tech I, 2 cr.—Students have the opportunity to develop knowledge and skills in a department-approved work setting. Work experiences are closely aligned with the student's on-campus educational program goals.
MLT - Medical Laboratory Technology

MLT 100 Medical Office Lab Orientation, 3 cr. — Offers to develop proficiency in laboratory procedures commonly performed in a physician's office, including the collection and preparation of specimens for urinalysis, simple hematology and some smears and biopsies. The preparation of specimens for transportation to other laboratories is covered.

MLT 111 Medical Technology I, 4 cr. — Introduces the field of clinical laboratory science. Includes an introduction to the use and care of laboratory glassware, supplies and equipment, basic cell morphology, renal physiology, basic urinalysis, and ABO and Rh blood grouping.

MLT 112 Medical Technology II, 4 cr. — Prerequisite: MLT 111. Introduces clinical chemistry including quality control, laboratory mathematics and the use of appropriate statistical tools. Studies basic hematology including coagulation. Principles of various methodologies and basic skills needed to perform tests in the subject areas are covered.

MLT 113 Medical Technology III, 4 cr. — Prerequisite: MLT 112. Introduces clinical bacteriology. Includes an overview of organization and function of the clinical microbiology laboratory and handling of clinical specimens for microbiological study. Addresses a systems approach to the recovery of normal flora and etiologic agents of disease.

MLT 211 Clinical Chemistry I, 3 cr. — Reviews concepts, methodologies and skills of previous courses and provides an introduction to the chemistry of proteins, including electrophoresis, liver function, pancreatic function, and malabsorption.

MLT 222 Clinical Chemistry II, 4 cr. — Focuses on enzymology, acid-base balance, electrolytes and toxicology.

MLT 223 Clinical Chemistry III, 3 cr. — Focuses on hormones, lipids, renal function and automated chemistry and provides an introduction to radioimmunoassay and enzyme immunoassay.

MLT 230 Body Fluids, 2 cr. — Reviews the basic principles and procedures of urinalysis and a study of the principles, procedures and terminology associated with other body fluids and their correlation with disease.

MLT 241 Immunohematology I, 3 cr. — Reviews basic principles and procedures relating to immunology, antigen structure, antibody structure and classification as well as terminology, principles and procedures related to the study of hemorrhage and hemostasis.

MLT 242 Immunohematology II, 4 cr. — Focuses on the study of blood banking, antibody screening techniques, identification procedures, titrations, cross-matching techniques used for transfusions and the use of blood components. Studies serological principles, procedures and terminology and their correlation with normal and abnormal physiology.

MLT 250 Hematology, 4 cr. — Reviews the basic principles, techniques and terminology needed in a clinical laboratory hematology department covered in first-year courses. Focuses on the study of anemias, leukemias, lymphomas and miscellaneous methodologies and procedures.

MLT 251 Bacteriology I, 4 cr. — Incorporates the basic practices and principles of bacteriology with clinical bacteriological practices, focusing on staphylococci, streptococci and Neisseria as they relate to clinical materials.

MLT 252 Bacteriology II, 3 cr. — Incorporates the basic practices and principles of bacteriology with clinical bacteriological practices, focusing on the Enterobacteriaceae, non-fermentative gram negative rods, Bacteroidaceae, Brucellaceae, aerobic and anaerobic spore-formers, Mycobacteria and some miscellaneous groups such as viruses.

MLT 253 Medical Parasitology, 3 cr. — Studies life cycles, modes of transmission, geographic distribution and disease entities associated with each parasite and identifies characteristics of each organism studied.

MLT 254 Medical Mycology, 3 cr. — Studies medically important fungi and procedures for the collection, handling, preparation and use of media. Includes methods of inoculation of media, and diagnostic procedures for the cultivation and identification of organisms.

MLT 257 Clinical Laboratory Practice I, 3 cr. — Prerequisite: MLT 251. Assigns students to various clinical laboratories to become familiar with their organization and operation, gain insight into how the clinical laboratory practitioner relates to the whole medical team and to the community, gain experience in dealing with patients and in performing procedures required of a laboratory technician.

MLT 258 Clinical Laboratory Practice II, 3 cr. — Prerequisite: MLT 252. Assigns students to various clinical laboratories to become familiar with their organization and operation, gain insight into how the clinical laboratory practitioner relates to the whole medical team and to the community, gain experience in dealing with patients and in performing procedures required of a laboratory technician.

MLT 259 Clinical Laboratory Practice III, 3 cr. — Prerequisite: MLT 253. Assigns students to various clinical laboratories to become familiar with their organization and operation, gain insight into how the clinical laboratory practitioner relates to the whole medical team and to the community, gain experience in dealing with patients and in performing procedures required of a laboratory technician.

MLT 260 Clinical Laboratory Practice IV, 8 cr. — Assigns students to various clinical laboratories to become familiar with their organization and operation, gain insight into how the clinical laboratory practitioner relates to the whole medical team and to the community, gain experience in dealing with patients and in performing procedures required of a laboratory technician.

MLT 261 Bacteriology I, 4 cr. — Incorporates the basic practices and principles of bacteriology with clinical bacteriological practices, focusing on staphylococci, streptococci and Neisseria as they relate to clinical materials.

MLT 262 Bacteriology II, 3 cr. — Incorporates the basic practices and principles of bacteriology with clinical bacteriological practices, focusing on the Enterobacteriaceae, non-fermentative gram negative rods, Bacteroidaceae, Brucellaceae, aerobic and anaerobic spore-formers, Mycobacteria and some miscellaneous groups such as viruses.

MLT 263 Medical Parasitology, 3 cr. — Studies life cycles, modes of transmission, geographic distribution and disease entities associated with each parasite and identifies characteristics of each organism studied.

MLT 264 Medical Mycology, 3 cr. — Studies medically important fungi and procedures for the collection, handling, preparation and use of media. Includes methods of inoculation of media, and diagnostic procedures for the cultivation and identification of organisms.

MLT 267 Clinical Laboratory Practice I, 3 cr. — Prerequisite: MLT 261. Assigns students to various clinical laboratories to become familiar with their organization and operation, gain insight into how the clinical laboratory practitioner relates to the whole medical team and to the community, gain experience in dealing with patients and in performing procedures required of a laboratory technician.

MLT 268 Clinical Laboratory Practice II, 3 cr. — Prerequisite: MLT 262. Assigns students to various clinical laboratories to become familiar with their organization and operation, gain insight into how the clinical laboratory practitioner relates to the whole medical team and to the community, gain experience in dealing with patients and in performing procedures required of a laboratory technician.

MLT 269 Clinical Laboratory Practice III, 3 cr. — Prerequisite: MLT 263. Assigns students to various clinical laboratories to become familiar with their organization and operation, gain insight into how the clinical laboratory practitioner relates to the whole medical team and to the community, gain experience in dealing with patients and in performing procedures required of a laboratory technician.

MLT 270 Clinical Laboratory Practice IV, 8 cr. — Assigns students to various clinical laboratories to become familiar with their organization and operation, gain insight into how the clinical laboratory practitioner relates to the whole medical team and to the community, gain experience in dealing with patients and in performing procedures required of a laboratory technician.

MLT 271 Clinical Laboratory Practice I, 3 cr. — Prerequisite: Admission to second year of Medical Laboratory Technology program. Assigns students to various clinical laboratories to become familiar with their organization and operation, gain insight into how the clinical laboratory practitioner relates to the whole medical team and to the community, gain experience in dealing with patients and in performing procedures required of a laboratory technician.

MLT 272 Clinical Laboratory Practice II, 3 cr. — Prerequisite: MLT 271. Assigns students to various clinical laboratories to become familiar with their organization and operation, gain insight into how the clinical laboratory practitioner relates to the whole medical team and to the community, gain experience in dealing with patients and in performing procedures required of a laboratory technician.

MLT 273 Clinical Laboratory Practice III, 3 cr. — Prerequisite: MLT 272. Assigns students to various clinical laboratories to become familiar with their organization and operation, gain insight into how the clinical laboratory practitioner relates to the whole medical team and to the community, gain experience in dealing with patients and in performing procedures required of a laboratory technician.

MLT 274 Clinical Laboratory Practice IV, 8 cr. — Assigns students to various clinical laboratories to become familiar with their organization and operation, gain insight into how the clinical laboratory practitioner relates to the whole medical team and to the community, gain experience in dealing with patients and in performing procedures required of a laboratory technician.

MLT 275 Clinical Seminar, 4 cr. — Explores techniques for writing resumes, letters of introduction and interview process. Studies new concepts in clinical laboratory. Review for preparation for certification examinations. Directs the research and writing of a term paper on selected topics.
MOA - Medical Office Assisting

MOA 111 Medical Terminology, 4 cr.—Prefixes, suffixes, root words, abbreviations, conditions and symptoms and procedure terms relating to individual body systems.

MOA 112 Medical Office Assistant Seminar I, 1 cr.—Psychology and office management, including interpersonal communications; review for the national credential examination, and the study of the health care delivery system and coordination of directed practice.

MOA 113 Medical Office Administrative Procedures, 5 cr.—Covers reception room techniques, including appointment scheduling, telephone techniques, mail handling, financial records, accounting, accounts receivable and payable, insurance, office care and management and medical records management.

MOA 114 Medical Office Administrative Procedure (Lab), 2 cr.—Practice and demonstrate proficiency in the procedures listed under MOA 113.

MOA 121 Medical Legal Aspects, 2 cr.—Introduces the legal system, emphasizing the doctrine of confidential communication, the relationship to the medical record and the disclosure of information. Introduces the concepts of professional credentialing and responsibility, liability, and consents and moral issues.

MOA 122 Medical Office Assistant Seminar II, 1 cr.—Continuation of MOA 112.

MOA 123 Medical Office Clinical Procedures, 3 cr.—Examination room techniques, assisting the physician with examinations, treatment and minor surgery. Covers methods of asepsis and sterilization and the proper care of equipment and supplies.

MOA 124 Medical Office Clinical Procedure (Lab), 2 cr.—Practice and demonstrate proficiency in the procedures listed under MOA 123.

MOA 125 Administrative Directed Practice, 2 cr.—Develop proficiency in admitting procedures, receptionist's duties, secretarial duties and other office management tasks in one, eight-week assignment rotation in a physician's office.

MOA 131 Introduction to Medical Science, 3 cr.—Concepts of disease processes as they relate to the normal physiology of the major body systems.

MOA 132 Medical Office Assistant Seminar III, 1 cr.—Continuation of MOA 122.

MOA 133 Clinical Directed Practice, 2 cr.—Develop proficiency in identification and care of equipment, sterile technique and asepsis, diagnostic and examination procedures, therapy, surgery, medication (pharmacology and administration) and handling of medical emergencies in one, eight-week assignment rotation in a physician's office.

MOA 134 Health Record Transcription (Lab), 2 cr.—Transcribe medical reports. A proficiency certificate is awarded to students who demonstrate satisfactory transcription speed, accuracy and quality of work.

MOA 135 Transcription Office Procedures, 1 cr.—Study various word processing systems and techniques, use of reference materials, use and care of equipment, and a review of English usage and medical terminology.

MOA 136 Medications: Medical Office Assistants, 2 cr.—Appropriate drug uses, effects, dangers and precautions, routes of administration, dilutions and calculations, management and control. Review common prescription abbreviations, forms of medications and basic drug categories.

MOA 147 Specialty Directed Practice, 2 cr.—Practice administrative, clinical or a combination of both specialties for two weeks at the end of spring term. Work two, four-day rotations in a medical facility and attend a three-hour seminar at the college.

MRT - Medical Record Technology

MRT 103 Health Information Procedures I, 3 cr.—Introduces the health care delivery system emphasizing acquisition and maintenance of health information.

MRT 104 Health Information Procedures 2, 3 cr.—The required content and quantitative and qualitative analysis of medical records in various health care settings.

MRT 106 Health Information Procedures Lab 1, 1 cr.—Develop proficiencies in the skills included in MRT 103.

MRT 107 Health Information Procedures Lab 2, 1 cr.—Develop skills in the procedures included in MRT 104.

MRT 109 Health Information Directed Practice 1, 2 cr.—Complete a variety of off campus experiences including field trips, research and practical work.

MRT 110 Health Information Seminar 1, 1 cr.—Discuss laboratory experiences, study skill techniques and related topics. Guest speakers cover a variety of topics.

MRT 111 Health Information Seminar 2, 1 cr.—Discuss laboratory and clinical experiences, study skill techniques and related topics. Guest speakers cover a variety of topics.

MRT 122 Health Care Delivery Systems, 3 cr.—Explains influences on the delivery of health care -- past, current and future, covering health care organizations and organizations influencing health care.

MRT 133 Health Information Seminar 3, 1 cr.—Discuss laboratory and clinical experiences, study skill techniques and related topics. Guest speakers cover a variety of topics.

MRT 185 Medical Legal Aspects, 3 cr.—Introduces the legal basis for medical practice, confidentiality, voluntary and involuntary release of medical information, professional liability, consents for treatment, other procedures, and discusses medical-ethical issues.

MRT 205 Health Information Procedures 3, 2 cr.—Develop knowledge of hospital services: pharmacy, laboratory tests and imaging services.

MRT 208 Health Information Procedures Lab 3, 2 cr.—Develop skills in the procedures included in MRT 205 and MRT 270.

MRT 212 Intro to Medical Science, 4 cr.—Concepts of etiology and characteristics of pathological processes. Diseases are classified according to causative agent and the body system to which they relate.
MRT 270 Classification Systems 1, 5 cr.—Introduces use of the International Classification of Diseases.
MRT 271 Health Information Procedures 4, 3 cr.—Covers medical staff organization, the medical record profession, quality assurance and requirements of cancer programs.
MRT 272 Health Information Procedures 5, 6 cr.—Principles of supervision and management of a medical record department, acquisition and maintenance of health information, procedures of accrediting agencies.
MRT 276 Health Information Lab 4, 2 cr.—Develops skills in the procedures included in MRT 271.
MRT 277 Health Information Lab 5, 2 cr.—Develops skills in the procedures included in MRT 272.
MRT 281 Health Data Presentation, 3 cr.—Collection, retrieval, reporting and uses of health care facility statistical data. Includes hospital discharge data systems in manual and automated formats.
MRT 284 Classification Systems 2, 2 cr.—Nomenclature and classification systems including CPT.
MRT 292 Health Information Directed Practice 2, 1 cr.—Work under the supervision of facility personnel in local health care facilities. Experience actual working conditions and various aspects of medical records.
MRT 293 Health Information Directed Practice 3, 4 cr.—Work under the supervision of facility personnel in local health care facilities. Experience actual working conditions and various aspects of medical records.
MRT 294 Health Information Directed Practice 4, 4 cr.—Work under the supervision of facility personnel in local health care facilities. Experience actual working conditions and various aspects of medical records.
MRT 295 Health Information Seminar 4, 1 cr.—Review major professional subject areas, hear guest speakers on topics of interest and discuss directed practice experiences. Complete clinical research papers.
MRT 296 Health Information Seminar 5, 1 cr.—Review major professional subject areas, hear guest speakers on topics of interest and discuss directed practice experiences. Complete clinical research papers.
MRT 297 Health Information Seminar 6, 1 cr.—Review major professional subject areas, hear guest speakers on topics of interest and discuss directed practice experiences. Complete clinical research papers.
MRT 9405 General Medical Terminology, 3 cr.—Analyzes the structure of medical words and apply this to basic anatomy, physiology and disease processes of the human body, stressing spelling and pronunciation.
MRT 9406 Medical Record Independent Study, 3 cr.—Advanced study to update knowledge and skills.
MRT 9407 Medical Record Seminar Or Workshop, 5 cr.—Discuss problems confronting practitioners and the presentation of new material in the field. Can include: coding, management, statistics, legal aspects and quality assurance. This course may be taken for fewer credits.
MRT 9411 Intro to Medical Terminology I, 2 cr.—Medical word parts, abbreviations, basic terms and word construction.
MRT 9412 Intro to Medical Terminology II, 2 cr.—Medical vocabulary for those who have a working knowledge of the human body, its structure and function.

MSD - Management and Professional Development

MSD 101 Principles of Management/Supervision, 3 cr.—Discuss and practice such fundamental supervisory skills as communication, leadership, politics, training and development, conflict management and problem handling, performance review, and social responsibility including ethics and legal issues. Applies basic aspects of Total Quality Management and understanding the importance of accident prevention and worker safety.
MSD 105 Interpersonal Communication, 3 cr.—Job-related issues such as communication style, encoding and decoding, non-verbal communication, listening, breakdowns, resolving interpersonal conflicts, and the importance of good interpersonal communication techniques in the workplace. Extensive use of skillbuilding exercises and practice.
MSD 106 Effective Meeting Management, 3 cr.—Types of meetings, modes of participation, presentation skills, leading meetings, handling conflicts, and overcoming resistance to change.
MSD 107 Organizations & People, 3 cr.—Organizational characteristics, concepts and applications, emphasizing job-related issues. Includes concepts of organizations, individuals vs. organizations, group and interpersonal interaction, organizational structure, and leadership.
MSD 109 Power Reading & Thinking, 3 cr.—Increase reading speed, comprehension, vocabulary and recall. More effectively use what you read for problem solving. For all reading levels.
MSD 111 Corresponding Effectively At Work, 3 cr.—Examine necessary communication tools and use them in a variety of ways such as writing letters, memos, personnel performance reviews, reports and brochures relating to job situations.
MSD 115 Improving Work Relations, 3 cr.—Focuses on improving individual effectiveness, interpersonal relationships, functions of work groups, multicultural relations and productivity and quality at the organizational level. Extensive use of case studies and experiential exercises.
MSD 117 Customer Relations, 3 cr.—Principles and practice of customer relations, including history of consumerism, customer relations departments, identifying and responding to customer needs, developing skills in giving information, dealing with difficult customers, and developing a positive customer relations climate.
MSD 121 Leadership Skill Development, 3 cr.—Theories and practical application of motivation and leadership, including employee motivation, self-motivation, management vs. leadership, factors influencing leadership, authority, and leadership styles. Emphasis will be on skill development.
MSD 130 Creative Problem Solving, 3 cr.—Creative problem solving and thinking, steps in the creative problem-solving process, right and left brain thinking, ambiguity and imagination, overcoming barriers to creative thinking, synthesis, and applying creative problem-solving to the organization.
MSD 199A Management Effectiveness, 3 cr.—This course offers an advanced, expanded coverage of courses already established within the Management/Supervisory Development curriculum. A maximum of 3 credit hours may be applied toward the degree requirements.

MSD 199B Management Effectiveness, 2 cr.—This course offers an advanced, expanded coverage of courses already established within the Management/Supervisory Development curriculum. A maximum of 3 credit hours may be applied toward the degree requirements.

MSD 200 Organizations and Social Responsibility, 3 cr.—Clarify managerial/supervisory attitudes about the relationships between business and government, the anti-discriminatory and open work environment, current environmental issues such as pollution and energy, the consumer movement, and workplace ethics.

MSD 201 Productivity Management, 3 cr.—Prerequisite: MSD 101 or supervisory work experience. Includes productivity and management, planning for productivity, organizing, leadership, controlling, budgeting, and production and operations.

MSD 202 Training the Employee, 3 cr.—Develops practical perspective of training as an organizational resource. Includes ways people learn, identifying employee training development requirements, developing objectives, designing lesson plans, evaluation criteria, developing strategy, alternatives to training, and practicum.

MSD 204 Labor - Management Relations, 3 cr.—Provides a perspective on labor management interactions and insight into current labor relations events. Includes the history and development of the labor movement, management/supervisory responsibilities for labor relations, labor unions’ current status and organizational make-up, labor legislation, grievance and disciplinary action, arbitration, mediation, and contracts.

MSD 206 The Troubled Employee, 3 cr.—Factors contributing to the development of the troubled employee. Includes absenteeism, tardiness, potential causes for decreasing work performance, identifying potential troubled employee work habits and attitudes, and possible community and organizational assistance agencies.

MSD 210 Public Relations, 3 cr.—Influencing public opinion through two-way communications. Examine current public relations techniques, professional codes of ethics, and program development.

MSD 212 Work Analysis and Improvement, 3 cr.—Includes objectives of work analysis, human relations and work analysis, using charts and graphs, developing a questioning attitude, principles of motion economy, time management, procedure writing, and employee training.

MSD 214 Safety and Security Management, 3 cr.—Safety and security management, roles of OSHA/NIOSH, supervisor’s role in safety and security management, compensation laws and practices, and profitability of quality safety and security management.

MSD 216 Budgeting for Managers, 3 cr.—Budgeting vocabulary, finance principles, record keeping techniques, cash management, cash budgeting and capital budgeting. Recommended: Work-related budgeting experience.

MSD 218 Intro to Manufacturing Control, 3 cr.—Aspects of manufacturing control, including perspective, forecasting, priority planning, capacity planning, order release planning, lead time and implementation.

MSD 222 Human Resource Management: Personnel, 3 cr.—Personnel operations, human resource planning, job design and job analysis, recruitment and equal employment opportunity, and job selection and placement.

MSD 223 HR Mgt: Performance and Compensation, 3 cr.—Performance appraisal, indirect compensation programs, improving productivity and quality of work life, employee rights and collective bargaining.

MSD 240 Strategic Planning, 3 cr.—Determining company strategy, defining major policy, tactical planning and action, policy implementation and follow-up procedures.

MSD 260 Management Information Systems/Data Analysis, 3 cr.—Implementing an MIS, MIS and data analysis, methods of data collection, analyzing the data, developing reports, and record keeping.

MSD 265 Fund of Production and Inventory Mgmt, 4 cr.—Introduces the multiple facets of production and inventory management. Recommended: “C” grade or better in Math 60 or above.

MSD 267 Material Requirements Planning, 3 cr.—Overview of important terms, concepts and techniques associated with material requirements planning (MRP). Recommended: MSD 265 or business-related experience.

MSD 269 Inventory Management, 3 cr.—Inventory management concepts. Recommended: MSD 265 or business-related experience.

MSD 271 Master Planning, 3 cr.—In-depth investigation of the elements of forecasting and planning. Recommended: MSD 265 or business related experience.

MSD 273 Capacity Management, 3 cr.—Capacity management, investigating such topics as capacity determination, capacity factors, long-range capacity planning and control techniques, medium-range techniques and short-range capacity planning. Recommended prior course: MSD 265 or related business academic experience.

MSD 277 Just In Time, 3 cr.—Provides practical, job related introduction to various aspects of Just In Time production.

MSD 279 Project Management, 3 cr.—Introduces project management and the development of a total quality project plan with specific emphasis on such quantitative control mechanisms as statistical process control, scatter diagrams, and pareto charts.

MSD 280A CE: Management/Supervisory Development, 3 cr.—Learn supervisory, job specific skills, with work objectives while working on the job. Job-specific goals are set by the student, the employing supervisor, and a PCC coordinator.

MSD 280B CE: Management/Supervisory Development - Seminar, 1 cr.—Acquire college credit for on-the-job learning. Student sets work-related goals, develops action plan, and writes and delivers a report on the results.

MSD 281 New Product Introduction, 3 cr.—Investigate various aspects and functions associated with new products. Recommended: some work experience/knowledge regarding new product development.
MSD 283 Bills of Material, 3 cr.—Focus on the use, need and creation of bills of material (BOM) within a manufacturing environment. Includes BOM in the manufacturing environments, types of data bases, link data base and BOMs and BOM types.

MSD 285 Fund Total Quality Management, 4 cr.—Role of quality in an organization, purchasing, engineering and manufacturing, quality tools and techniques, quality in government and non-profit organizations, and changes in technology.

MSD 285A Fund Total Quality Management, 3 cr.—Course designed so participants can learn the basic methods, procedures and practices of Total Quality Management. Emphasis is on fundamentals of understanding and using quality-based management in organizations.

MSD 287 Data Analysis for Quality Improvement, 3 cr.—Prerequisite: Completion of MTH 60 with a "C" grade or better, or instructor permission. Concepts in collecting and analyzing data for the purpose of improving quality. Includes the use of histograms, cause and effect diagrams, sampling, and sampling inspection.

MSD 289 Fund for Transforming Industry, 3 cr.—Introduces the need for and the steps to improve quality production for business representatives from the board room to the loading dock.

MSD 298 Trends in Management/Supervision, 6 cr.—Examine specific topics of current interest not necessarily covered in other Management/Supervisory Development classes but related to the changing management field. Investigate different topics earning 6 credits.

MSD 9204 Introduction to Transportation, 3 cr.—Transportation modes, economic regulations, contract of carriage, freight rates and tariffs, carrier liability and claims, and career opportunities.

MSD 9205 Intro to International Trade & Transportation, 3 cr.—Prerequisite: Completion of MTH 60 with a "C" grade or better, or instructor permission. Course designed so participants can learn the basic methods, procedures and practices of international import-export project. An opportunity to use concepts learned in one credit classes on import/export and letters of credit or the business world. The project generally consists of research on a subject of international trade background or enrollment in related courses concurrently. All aspects of international trade are reviewed.

MSD 9252 Introduction to Exporting, 3 cr.—Concepts related to exporting. Includes reaching markets, export distribution, export pricing, shipping and documentation, international law, U.S. duties and taxes, and business travel overseas.

MSD 9254 Basic Importing, 3 cr.—Covers various factors of importing. Includes introduction to importing, purchasing foreign merchandise, documentation and shipping, customs clearance, introduction to the tariff schedules, customs clearance documentation, warehouse and drawback entries, and customs regulations.

MSD 9258 Survey of International Trade Law, 3 cr.—Basic laws of international trade pertaining to the United States, the European Economic Community, Canada and Japan. Includes factors in international trade, appraisal law, tariff law survey, other tariff controls, non-tariff barriers, country of origin, duty drawback and other duty avoidance programs.

MSD 9260 International Trade & Banking, 3 cr.—Multiple facets of trade and banking. Includes international banking, the changing financial world, political morality of lending to friendly and non-friendly nations, foreign banking growth in the U.S., overseas financing and credits, establishment of free trade zones and international banking centers, international banking and the foreign trade, methods of assisting the client, and the local market and international banking.

MSD 9296 Trends in Trade & Transportation, 3 cr.—This is an "umbrella" course which introduces students to various timely and relevant subjects. Each course will then be specially designed to meet this purpose. Consult the term schedule of classes or the Institute for Management and Professional development for information on the topics that will be covered during a given term.

MSD 9298 Trade and Transportation Workshops, 1 cr.—This course is designed as an "umbrella" workshop introducing students to the various timely and relevant subjects via workshops and seminars. Each workshop will be designed to meet this purpose.

### MT - Microelectronics Technology

**MT 110 Introduction to Microelectronics, 3 cr.**—Prerequisite: MTH 60. Surveys the field of microelectronics. Includes definitions of common terms and a survey of semiconductor manufacturing process: photolithography, etch, implant, deposition, and test/sort.

**MT 200 Photolithography, 4 cr.**—Prerequisite: MT 110 and CH 203. Includes techniques used to produce the microscopic photographic images needed to manufacture integrated circuit chips: circuit layout, mask fabrication, photoresists, surface prep, coating, bake, expose, develop, layer identification, etch, and resist strip.

**MT 222 Vacuum Technology, 3 cr.**—Prerequisite: PHY 202. Includes the elementary theory, the practice of high vacuum used in microelectronic processing, and vacuum system components: pumps, valves, gauges, power supplies, and leak detection systems.

**MT 224 Electro-Mechanical Systems, 3 cr.**—Prerequisite: EET 121, EET 122, and PHY 201. Covers electrical safety, schematic reading, motors, power sources, springs, gaskets, lubricants, bearings, and gears.

**MT 225 Advanced Microelectronics, 4 cr.**—Prerequisite: MT 220, CH 203 and WR 227. Includes semiconductor device physics, PN junctions, MOS capacitance, bipolar junction transistors, process flow, and process problems and defects.

**MT 227 Pneumatics & Robotics, 3 cr.**—Prerequisite: MT 224, EET 121, EET 122, and PHY 202. Includes pneumatic symbols and terminology, compressed air preparation and distribution, pneumatic working elements, proximity sensing devices and signal conversion, data acquisition and control, embedded controllers, and robotics.

**MT 240 RF Energy, 3 cr.**—Prerequisite: EET 121, MT 222, and PHY 203 concurrent. Includes fundamental electronic principles used in RF systems, the use of RF systems in the manufacture of integrated circuit chips, and troubleshooting and maintenance of RF plasma systems.
MTH - Math

MTH 103 Int Graph Calculator, 1 cr.—Graphics calculator required. Exploring the power of your programmable graphing calculator for use at school and home.

MTH 105 Investigation of Modern Math, 4 cr.—Prerequisite: MTH 95. Graphics calculator required. Designed for liberal arts students, see also MTH 111 and MTH 245. A survey of topics in fields such as anthropology, art, biology, business, communications, ecology, economics, government, medicine, etc. Techniques used to explore real world problems include linear programming, statistics, measurement, and graph theory.

MTH 10A Fundamentals of Arithmetic, 4 cr.—Develops skill and increases speed with the whole number tables. Taught in a self-paced format.

MTH 111 College Algebra, 4 cr.—Prerequisite: MTH 95. Graphics calculator required. Designed for science and engineering students; see also MTH 105 and MTH 245. Relations and graphs of one or two variables emphasizing polynomial and rational functions; logarithmic and exponential functions; complex numbers; systems of equations; matrices and determinants; and other topics as time allows.

MTH 112 Elementary Functions, 4 cr.—Prerequisite: MTH 111. Graphics calculator required. Conic sections; circular, trigonometric, and inverse trigonometric functions and their graphs; trigonometric equations; trigonometric identities; solutions of right and oblique triangles; vectors; complex numbers; and polar coordinates.

MTH 116 Calculus Preparation, 4 cr.—Prerequisite: MTH 111 and MTH 112. Graphics calculator required. Survey course of material needed for calculus from the prerequisite classes. Emphasis on polynomial, rational, exponential, logarithmic, trigonometric functions and their graphs; polynomial equations; trigonometric and circular equations; trigonometric identities; and solutions of right and oblique triangles.

MTH 20A Basic Math (Arithmetic), 4 cr.—Prerequisite: memorization of basic addition and multiplication tables and ability to do whole number arithmetic. Work with whole numbers, fractions, and decimal arithmetic. Introduces concepts and vocabulary of the number system, and techniques of solving proportions and their applications, including percentage problems. Scientific calculator that does fractions required.

MTH 211 Foundations of Elementary Math I, 3 cr.—Prerequisite: MTH 95. Survey of mathematical topics for prospective k-9 teachers and liberal arts students. Emphasizing Polya's problem solving process, patterns and sequences, set theory, numeration systems, number bases, number theory, and modular arithmetic.

MTH 212 Foundations of Elementary Math II, 3 cr.—Prerequisite: MTH 21, MTH 25, MTH 26, and MTH 95. Survey of mathematical topics for prospective k-9 teachers and liberal arts students. Emphasizing propositions and algorithms of rational numbers (fractions, decimals, percents), integers, the set of irrational and set of real numbers, and simple probability and statistics.

MTH 213 Foundations of Elementary Math III, 3 cr.—Prerequisite: MTH 22, MTH 23, and MTH 95. Survey of mathematical topics for k-9 teachers and liberal arts students. Emphasizes informal geometry, transformational geometry, and measurement systems.

MTH 21A Ratio/Proportion, 1 cr.—Ratio, proportion, percent, conversions, and word problems (calculator permitted).

MTH 22A Metric Scientific Notations, 1 cr.—Prerequisite: MTH 20 or department approved equivalent. The English measurement system, metric system, temperature in both scales, conversion between systems, and scientific notation (calculator permitted).

MTH 231 Elements of Discrete Mathematics I, 4 cr.—Prerequisite: MTH 111. Basic concepts of discrete mathematics, to include algorithms, number bases, logic, sets, math induction, and Boolean Algebra.

MTH 23A Geometry, 1 cr.—Prerequisite: MTH 20 or department approved equivalent. Lines, angles, geometric shapes and formulas for perimeter, area, volumes (calculator permitted).

MTH 241 Calculus for Management, Life and Social Science, 4 cr.—Prerequisite: MTH 111 or MTH 245. Graphics calculator required. Basic concepts of calculus and their application to the biological and social sciences and business.

MTH 243 Statistics I, 4 cr.—Prerequisite: MTH 95. Graphics calculator required. Concepts of elementary probability, frequency distributions and their graphs, probability distributions, descriptive statistics, confidence interval estimation, and an overview of hypothesis testing.

MTH 244 Statistics II, 4 cr.—Prerequisite: MTH 243. Graphics calculator required. Inferential statistics which include chi-square distribution, analysis of variance, time series analysis, index numbers, decision theory, regression and correlation, and hypothesis testing.

MTH 245 Mathematics for Management, Life and Social Science, 4 cr.—Prerequisite: MTH 95. Graphics calculator required. Designed for business students, see also MTH 105 and MTH 111. Relations, functions, equations and inequalities and their graphs; linear programming; matrices and exponential functions and their business applications.

MTH 24A Pre-algebra, 1 cr.—Prerequisite: MTH 20 or department approved equivalent. Integers and arithmetic operations, absolute value, combining like terms, evaluating expressions, one step equations and a few two-step equations.

MTH 251 Calculus I (Differential Calculus), 4 cr.—Prerequisite: MTH 111 and MTH 112, or MTH 116. Graphics calculator required. Review concept of functions and study basic concepts of limit and continuity; differentiation of non-transcendental and trigonometric functions and their maxima and minima; curve sketching and related topics.

MTH 252 Calculus II (Integral Calculus), 4 cr.—Prerequisite: MTH 251. Graphic calculator required. Definite integral and indefinite integral and their applications including area and volume; differentiation and integration of logarithmic and exponential functions with applications.

MTH 253 Calculus III (Infinite Series and Sequences), 4 cr.—Prerequisite: MTH 252. Graphic calculator required. Techniques of integration with applications, indeterminate forms and improper integrals, sequences, series and polar coordinates, and topics in analytical geometry.
MTH 254 Vector Calculus I (Intro to Vectors and Multidimensional Calc), 4 cr.—Prerequisite: MTH 253. Graphics calculator required. Calculus of functions in several variables: vectors in two and three dimensions, vector valued functions, partial differentiation, multiple integrals and selected topics of vector calculus.

MTH 256 Differential Equations, 4 cr.—Prerequisite: MTH 254. Graphics calculator required. First and second order differential equations and their solutions. Emphasis is on applied differential equations used in engineering.

MTH 25A Fractions, 1 cr.—Manipulate fractions, reducing, building, adding, subtracting, multiplying, dividing, rearranging, and finding the lowest common denominator. Includes preliminary topics of number theory such as primes, divisors, and divisibility rules.


MTH 26A Decimals, 1 cr.—Manipulate decimals including computation, place values, and equivalents. Recommended: knowledge and skills in whole numbers.

MTH 27A Word Problems, 1 cr.—Solve word problems involving arithmetic skills, including addition, subtraction, multiplication, and division of whole numbers, fractions, decimals, per cents, ratios, and proportions.

MTH 30 Business Mathematics I, 4 cr.—Prerequisite: MTH 20. Applications of arithmetic to a variety of problems found in the business field, including simple and compound interest, payroll preparation, pricing, invoice preparation, trade discounts, taxes, inventory, depreciation, insurance and other topics as time permits.

MTH 55 Applied Mathematics, 4 cr.—Prerequisite: MTH 20. Develop and refine job-related math skills. Focus on arithmetic operations, problem-solving techniques, estimation of answers, measurement skills, geometry, data handling, simple statistics, and use of algebraic formulas to solve problems using modular learning materials.

MTH 56 Applied Math 2, 4 cr.—Prerequisite: MTH 55. Continue to develop and refine job-related math skills.

MTH 60 Elementary Algebra - 1st Term, 4 cr.—Prerequisite: MTH 20. Basic laws of algebra, integer arithmetic, solving simple equations and formulas, polynomial arithmetic, applied (story) problems and factoring polynomials.

MTH 61 Elementary Algebra - Part I, 3 cr.—Prerequisite: MTH 20. Basic laws of algebra, integer arithmetic, solving simple equations and formulas, polynomial arithmetic, and applied (story) problems.

MTH 62 Elementary Algebra - Part II, 3 cr.—Prerequisite: MTH 60 or MTH 61. Factoring polynomials, simplification of rational expressions, addition, subtraction, multiplication and division of rational expressions, solving fractional equations, and graphing linear equations.

MTH 63 Elementary Algebra - Part III, 3 cr.—Prerequisite: MTH 62. Solving linear systems in two variables, additional word problems, simplifying of radicals, and operations with radicals.

MTH 65 Elementary Algebra - Second Term, 4 cr.—Prerequisite: MTH 60. Simplifying rational expressions; addition, subtraction, multiplication and division of rational expressions; solving fractional equations; graphing linear equations; solving linear systems in two variables; solving quadratic equations and operations with radicals.

MTH 70 Introduction to Intermediate Algebra, 4 cr.—Prerequisite: MTH 63, MTH 65, or two years of high school algebra. An introduction to Intermediate Algebra. Topics covered include manipulating polynomials, rational expressions, integer exponents, and radicals; solving and graphing linear equations and inequalities; and solving rational equations, radical equations, quadratic equations, systems in two variables, and applied problems.

MTH 75 Euclidean Geometry, 4 cr.—Prerequisite: MTH 56, MTH 65, MTH 70, or two years of high school algebra. Vocabulary, facts and methods of Euclidean Geometry. Includes methods of proof, geometric figures complete with their properties, similarities, congruencies, circles, parallel and perpendicular lines, triangles and constructions.

MTH 95 Intermediate Algebra, 4 cr.—Prerequisite: MTH 65 or MTH 70. Graphics calculator required. Operations involving radicals; solutions of linear and quadratic equations and inequalities; radical equations; rational exponents; variation; graphing relations and functions; inverse functions and/or relations; introduction to exponential and logarithmic functions.

MUP - Applied Music

MUP 100 Individual Lessons for Non-majors, 1 cr.—Individual instruction in piano, organ, voice and instruments of the band and orchestra.

MUS - Music

MUS 101 Commercial Music Theory I, 3 cr.—Chord types and scales, and their proper spellings. Practice dictation. Practice dictation practice. Includes music copying.

MUS 102 Commercial Music Theory II, 3 cr.—Functional harmony and altered chords, especially dominants. Focuses on chord progressions presented aurally and analyzed in reference to popular tunes, and scalar techniques to include melody writing with emphasis on jazz, rock and other commercial rhythms. Basic tune forms are analyzed.

MUS 103 Commercial Music Theory III, 3 cr.—Preliminary score layout. Introduces harmonizing and blocking melodies and transposition, stressing craft and execution. Continue dictation adding elements of melodic and harmonic transcription.

MUS 105 Music Appreciation, 3 cr.—Music terms, forms and styles. Listen to music of our culture from the Baroque era to the present.

MUS 106 Opera Appreciation, 3 cr.—Musical and dramatic analysis of opera. Read about and listen to operas dating from 1600 to the present.
<table>
<thead>
<tr>
<th>Course Descriptions</th>
<th>Fall Term 1994 — Summer Term 1995</th>
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<tbody>
<tr>
<td><strong>MUS 109 Music Writing I, 3 cr.</strong> — Placing the notes on the page clearly and consistently. Emphasizes copy-ready uniformity for both score and part writing. Discuss ranges of all instruments with particular attention to special problems and capabilities of each instrument or section.</td>
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<tr>
<td><strong>MUS 110 Fundamentals of Music, 3 cr.</strong> — Concepts of sound, music notation, rhythm, meter, intervals, modes, scales, triads, sight singing and ear training. Introduces the basic terminology of music theory and begins development of musical skills.</td>
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<tr>
<td><strong>MUS 111 Music Theory I, 3 cr.</strong> — Prerequisite: MUS 110 or equivalent. Basic structure of music (tonality, modality, melody, harmony, rhythm, modulation and phrase structure) as it is exhibited through diatonic harmony.</td>
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<tr>
<td><strong>MUS 111A Music Writing II, 3 cr.</strong> — Melodic, rhythmic and harmonic designs. Emphasizes writing skills and analyzing styles of music, including jazz, rock and country. Create or arrange music for various stylistic and musical effects.</td>
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<tr>
<td><strong>MUS 111C Music Theory II: Sight Singing &amp; Ear Training, 1 cr.</strong> — Co-requisite: MUS 111. Develop musical skills emphasizing sight and sound of melodic and rhythmic patterns and musical intervals. Demonstrate musical recognition by singing and/or tapping the musical symbols presented for performance. Introduction to melodic, rhythmic and harmonic dictation.</td>
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<tr>
<td><strong>MUS 112 Music Writing III, 3 cr.</strong> — Harmony and harmonic rhythm, altered chords, passing chords and their voicings. Examine voicings in order to understand the compositional and orchestral techniques necessary to create a wide range of chordal effects.</td>
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<tr>
<td><strong>MUS 112C Music Theory II: Sight Singing &amp; Ear Training, 1 cr.</strong> — Prerequisite: MUS 112. Continuation of development of skills learned in MUS 111C. Develop musical skills emphasizing sight and sound of melodic and rhythmic and harmonic intervals. Demonstrate musical recognition by singing and/or tapping the musical symbols presented for performance. Continued development of melodic, rhythmic and harmonic dictation.</td>
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<tr>
<td><strong>MUS 113 Music Theory III, 3 cr.</strong> — Prerequisite: MUS 113 or equivalent. Basic structure of music (tonality, modality, melody, harmony, rhythm, modulation and phrase structure) as it is exhibited through diatonic harmony. Introduction to chromatic harmony.</td>
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<tr>
<td><strong>MUS 113A Music Writing IV, 3 cr.</strong> — Complete short projects for analysis and structural re-design.</td>
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<tr>
<td><strong>MUS 113C Music Theory III: Sight Singing &amp; Ear Training, 1 cr.</strong> — Prerequisite: MUS 112C. Corequisite: MUS 113. Continuation of development of skills learned in MUS 112C. Develop musical skills emphasizing sight and sound of melodic, rhythmic and harmonic intervals. Demonstrate musical recognition by singing and/or tapping the musical symbols presented for performance. Continued development of melodic, rhythmic and harmonic dictation.</td>
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<tr>
<td><strong>MUS 114 Music Writing V, 3 cr.</strong> — An aside into 20th century techniques: atonality, mirror writing, clusters, polyrhythms, and thematic variation.</td>
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<tr>
<td><strong>MUS 115 Music Writing VI, 3 cr.</strong> — Produce perfect copy, score and parts, and become aware of the legal processes involved in commissions, contracts and copyright law. Discuss the publishing, including procedures for marketing and distributing materials.</td>
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<tr>
<td><strong>MUS 120A Sight Singing and Ear Training I, 1 cr.</strong> — Develop the ability to use the ear accurately to discern the quality of intervals, rhythms, harmonies and melodies, and to intone rhythms. Musical samples are transcribed by ear to include melody, rhythm, and harmony.</td>
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<tr>
<td><strong>MUS 120B Sight Singing and Ear Training II, 1 cr.</strong> — Develop the ability to use the ear accurately to discern the quality of intervals, rhythms, harmonies and melodies, and to intone rhythms. Musical samples are transcribed by ear to include melody, rhythm, and harmony.</td>
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<tr>
<td><strong>MUS 120C Sight Singing and Ear Training III, 1 cr.</strong> — Develop the ability to use the ear accurately to discern the quality of intervals, rhythms, harmonies and melodies, and to intone rhythms. Musical samples are transcribed by ear to include melody, rhythm, and harmony.</td>
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<tr>
<td><strong>MUS 121A Music Writing IV, 3 cr.</strong> — Concepts of melody, rhythm, and harmonic dictation.</td>
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<td><strong>MUS 121C Sight Singing and Ear Training IV, 1 cr.</strong> — Develop basic musical skills of rhythmic sight reading.</td>
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<tr>
<td><strong>MUS 122A Rhythm Training I, 1 cr.</strong> — Develop basic skills of rhythmic sight reading.</td>
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<td><strong>MUS 122C Rhythm Training III, 1 cr.</strong> — Develop basic skills of rhythmic sight reading.</td>
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<tr>
<td><strong>MUS 123 Electronic Media I, 2 cr.</strong> — Computer based recording, synthesis and notation for the composer/arranger. Includes fundamentals in Midi, sequencing, sampling, basic signal processing, and practical production skills using current digital technology. Write original material during lab sessions.</td>
<td></td>
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<tr>
<td><strong>MUS 123A Electronic Media II, 2 cr.</strong> — Computer based recording, synthesis and notation for the composer/arranger. Includes fundamentals in Midi, sequencing, sampling, basic signal processing, and practical production skills using current digital technology. Write original material during lab sessions.</td>
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<td><strong>MUS 123B Electronic Media III, 2 cr.</strong> — Computer based recording, synthesis and notation for the composer/arranger. Includes fundamentals in Midi, sequencing, sampling, basic signal processing, and practical production skills using current digital technology. Write original material during lab sessions.</td>
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<td><strong>MUS 123C Electronic Media III, 2 cr.</strong> — Computer based recording, synthesis and notation for the composer/arranger. Includes fundamentals in Midi, sequencing, sampling, basic signal processing, and practical production skills using current digital technology. Write original material during lab sessions.</td>
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<tr>
<td><strong>MUS 123D Electronic Media IV, 2 cr.</strong> — Computer based recording, synthesis and notation for the composer/arranger. Includes fundamentals in Midi, sequencing, sampling, basic signal processing, and practical production skills using current digital technology. Write original material during lab sessions.</td>
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<td><strong>MUS 124 Group Vocal, 1 cr.</strong> — Basic technical skills necessary to develop individual ability in solo or ensemble performance.</td>
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<tr>
<td><strong>MUS 125 Group Piano I, 2 cr.</strong> — Introduces the student to the basics of piano technique with correct observance of pitch, clef, meter, phrasing and interpretation in a contemporary style.</td>
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<tr>
<td><strong>MUS 126 Group Piano II, 2 cr.</strong> — Introduces the student to the basics of piano technique with correct observance of pitch, clef, meter, phrasing and interpretation in a contemporary style.</td>
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<tr>
<td><strong>MUS 127 Group Piano III, 2 cr.</strong> — Introduces the student to the basics of piano technique with correct observance of pitch, clef, meter, phrasing and interpretation in a contemporary style.</td>
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<tr>
<td><strong>MUS 128 Group Woodwinds, 2 cr.</strong> — Performance techniques on brass instruments.</td>
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<tr>
<td><strong>MUS 129 Group Brass, 2 cr.</strong> — Performance techniques on brass instruments.</td>
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MUS 143 Group Percussion, 2 cr.—Utilizing rhythms from rock, jazz, R & B, funk and Latin music, students learn basic techniques of performance on percussion instruments.

MUS 144 Group Voice, 2 cr.—Basic technical skills necessary to develop individual ability in solo or ensemble performance.

MUS 145A Group Guitar/Bass I, 2 cr.—Beginning instruction for guitar and bass. Includes basic chords, strums, patterns and song forms.

MUS 145B Group Guitar/Bass II, 2 cr.—Advanced beginning to intermediate instruction for guitar and bass. Includes moveable chords, scales, patterns, and song forms. Also, open tuning and slide guitar, basic soloing and accompaniment techniques.

MUS 145C Group Guitar/Bass III, 2 cr.—Intermediate to advanced intermediate instruction for guitar and bass. Includes chord studies, chord progressions, scales, basic chord substitution. Also open tuning and slide guitar, soloing and accompaniment techniques.

MUS 150A Keyboard Harmony I, 1 cr.—Piano keyboard performance of simple keyboard skills introducing scales, cadences, melody harmonization, simple accompaniment patterns and transposition as they apply to principles studied in Music Theory I.

MUS 150B Keyboard Harmony II, 1 cr.—Piano keyboard performance of simple keyboard skills introducing scales, cadences, melody harmonization, simple accompanying patterns and transposition as they apply to principles studied in Music Theory II.

MUS 150C Keyboard Harmony III, 1 cr.—Piano keyboard performance of simple keyboard skills introducing scales, cadences, melody harmonization, simple accompanying patterns and transposition as they apply to principles studied in Music Theory III.

MUS 151A Music Composition I, 3 cr.—Formal analysis writing for various ensembles, study of "masters" from several differing areas including popular, jazz, symphonic, rock, and 3rd world. Difference between theory and composition.

MUS 151B Music Composition II, 3 cr.—Write a composition for small or large instrumental or vocal ensemble. Complete a clear pencil score and defend compositional decisions.

MUS 151C Music Composition III, 3 cr.—Complete a clear score and parts of the composition begun in MUS 151B. Perform, record, register the copyright with the Library of Congress, and examine work in conference with the music faculty.

MUS 152A Elements of Arranging Music I, 3 cr.—Develops skills in the tonal placement of sound required for orchestration and arrangement for various styles of music and sizes of musical groups. Focus on individual instruments and the scoring of each section in the jazz idiom. Includes instrumental and vocal transposition, ranges, harmony, voicing, form, counterpoint, styles, introductions, modulations, interludes, endings, harmonic progression and experimental materials.

MUS 152B Elements of Arranging Music II, 3 cr.—Develops skills in the tonal placement of sound required for orchestration and arrangement for various styles of music and sizes of musical groups. Focus on individual instruments and the scoring of each section in the jazz idiom. Includes instrumental and vocal transposition, ranges, harmony, voicing, form, counterpoint, styles, introductions, modulations, interludes, endings, harmonic progression and experimental materials.

MUS 152C Elements of Arranging Music III, 3 cr.—Develops skills in the tonal placement of sound required for orchestration and arrangement for various styles of music and sizes of musical groups. Focus on individual instruments and the scoring of each section in the jazz idiom. Includes instrumental and vocal transposition, ranges, harmony, voicing, form, counterpoint, styles, introductions, modulations, interludes, endings, harmonic progression and experimental materials.

MUS 153 Show Band (Large), 2 cr.—Stage band. Rehearse and perform variety of music.

MUS 154 Show Band (Small), 2 cr.—Class chooses, rehearses and performs a variety of musical styles, vocal and instrumental. Includes popular, jazz, R&B. Rehearsal and presentation skills developed.

MUS 155A Improvisation I, 2 cr.—How scales and chords are constructed and used, including melodic construction, phrasing, motifs, riffs, substitution chords, voice leading, paraphrase and melodic ramps. Includes harmonic construction of all styles of jazz and ear training. By the end of the sequence, students match solo against song form.

MUS 155B Improvisation II, 2 cr.—How scales and chords are constructed and used, including melodic construction, phrasing, motifs, riffs, substitution chords, voice leading, paraphrase and melodic ramps. Includes harmonic construction of all styles of jazz and ear training. By the end of the sequence, students match solo against song form.

MUS 155C Improvisation III, 2 cr.—Vocal and instrumental improvisation. Covers how scales and chords are constructed and used, including melodic construction, phrasing, motifs, riffs, substitution chords, voice leading, paraphrase and melodic ramps. Focus on harmonic construction of all styles of jazz and ear training. By the end of the sequence, students match solo against song form.

MUS 158 Chamber Ensemble, 1 cr.—Provides opportunity for students to form small ensembles (i.e. solo, duet, trio, quartet, etc.). Ensembles rehearse independently and participate in an ensemble concert.

MUS 164 Survey of the Music Industry, 1 cr.—Career options in the music industry. Focus on making a reasonable and informed choice as to a career in music.

MUS 165 Business for the Musician, 1 cr.—Instructs prospective music-related business owners, such as bands or private teachers, how to initiate, organize and operate a successful small business. Included are promotion, marketing, and record-keeping.

MUS 201A Introduction to Music & Its Literature, 3 cr.—Music of the Medieval, Renaissance and Baroque eras of music history.

MUS 202 Introduction to Music & Its Literature, 3 cr.—Music of the Classic and Romantic eras of music history.

MUS 203 Introduction to Music & Its Literature, 3 cr.—Music of the post-Romantic era and the 20th century.

MUS 205 Introduction to Jazz History, 3 cr.—Covers the 90-year history of jazz, a truly American art form. Eras, styles, and significant artists are examined and analyzed.
MUS 206 Intro to the History of Rock Music, 3 cr.—Examines rock music's roots and development, its innovators and significant events through a cultural as well as musical perspective.

MUS 207 Intro to the History of Folk Music, 3 cr.—Ballads, worksongs, bluegrass, country blues and gospel music are examined as well as influential non-American styles. Also covered are protest songs and the "folk revival" of the sixties.

MUS 208 African-American Music, 3 cr.—Traces the spiritual and all of its counter-parts to gospel music back to its African beginnings. Includes certain musical aspects of various African, Caribbean and South American cultures. See how African-American music is related to these cultures and how the inception of music in the African-American tradition occurred.

MUS 209 African-American Music, 3 cr.—Examines the progression of African-American music to the blues. Includes the elements of the blues and the various historical avenues in which it has developed. Study how the blues has inspired and constructed the format of today's music.

MUS 210 African-American Music, 3 cr.—Examines present-day jazz art-form through its progression from the blues. Study the construction of jazz and its various formats, appreciate of the art-form through direct exposure to the music, receive historical background and examine its contribution to the international field of music.

MUS 211A Music Theory II, 3 cr.—Prerequisite: MUS 113. Continues work on skills from Music Theory I adding compositional techniques associated with the 20th century, as well as introducing tonal counterpoint and formal musical analysis.

MUS 211B Music Theory II: Keyboard Harmony, 1 cr.—Co-requisite: MUS 211. Piano keyboard performance of simple keyboard skills (scales, cadences, melody harmonization, simple accompaniment patterns and transposition) as they apply to principles studied in Music Theory II.

MUS 212A Music Theory II, 3 cr.—Prerequisite: MUS 211. Continue work on skills from Music Theory I adding compositional techniques associated with the 20th century, as well as introducing tonal counterpoint and formal musical analysis.

MUS 212B Music Theory II: Keyboard Harmony, 1 cr.—Prerequisite: MUS 211B. Corequisite: MUS 212. Continued development of piano keyboard skills (scales, cadences, melody harmonization, simple accompanying patterns and transposition) as they apply to principles studied in Music Theory II.

MUS 213A Music Theory II, 3 cr.—Prerequisite: MUS 211. Continue to work on skills from Music Theory I adding compositional techniques associated with the 20th century. Includes tonal counterpoint and formal musical analysis.

MUS 213B Music Theory II: Keyboard Harmony, 1 cr.—Prerequisite: MUS 212B. Corequisite: MUS 213. Continued development of piano keyboard skills (scales, cadences, melody harmonization, simple accompanying patterns and transposition) as they apply to principles studied in Music Theory II.

MUS 220 Chorus, 2 cr.—Directed rehearsal and performance of music for the larger general chorus of mixed voices—soprano, alto, tenor, bass. This chorus is open to all students who desire to sing. No audition is required. Music selected will be keyed to the ability of the group. The purpose is to develop as high a level of artistic choral singing as is possible within the capability of the group.
MUS 233 Microphone Techniques, 2 cr.—Theory and practical application of microphones in the recording studio. Includes equalization, basic room acoustics and the physics of musical instruments.

MUS 234 Income Tax Preparation for Musicians, 1 cr.—Prepares federal and state individual returns, and introduces partnership and corporate taxation. Includes basics of record-keeping and financial planning.

MUS 235 Business Law for Musicians, 1 cr.—Students evaluate business law, legal language, and contracts as related to the music industry.

MUS 280A CE: Vocational Music, 3 cr.—Develop individual music performance, writing or recording skills in a department approved work setting.

MUS 280B CE: Vocational Music - Seminar, 1 cr.—Discuss and compare training experience under the guidance of a program instructor in a weekly seminar. Co-requisite: MUS 280A.

NUR — Nursing

NUR 106 Foundations for Nursing, 8 cr.—The self-care model and the beginning role and practice of the nurse is presented. Students are introduced to the nursing process and begin to apply basic skills in the care of clients with self-care deficits related to human needs in selected clinical settings.

NUR 107 Foundations for Self-care Through the Life Cycle, 8 cr.—The self-care model is expanded to reflect human development and self-care deficits throughout the life cycle. Mechanisms of stress and adaptation are explored. Students apply the nursing process in the care of clients at various stages of the life cycle in long term and acute care settings.

NUR 108 Client Interventions for Self-care Deficits, 8 cr.—Students refine the nursing process and the understanding of the nursing role in the care of clients with stable self-care deficits associated with safety, mobility, comfort, and clients experiencing chronic health alterations in metabolism, aeration and circulation. The clinical component includes experiences in long term and acute care settings.

NUR 204 Client Interventions for Self-care Deficits-Complex Conditions, 8 cr.—The focus is on use of the nursing process for clients with health deviations associated with complex self-care deficits related to dependency, coping, loss, and alteration in body image. Nursing care is based on the mental and physical status with an emphasis on teaching.

NUR 207 Client Interventions for Self-care Deficits- Unstable Conditions, 8 cr.—Emphasis is placed on applying the nursing process for self-care deficits related to acute health alterations in liver and endocrine metabolism, aeration, circulation, and fluid and electrolyte balance. Clinical nursing practice focuses on decision making and priority setting for client care in acute care settings.

NUR 208 Interventions in a Variety of Health Care Delivery Systems, 8 cr.—Using all previous coursework, students plan care for clients with self-care deficits associated with health deviations related to body systems failure. Clinical practice focuses on role transition from student to graduate nurse in the nursing management of client care.

NUR 280A CE: Nursing, 1 cr.—Field experience for selected nursing students in clinical areas of interest matched to identified learning needs. Practice with an experienced RN.

OMT — Ophthalmic Medical Technology

OMT 101 Pathophysiology, 3 cr.—Introduces students to basic concepts of disease processes relative to the normal physiology of major body systems. A study of major diseases of the eye and related structures integrated with symptomatology and treatment of these conditions.

OMT 102 Pharmacology/Eye Disease, 2 cr.—Designed to teach students the commonly administered ophthalmic drugs, appropriate uses, effects, dangers and precautions; routes of administration and the legal records and ethical standards necessary for the physician. A study of major diseases of the eye and related structures integrated with symptomatology and treatment.

OMT 104 Ophthalmic Office Procedures, 3 cr.—Utilization of techniques to obtain medical and ophthalmic history, transcription of information into the medical chart, and common terms/abbreviations used in history taking. Covers front office techniques, including basic functions of a computer in the medical office. Develops skills needed to obtain accurate patient visual acuity.

OMT 105 Instrumentation, 2 cr.—Includes fundamentals of instrument and equipment maintenance; standards of instrument calibration; proper care and cleaning; types of eyeglass frames, styles, materials and parts; proper measurement of pupillary distance and multifocal heights; frame selection techniques; standard alignment and proper form adjustment of plastic and metal frames.

OMT 112 Intro to Ophthalmics, 2 cr.—Introduction to the ophthalmic industry. History and future of vision care explored. Students examine career opportunities, certification, licensing, and professional organizations. Distinguish between Ophthalmologists, Optometrists, Opticians and Ophthalmic Medical Technicians. Concerns of legal liability, ethics, and insurance issues are also addressed.

OMT 121 Practicum I, 1 cr.—Introductory clinical work designed to apply technical skills acquired in previous course work. Recording of clinical data, front office procedures, obtaining patient's health and ocular history, measuring visual acuity, medical record management, commonly used abbreviations/ terms stressed.

OMT 150 Optical Math I, 1 cr.—Introduces mathematics used in optical prescription manufacturing and dispensing. Reviews basics including algebraic addition, subtraction, multiplication and division of whole numbers, fractions and decimals.

OMT 151 Optical Math 2, 1 cr.—Continuation of Optical Math 1. Introduces dioptic conversion, near prescriptions, calculating center and edge thickness, determining lens sizes by prescription, vertex power and patterns and edges.

OMT 152 Optical Math 3, 1 cr.—Continuation of Optical Math 2. Introduction of prisms as they relate to orthoptics and ophthalmic examination. Includes slab-off prism, base direction determination, bicentric grinding overview, reasons for ordering
Course Descriptions

OMT 153 Geometric Optics 1, 2 cr.—Introduces basic principles governing transmission of light and its interaction with optical media. Examines theories and models that explain the propagation of electromagnetic radiation.

OMT 154 Geometric Optics 2, 2 cr.—Principles of refraction, reflective index, prisms, aberration of images, units of illumination, simple combinations of lenses as in telescopes and microscopes. Introduces ray tracing, graphing and mathematical formulas.

OMT 155 Intro to Contact Lens 2, 2 cr.—Fundamentals of contact lenses. Includes history and development, recent innovations and current technology. Principles of lens structure, material, categorization, comparison of characteristics of soft and rigid lenses.

OMT 156 Contact Lens 2, 2 cr.—Anatomy and physiology review of cornea, vascular supply, hydration, tear layers and eyelid function as they relate to contact lens wear. General/ocular history, selection of lens materials, common ocular and systemic conditions as indications/contraindications for successful contact lens wear. Life-style and occupational factors for successful wear explored.

OMT 163 A & P of the Eye, 1 cr.—Relates structure and function of the human visual system. Anatomy and physiology of the eyeball, orbit, and ocular adnexa are covered. Special emphasis placed on ocular terminology.

OMT 206 Diagnostic Procedures I, 4 cr.—Introduction to fundamentals of diagnostic testing and techniques including: applanation and Schiotz tonometry and biomicroscopy. Presents principles and techniques of refractometry and retinoscopy with emphasis on skill development utilizing the schematic eye.

OMT 207 Diagnostic Procedures II, 4 cr.—Presents principles and techniques of various methods of visual field examination. The visual pathway, common causes of visual field loss, and related anatomy will be covered with emphasis on Goldmann perimetry. Also covers principles and techniques of exophthalmometry, color vision and tear function tests. Emphasis is placed on skill development.

OMT 208 Ocular Motility/Binocular Vision, 2 cr.—Introduction to ocular motility and binocular vision. Emphasis is placed on understanding the presentation, characteristics, natural history of the strabismus patient. Amblyopia and binocular vision are also addressed.

OMT 209 Surgical Assisting Procedures, 4 cr.—Addresses the technicians’ role in minor office surgery and assisting in the operating room. Topics covered include: proper aseptic technique, scrubbing, gowning and gloving, sterilization of instruments, the importance of surgical conscience/legal responsibilities, proper disposition of supplies/medications and security procedures of medications as regulated by law.

OMT 210 Therapeutic Assisting Procedures, 4 cr.—Focuses on the technician’s role in assisting in the management of preoperative and post operative patients. More advanced ophthalmic procedures included such as ultrasound, potential acuity meter, direct ophthalmoscope and contrast sensitivity. Specimen collection for the laboratory addressed.

OMT 222 Practicum II, 4 cr.—Work in local ophthalmic practices and health care facilities under the supervision of facility personnel. Includes exposure to actual working conditions and skills in ophthalmic diagnostic and therapeutic procedures.

OMT 223 Practicum III, 4 cr.—Work in local ophthalmic practices and health care facilities under the supervision of facility personnel. Includes exposure to actual working conditions and skills in ophthalmic diagnostic and therapeutic procedures.

OMT 224 Practicum IV, 4 cr.—Work in local ophthalmic practices and health care facilities under the supervision of facility personnel. Includes exposure to actual working conditions and skills in ophthalmic diagnostic and therapeutic procedures.

OMT 231 Seminar I, 1 cr.—Discuss practicum experiences, review of major professional subject areas, and hear guest speakers on topics of interest to the class. Complete clinical research papers.

OMT 232 Seminar II, 2 cr.—Discuss practicum experiences, review of major professional subject areas, and hear guest speakers on topics of interest to the class.

OMT 233 Seminar III, 2 cr.—Discuss practicum experiences, review of major professional subject areas, and hear guest speakers on topics of interest to the class.

OMT 234 Seminar IV, 2 cr.—Discuss challenges confronting practitioners and the presentation of new material in the field. May include field trips and guest speakers on topics of interest. Discussion of clinical practicum experiences and a general review for national certification examinations included.

OMT 282 Ophthalmic Optics I, 2 cr.—Introduces theory and utilization of instruments commonly used in fitting and assessing contact lens. Includes keratometer, biomicroscope, radiuscope, lensometer, gauges, loupes, magnifiers and fluorescent tubes. Teaches interpretive knowledge of parameters according to ANSI standards for contact lens fit and power.

OMT 283 Ophthalmic Optics 2, 2 cr.—Theories of visual perception and how lenses affect perception. Introduction to basic and advanced visual aids and their application to patients with various forms of low vision. Concepts of depth perception and color vision explored.

OMT 9405 General Medical Terminology, 3 cr.—Analyze the structure of medical terminology and apply to basic anatomy, physiology and disease processes of the human body. Emphasis on definition, spelling and pronunciation.

OT 150 Optical Math 1, 1 cr.—Review math basics, gain knowledge and mastery of lens characteristics, focal length/diopter relationship, surface power formulas, Rx and refractive error interpretation, categories of astigmatism, frame and pattern geometry, lens graphs, transposition, optical cross and lens thickness calculations.

OT 151 Optical Math 2, 1 cr.—Lenses and other power measuring instruments, marked/true power relationships, radius/diopter formulas, non-standard lens material curve calculations, off axis power formulas, vertex compensations, and multi-focal Rx and power calculations.

OT - Opticianry
Fall Term 1994 — Summer Term 1995

Course Descriptions

OT 152 Optical Math 3, 1 cr.—Use of prism in the refraction processes, categories of tropia/phonia, Prentice's Rule, prism diopeters, base directions, measuring prism in the lensometer, prism thickness calculations, splitting prism, biconic grind and slab off prism, decentration of lenses for prism, finishing lenses with prism. Includes thick lens equations.

OT 153 Geometric Optics 1, 2 cr.—Concepts of light theories and laws by which light travels from a source, properties that govern action of light on plane and curved mirrors, refractive index, refraction through prisms, formulas for finding image distances, sign convention mastery, ray tracing for image characteristics. Includes experimentation to visually inform the student of the laws of geometric optics.

OT 154 Geometric Optics 2, 2 cr.—Introduces lens makers formulas, refraction of light through single lens systems, study of multiple lens systems, visual acuity, and aberrations. Use ray tracings systems, sign conventions, formulas and experimentation to reinforce mastery of subject areas.

OT 155 Introduction to Contact Lenses, 2 cr.—Structure of a lens, lens materials division and categories of CLs. Comparison of elementary characteristics of soft and rigid lenses, relevancy of CL use for assorted optical situations and profit considerations.

OT 159 Finishing 1, 3 cr.—Frame materials and styles, prescriptions and work orders, layout, blocking, bevel edging of surfaced lenses, insertion of lenses and alignment of frames. Includes use of instruments and operation of machinery involved in the finishing of lenses.

OT 160 Finishing 2, 3 cr.—Finishing toric lenses to various styles of frame mountings including decentration and verification to industry standards. Includes tinting CR 39 lenses and practice recognizing and correcting simple problems that occur in finishing operations.

OT 161 Finishing 3, 3 cr.—Machinery and instrumentation to finish single vision, toric and multifocal lenses into frame mountings. Includes repairing zyl and metal frames, soldering as well as modification of lenses to zyl frames.

OT 162 Introduction to Ophthalmics, 2 cr.—Past, present and future of the optical industry. Includes general and specific governing bodies, laws and standards and the various roles an optician may fulfill in the vision industry.

OT 163 Anatomy & Physiology of the Eye, 1 cr.—Anatomical details of the human eye and its bodily surroundings, the physical functions of the various parts and processes of the eye and the mechanisms by which the body fluids and processes nourish the eye, various optical problems which cause vision defects, general characteristics of common eye disease and injuries and their effects on vision.

OT 164 Introduction to Dispensing, 2 cr.—Prerequisite: Third term standing Corequisite: OT 164L. Practical and mechanical procedures needed for proper frame selection and optical measurements, lens selection, ordering and dispensing of the finished prescription.

OT 165 Contact Lenses 2, 2 cr.—Includes taking client general history, eye health history, pre-assessments criteria, assortment and selection of lens materials, oxygen supply and corneal requirements, corneal topography and prognosis for successful wear.

OT 176 Contact Lenses 3, 2 cr.—Fitting theories for soft and rigid CLs, optical principles for fit including SAM/FAP, vertex distance compensation, astigmatism (corneal, internal and residual) solutions for care and maintenance of CLs, dispensing, post wear observations and theories on fitting keratoconus and bifocal contact lenses.

OT 186 Ophthalmic Terminology, 1 cr.—Technical vocabulary used in clinical/dispensing situations, related to the structure of the eye and its appendages and will appear in studies of anatomy as well as many other Opticianry courses.

OT 270 Advanced Fabrication 1, 3 cr.—Finishing stronger powered lenses as well as lenses with prism into various types of frame mountings. Includes practices that refine finishing skills so as to guarantee proper optics, comfort, cosmeses and stability to prescription eyewear.

OT 271 Advanced Fabrication 2, 3 cr.—Vertical decentrations, special lens edge treatment including flat, hide-a-bevels, and edge polishing. Includes lens optics and cosmetics. Practice procedures for customizing frame mountings and lenses solving problems. Includes history and theories of base curve design and selection.

OT 272 Advanced Fabrication 3, 3 cr.—Edging lenses to size using hand methods. Includes maintenance and calibration, and comparison of lens thicknesses and weight, scratch coatings and anti-reflective coatings.

OT 277 Contact Lenses 4, 3 cr.—Review information from their first year of contact lens study, gain experience in rigid lens designs by mastering mathematical optics as related to rigid lenses.

OT 278 Contact Lenses 5, 3 cr.—Design rigid lenses for themselves and their fellow classmates, order uncut lenses and practice methods of finishing contact lenses. Use instrumentation to ensure quality of contact lens fit. Attend clinical settings to assist in mastery of contact lens dispensing and fitting.

OT 279 Contact Lenses 6, 3 cr.—Design, finish and modify, prescription lathe-cut contact lenses: study fitting systems and use of the deratometer, sit lamp and ultraviolet lamp. Includes pharmaceuticals which are required for safe use of contact lenses. Attend clinical settings to assist in mastery of contact lens dispensing and fitting.

OT 280A CE: Opticianry, 2 cr.—Work in approved work experiences closely aligned with the student's educational program.

OT 280B CE: Opticianry - Seminar, 1 cr.—Prerequisite: departmental permission. Share experiences and receive feedback from other students and from the instructor in a seminar format.

OT 282 Ophthalmic Optics 1, 2 cr.—Mechanical procedures used for the design, fitting and evaluation of contact lenses. Instruments include the biomicroscope, ophthalmometer and radioscope, as well as other evaluation instrumentation and apparatus.

OT 283 Ophthalmic Optics 2, 2 cr.—How the world visually informs mankind of itself and problems of and solutions to non-ordinary prescriptions, such as, anisometropia, aniseikonia and low vision aids.

OT 285 Review for National and State Exams: Contact Lenses, 1 cr.—Review of contact lenses in preparation for state and national competency and licensing examinations. Open to all professionals in this industry and is required course for second year students.
PE - Physical Education

PE 10 Physical Education Activity Program, 1 cr.—Students may participate in any activity during school hours, using PE facilities not scheduled with a class. Purchase the service fee at the Business Office and turn in to the locker room attendant before participation time can be credited. Must total a minimum of 110 minutes of activity per week in workouts.

PE 199 PE: Special Topics, 1 cr.—

PE 259A Care/Prevention-Athlete Injury, 3 cr.—

PE 291A Lifeguard Training, 2 cr.—Prerequisite: Be at least 15 years of age and pass a swim ability test. Earn the American Red Cross Lifeguard Training certificate with successful completion.

PE 292A Water Safety Instructor, 3 cr.—Prerequisite: Students must be at least 17 years of age, be skilled at the intermediate swim level, and possess other pertinent Red Cross requirements. How to teach swimming and water safety and further develop personal skills in these areas. Successful completion leads to the American Red Cross Water Safety Instructor (WSI) Certificate.

PE 292B Aquatics Practicum, 1 cr.—Practice teaching laboratory. Open to WSI candidates only.

PE 293A Emergency Water Safety and Conditioning, 2 cr.—To develop awareness of potential hazards of water activity, to prevent accidents and deal with emergencies. Students must pass swim skill test.

PHL - Philosophy

PHL 191 Critical Thinking: Language and the Layout of Argument, 3 cr.—How to analyze arguments, recognize arguments when they occur, discern simple logical patterns of argument, extract arguments from the contexts in which they occur, restate them in clear and concise terms and clear away needless language in formulating arguments.

PHL 193 Critical Thinking: The Evaluation of Practical Argument, 3 cr.—Introduces techniques useful in evaluating arguments. Construct counter-arguments, recognize common kinds of fallacious arguments, and discuss various types of non-rational persuasion.

PHL 195 Critical Thinking: Science and the Occult, 3 cr.—Introduces scientific method, assessment criteria for scientific observations and explanations and the difference between genuine and bogus science.

PHL 197 Critical Thinking: Television & The Presentation of Reality, 3 cr.—Thoughtful and critical look at television programming. Includes news, entertainment programming and commercials. Emphasizes thinking, talking and writing about what they see on TV and reflecting on how television influences their images of themselves and their reality.

PHL 201 Introduction to Philosophy: Philosophical Problems, 3 cr.—Metaphysics and the theory of knowledge are introduced via the works of important figures in the history of philosophy. Recommended: College level reading and writing ability.

PHL 202 Introduction to Philosophy: Elementary Ethics, 3 cr.—Study the ways of philosophers to account for the difference between right and wrong, for the notion of moral obligation and to answer the question: How should we lead our lives. Recommended: College level reading and writing ability.

PHL 204 Philosophy of Religion, 3 cr.—Examine the existence and attributes of God, faith, reason and mysticism, religion and science, religion and morality, religious language and life after death from the perspective of the philosopher. Recommended: College level reading and writing ability.

PHL 205 Contemporary Moral Problems: Biomedical Ethics, 3 cr.—Philosophical ethics designed primarily for nursing and other health care students. Focuses on applying ethical concepts to the situations and dilemmas nurses and other health care workers confront in their professional roles.

PHL 208 Political Philosophy, 3 cr.—Introduction to and analysis of political theories and concepts through study of the works of major figures in the history of political thought from Plato to the present.

PHL 221 Symbolic Logic, 3 cr.—Prerequisite: Instructor permission. Propositional notation and truth value analysis of simple and compound statements. Includes quantificational notation and deductive techniques for determining consistency and validity.

PHL 222 Elementary Aesthetics: Philosophy of Art, 3 cr.—Discover what makes something a work of art, what are beauty, taste, and aesthetic qualities, what is the role of the critic, and what distinguishes aesthetic experience from other experiences through the writings of important philosophers. Recommended: College level reading and writing ability.

PHL 298 Independent Study: Philosophy, 3 cr.—Prerequisite: Instructor permission. Advanced, individualized study in areas of philosophy not usually covered in other courses to meet special interests or program requirements. Complete a term project and readings approved by the instructor. Recommended: prior study of philosophy.

PHY - Physics

PHY 101 Fundamentals of Physics, 4 cr.—Introduction to physics. Include mechanics, vectors, energy, simple machines and the structure of matter.

PHY 121 Elementary Astronomy, 4 cr.—Discuss the history of astronomy, the earth and its moon, and the other planets in our solar system, along with asteroids, meteors, and comets.

PHY 122 Elementary Astronomy, 4 cr.—Discuss the properties of our sun and other stars, stellar evolution, and relativity.

PHY 123 Elementary Astronomy, 4 cr.—Prerequisite: PHY 122 or equivalent. Discuss star clusters, the properties of our own galaxy and the other galaxies, and cosmology.
PHY 201 General Physics, 4 cr.—Corequisite: MTH 111. Pre-calculus introductory physics for pre-medical, pre-dental, pre-chiropractic and pre-physical therapy students and students working toward a degree. Study of mechanics including statics, forces and motion, energy, collisions, circular motion, and rotation.

PHY 202 General Physics, 4 cr.—Prerequisite: PHY 201. Mechanical properties of matter, heat, waves, sound and light. Pre-calculus physics.

PHY 203 General Physics, 4 cr.—Prerequisite: PHY 202. Electricity, magnetism and modern physics. Pre-calculus physics.

PHY 211 General Physics (Calculus), 5 cr.—Prerequisite: MTH 251 and MTH 252. MTH 252 can be taken concurrently with PHY 211. Concepts in mechanics and their relationship to practical applications for science and engineering majors.

PHY 212 General Physics (Calculus), 5 cr.—Prerequisite: PHY 211, MTH 251, MTH 252. Concepts in fluid mechanics, waves, thermodynamics and optics.

PHY 213 General Physics (Calculus), 5 cr.—Prerequisite: PHY 211, MTH 251, MTH 252. Concepts in electromagnetism together with their relationship to practical applications.

**PS - Political Science**

PS 104 Great Decisions, 2 cr.—Faculty supervised, student led discussions of international problems. Films and speakers supplement readings. Requires consistent attendance. Grades are based on participation in discussions. Limited to 15 people to ensure good discussions.

PS 105 Great Decisions: Leaders, 3 cr.—Prerequisite: Instructor permission. Under faculty advisement, students lead Great Decisions groups; keep attendance records; arrange for film showings and guest speakers. Leadership skills are developed through leading discussions of international issues. Recommended: PS 201, PS 202, PS 203, PS 205, and/or PS 220.

PS 201 American Governments, 3 cr.—Examines the development of constitutional traditions in America. Includes topics such as free speech, equal rights under law, movements, interest groups, political parties, and elections in a democratic struggle for power.

PS 202 American Governments, 3 cr.—Examines the national institutions of American politics including the Legislative, Executive, Judiciary, and Bureaucracy. Topics include national policies, foreign policy, taxation, spending priorities, government regulations and entitlements.

PS 203 State and Local Government, 3 cr.—Examines state and local government policy formulation and outcomes on issues ranging from taxation to prisons, and education to environmental concerns. Focuses on Oregon state and local politics.

PS 205 International Relations, 3 cr.—Examines the nature of relations among states. Topics include motivating factors such as nationalism and imperialism, economic rivalries and the quest for security, questions of national sovereignty and international cooperation, war and peace, global issues, and the future. Focuses on Third World issues.

PS 211 Peace and Conflict, 3 cr.—Prerequisite: completion of, or registration in, WR 121 or equivalent. Explores the causes and manifestations of violence in actions involving oneself, society, one's nation, and the global community. Alternatives to oppressive behavior, undemocratic institutions, and the violent resolution of conflict are considered.

PS 220 American Foreign Policy and World Order, 3 cr.—Historical analytical treatment of select foreign policy themes since World War I is presented. Examines the United States' attempt to create world order through use of economic, military and diplomatic power, the roles of democratic institutions and decision-making elites in creating foreign policy, and the interdependent basis of the contemporary international system.

PS 225 Political Ideology, 3 cr.—Examines the major idea systems of the twentieth century and develops understanding of their connection to current issues in international relations. Covers the sources, strengths and weaknesses of contemporary ideologies, and the conditions which lead to conflict or cooperation among them.

PS 280A CE: Political Science, 4 cr.—Extends knowledge of Political Science through work and/or volunteer time spent in settings that provide learning experiences.

PS 280B CE: Political Science - Seminar, 2 cr.—Forum to discuss work and/or volunteer experiences with peers and instructor.

PS 298 Independent Study: Political Science, 3 cr.—Prerequisite: instructor permission. Advanced individualized study of areas of political science not considered in other courses to meet special interests or program requirements. Includes a term project and readings approved by the instructor. Recommended: prior study of political science.

PS 299A Special Studies: Political Science, 3 cr.—Special topics, activities, or projects in an area of political science not usually covered in depth in other political science courses. Recommended: prior study in political science is recommended and instructor permission.

**PSY - Psychology**

PSY 101 Psychology and Human Relations, 3 cr.—Focus on the practical and personal applications of psychological principles. Encourages applications of psychological principles to daily living and human interactions to areas such as work, leisure, school and relationships.

PSY 190 Stress Management, 3 cr.—Explore what stress is, various sources of stress, how it affects people physically and emotionally, and how to develop a life-style approach to comprehensive stress management through lectures and group activities. Become familiar with a wide range of cognitive and physical stress management techniques.

PSY 201 General Psychology, 3 cr.—History and methodology, human development, the brain and nervous system, sensation, perception of consciousness. PSY 201A will be taught from a sociocultural approach. This course meets cultural diversity requirements for Associate Degrees.
PSY 202 General Psychology, 3 cr.—Learning, memory, intelligence, language, creativity, and thinking, motivation, gender issues, emotion. Recommended: PSY 201. PSY 202A will be taught from a sociocultural approach. This course meets cultural diversity requirements for Associate Degree.

PSY 203 General Psychology, 3 cr.—Personality theory, psychological disorders, therapy, social psychology. Recommended: PSY 201. PSY 203A will be taught from a sociocultural approach. This course meets cultural diversity requirements for Associate Degrees.

PSY 213 Brain, Mind & Behavior, 3 cr.—Prerequisite: PSY 201 or one year of biology. Overview of the brain’s role in behavior. Emphasizes the neurophysiological properties relevant to psychological functions: sensation, perception, motivation, learning, emotion, activation, and motor responses. Includes extensive coverage of the anatomical and physiological aspects of the human nervous system.

PSY 214 Introduction to Personality, 3 cr.—Personality theories. Includes an overview of the major schools within personality psychology and focuses on their contributions and usefulness in understanding human behavior. Incorporates activities which help students apply what they have learned about personality theory to their personal and professional lives.

PSY 215 Human Development, 3 cr.—Introduces developmental patterns occurring prenatally, in infancy, childhood, adolescence and old age. Includes physical, mental, verbal, emotional, social and personality development. Observe or interview people at various ages and reflect on personal experience of development.

PSY 216 Social Psychology, 3 cr.—Examines the social and cultural factors that effect human behavior. Includes conformity, mass communication, persuasion, self-justification, aggression, prejudice, inter-personal attraction and research ethics.

PSY 220 Psychology: Applied, 3 cr.—Individualized applications of the principles, concepts and methods of psychology to everyday life.

PSY 231 Human Sexuality, 3 cr.—Sexual issues from both an academic and a humanistic perspective. Includes sex research, female and male sexual anatomy and physiology, gender issues, sexual response, sexual communication, sexual behavior patterns, love and homosexuality.

PSY 232 Human Sexuality, 3 cr.—Sexual issues from both an academic and a humanistic perspective. Includes sexual issues throughout the life cycle (infancy through age), sexual problems, increasing sexual satisfaction, contraception, conception, sexually transmitted diseases, sexual victimization, and sex and disability. Recommended: PSY 231.

PSY 239 Introduction to Abnormal Psychology, 3 cr.—Prerequisite: PSY 201, PSY 202, or PSY 203. Survey the history, theories, diagnosis, etiology, and treatment of the major mental disorders.

PSY 240 Interpersonal Awareness & Growth Techniques, 3 cr.—Increases understanding and awareness of your self, relationships with others, and the values and attitudes that underlie behavior in daily life. Intensive group experience for personal and interpersonal growth.

PSY 280A CE: Psychology - Worksite Placement, 4 cr.—Extend knowledge of Psychology through work in settings which provide learning experiences supplementing classroom learning.

PSY 280B CE: Psychology - Seminar, 2 cr.—Co-requisite: PSY 280A. Develop helping skills on campus in a weekly seminar.

PSY 298 Independent Study: Psychology, 3 cr.—Prerequisite: instructor permission. Advanced individualized study of psychology not considered in other courses to meet special interests or program requirements. Complete a term project and readings approved by the instructor. Recommended: prior study of psychology.

PSY 299A Special Studies: Psychology, 3 cr.—Special topics, activities, or projects in an area of psychology not usually covered in depth in other psychology courses. Recommended: prior study in psychology and instructor permission.

PT - Printing Technology

PT 100 Introduction to Graphic Reproduction, 2 cr.—Introduces graphic reproduction history and terminology. Surveys various printing processes and explores the specific production steps in the photo-offset lithographic process.

PT 108 Litho Press 1, 2 cr.—Materials, procedures, and theories for the production of printed materials using a lithographic process. Includes paper, ink, bindery operations, fountain solution, plates, safety, printing history, and the printing press.

PT 110 Litho Press 2, 6 cr.—Prerequisite: PT 108 or instructor permission. Principles of operation of feed, registration, cylinder, ink, and water units of offset lithographic presses. Stresses skills in reproduction on various papers using single ink colors.

PT 112 Litho Press 3, 6 cr.—Prerequisite: PT 110 or instructor permission. Maintenance procedures of offset lithographic presses. Stresses skills in reproduction on various papers using multiple ink colors.

PT 114 Camera/Prep 1, 2 cr.—Process/copy camera, the handling and processing of line negatives, basic techniques of film assembly, and the mechanics of lithographic proofing and plate-making.

PT 116 Camera/Prep 2, 6 cr.—Prerequisite: PT 114 or instructor permission. Basic densitometry and halftone procedures. Includes all basic film assembly impositions with pin-register technique.

PT 118 Camera/Prep 3, 6 cr.—Prerequisite: PT 116 or instructor permission. Basic densitometry and halftone procedures. Includes all basic film assembly impositions with pin-register technique.

PT 136 Electronic Layout, 3 cr.—Prerequisite: PT 120 or be prepared to demonstrate competency using Macintosh computers at the intermediate level. Basic image design and assembly procedures applied to electronic documents using Macintosh computers.

PT 170 Screen Printing I, 2 cr.—Survey of screen printing methods and techniques. Build screens, cut stencils and print on various surfaces.
PT 205 Papers and Inks, 2 cr.—Prerequisite: second year standing and completion of PT 108 and PT 114, or instructor permission. Managerial principles necessary for the efficient production of printed material.

PT 206 Estimating, 2 cr.—Prerequisite: PT 205. Compares the pricing methods used in the industry. Uses current estimating methods and production techniques.

PT 250 Camera/Prep 4, 6 cr.—Prerequisite: PT 118 or instructor permission. Explores complex composition for larger presses, both sheet and web fed. Develops advanced camera and platemaking techniques.

PT 252 Camera/Prep 5, 6 cr.—Prerequisite: PT 250 or instructor permission. Emphasizes job entry skills. Includes film assembly projects, process color and advanced color proofing, and platemaking techniques.

PT 254 Camera/Prep 6, 6 cr.—Prerequisite: PT 252 or instructor permission. Emphasizes job entry skills. Includes film assembly projects, process color and advanced color proofing, and platemaking techniques.

PT 281 Adv Litho-Press Lab 1, 3 cr.—Students produce single and two-sided, multiple color products on single color and two color processes such as the Multilith 1250, ABDick 360, ABDick 9850, Hamada 500 CDA, Hamada 700 CD, Itek 3985, and Solna 125.

PT 282 Adv Litho-Press Lab 2, 3 cr.—Students produce single and two-sided, four color process on single color and two color processes such as the ABDick 9850, Hamada 500 CDA, Hamada 700 CD, Itek 3985, and Solna 125.

PT 283 Adv Litho-Press Lab 3, 3 cr.—Students produce large format and complex multiple color, including four color process images on single color and two color processes such as the Multilith 1250, ABDick 360, ABDick 9850, Hamada 500 CDA, Hamada 700 CD, Itek 3985, and Solna 125.

PT 284 ALP: Multiple Color Presses, 1 cr.—Enhances knowledge and skill in offset production procedures, industry terminology, and offset press operation.

PT 285 ALP: Bearer Presses, 1 cr.—Enhances knowledge and skill in offset production procedures, industry terminology, and offset press operation. Presents information on procedures and techniques necessary to reproduce images using a bearer type lithographic offset press.

PT 286 ALP: Environmental Compliance, 1 cr.—Covers OSHA, DEQ, and EPA regulations regarding printshops and the generation and proper disposal of hazardous wastes.

PT 287 ALP: 4-color Process, 1 cr.—Covers procedures and techniques for reproducing continuous tone and color images by using the four color process method of image reproduction.

PT 288 ALP: Coatings, 1 cr.—Covers the process of application and the various uses for a wide variety of coatings applied to the sheet using offset lithography.

PT 289 ALP: Quality Management, 1 cr.—Explores producing and evaluating the printed product while maintaining the highest standard of quality necessary to sell the product to the customer.

PT 290 ALP: Pressroom Maintenance, 1 cr.—Covers repair and maintenance of lithographic presses and other equipment used in the industry.

PT 291 ALP: Printshop Safety, 1 cr.—Presents standard safety practices used in the printshop.

PT 292 ALP: Product Evaluation, 1 cr.—Covers paper, inks, chemicals, supplies, and bindery equipment. Students evaluate new products and judge their effectiveness.

RAD - Radiologic Technology

RAD 100 Intro to Radiology, 2 cr.—Prerequisite: Program admission. Introduces the health care team and various aspects of radiological sciences. Includes medical ethics, professional organizations, medical/legal considerations, communication, cultural diversity, basic radiation protection, technical considerations, history of radiology, hospital organizations and medical specialties.

RAD 101 Radiographic Positioning I, 3 cr.—Prerequisite: Program admission. Introduces the basic positioning techniques used in radiography of the respiratory system, abdomen, upper and lower extremities. Lab includes peer positioning, film critique, anatomical identification, pathologies and an energized section using phantoms.

RAD 102 Radiographic Positioning II, 3 cr.—Prerequisite: RAD 101. Basic positioning techniques used in radiography of the digestive system, urinary system and continuation of the upper and lower extremities. Lab includes peer positioning, film critique, anatomical identification, pathologies and an energized section using phantoms.

RAD 103 Radiographic Positioning III, 3 cr.—Prerequisite: RAD 102. Basic positioning techniques used in radiography of the spinal column and pelvic girdle. Lab includes peer positioning, film critique, anatomical identification, pathologies and an energized section using phantoms.

RAD 105 Methods of Patient Care, 3 cr.—Prerequisite: Program admission. General care of patients in radiology department. Emphasizes radiographer's role in patient care; cardiac arrest, vital signs, accident victims, asceptic, contagious disease control, blood born pathogen precaution techniques, and methods of administering medications, venipuncture and reactions. Lab provides application of theory.

RAD 106 Radiologic Physics I, 4 cr.—Prerequisite: Program admission. Fundamental concepts of energy and measurements, atomic structures, molecules, electricity, magnetism, electromagnetism and transformers.

RAD 107 Radiologic Physics II, 4 cr.—Prerequisite: RAD 106. Covers rectifiers, generators, timers, x-ray tubes, recording devices, physiology of sight, image intensifiers, television camera/monitor, digital radiography, injectors, mobile radiography and fluoroscopic equipment, and teleradiography.

RAD 108 Radiologic Physics III, 4 cr.—Prerequisite: RAD 107. Covers linear tomography, computed tomography, radiation therapy, nuclear medicine, magnetic resonance imaging, medical sonography and lithotripsy.

RAD 110 Radiographic Clinic I, 2 cr.—Prerequisite: Program admission. Provides clinical education experience in an affiliated hospital radiology department under the supervision of a registered radiographer and radiologist. Includes application of equipment manipulation and operation, radiological imaging pro-
procedures, radiation protection and patient care. Requires clinical competencies, objectives, evaluations and attendance.

**RAD 115 Principles of Exposure I, 3 cr.**—Prerequisite: RAD 106. Production and control of scattered radiation, stereo radiography, grid technique application, half value layer, contrast and density principles. Lab includes energized equipment and test tools.

**RAD 120 Radiographic Clinic II, 2 cr.**—Prerequisite: RAD 110. Provides clinical education experience in an affiliated hospital radiology department under the supervision of a registered radiographer and radiologist. Includes the application of equipment manipulation and operation, radiological imaging procedures, radiation protection and patient care. Requires clinical competencies, objectives, evaluations and attendance.

**RAD 122 Radiation Protection - Biology, 3 cr.**—Prerequisite: RAD 106. Biological effects of ionizing radiation and application of that knowledge to radiation principles necessary to minimize the risks of man-made radiation.

**RAD 130 Radiographic Clinic III, 2 cr.**—Prerequisite: RAD 120. Provides clinical education experience in an affiliated hospital radiology department under the supervision of a registered radiographer and radiologist. Includes the application of equipment manipulation and operation, radiological imaging procedures, radiation protection and patient care. Requires clinical competencies, objectives, evaluations and attendance.

**RAD 132 Film and Processing, 3 cr.**—Prerequisite: RAD 115. Introduces theory and practical application of film/screen composition, care and use, sensitometry, latent image formation and development, automatic film processing, subtractive/duplicative reaction of radiologic image and quality assurance. Lab includes using test tools with energized equipment.

**RAD 140 Radiographic Clinic IV, 5 cr.**—Prerequisite: RAD 130. Provides clinical education experience in an affiliated hospital radiology department under the supervision of a registered radiographer and radiologist. Includes the application of equipment manipulation and operation, radiological imaging procedures, radiation protection and patient care. Requires clinical competencies, objectives, evaluations and attendance.

**RAD 204 Radiographic Positioning IV, 3 cr.**—Prerequisite: RAD 103. Advanced positioning techniques of the upper and lower extremities, thoracic cage, pectoral girdle, pelvic girdle and basic skull. Lab includes peer positioning, film critique, anatomical identification, pathologies and energized imaging with the use of phantoms.

**RAD 205 Radiographic Positioning V, 3 cr.**—Prerequisite: RAD 204. Advanced positioning of the skull, paranasal sinuses, facial bones, temporal bone, mastoids and mandible. Lab includes peer positioning, film critique, anatomical identification, pathologies and energized imaging with the use of phantoms.

**RAD 206 Survey and Medical Imaging Diseases, 3 cr.**—Prerequisite: Program admission. Basic principles and processes of disease, the characteristics of neoplasms and systems with related disease as it applies to the radiological sciences.

**RAD 209 Advanced Radiological Procedures, 4 cr.**—Prerequisite: Program admission. Advance radiological/fluoroscopic procedures, medications and specialized equipment demonstrating respiratory, glandular, biliary, reproductive and vascular systems.

**RAD 210 Radiographic Clinic V, 3 cr.**—Prerequisite: RAD 140. Provides clinical education experience in an affiliated hospital radiology department under the supervision of a registered radiographer and radiologist. Includes the application of equipment manipulation and operation, radiological imaging procedures, radiation protection and patient care. Requires clinical competencies, objectives, evaluations and attendance.

**RAD 215 Principles of Exposure II, 3 cr.**—Prerequisite: RAD 115 and RAD 132. Introduces theory and application of inverse square law, magnification, distortion, radiographic quality, technique conversion factors, formulation of technique charts, and quality control. Lab includes development and analysis of technique chart formulation with energized equipment.

**RAD 220 Radiographic Clinic VI, 4 cr.**—Prerequisite: RAD 210. Provides clinical education experience in an affiliated hospital radiology department under the supervision of a registered radiographer and radiologist. Includes the application of equipment manipulation and operation, radiological imaging procedures, radiation protection and patient care. Requires clinical competencies, objectives, evaluations and attendance.

**RAD 230 Radiographic Clinic VII, 4 cr.**—Prerequisite: RAD 220. Provides clinical education experience in affiliated hospital radiology department under the supervision of registered radiographer and radiologist. Includes the application of equipment manipulation and operation, radiological imaging procedures, radiation protection and patient care. Requires clinical competencies, objectives, evaluations and attendance.

**RAD 240 Radiographic Clinic VIII, 5 cr.**—Prerequisite: RAD 230. Provides clinical education experience in affiliated hospital radiology department under supervision of registered radiographer and radiologist. Includes application of equipment manipulation and operation, radiological imaging procedures, radiation protection and patient care. Requires clinical competencies, objectives, evaluations, attendance, terminal clinical competencies in radiological imaging and demonstrate competency in written and oral medical communications and mathematical functions.

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**RD - Reading**

**RD 115 Speed Reading and Vocabulary, 3 cr.**—Improve reading rate, vocabulary and comprehension. Includes formation of efficient reading habits, vocabulary development, inferential and critical reading, and adapting reading rate to different reading tasks.

**RD 116 College Vocabulary Development, 3 cr.**—Adds significantly to the students’ reading, writing, and speaking vocabularies, fosters interest in words, and offers strategies for continuous vocabulary development throughout life.

**RD 117 Advanced Speed Reading, 3 cr.**—Prerequisite: RD 115 or instructor permission. Explores topics covered in RD 115, emphasizing inferential, critical, and technical reading.

**RD 60 Reading for Enjoyment (Contemporary Literature), 3 cr.**—Develops reading as a pleasurable and positive way to spend time. Focuses on the bonuses of reading: awareness of other people and one’s self, increased vocabulary, spelling, and writing skills.

**RD 65 Reading for Enjoyment (Appreciation of Literature), 3 cr.**—Develops abilities to read, understand and enjoy literature. Read selections from writers, poets and dramatists as expressions of human experience.
RD 70 Reading I, 3 cr.—Prerequisite: Placement test or instructor permission. Reading improvement through work on phonics, vocabulary, comprehension, reading rate, and other aspects of the reading process for students who are likely to have difficulty with college-level reading.

RD 80 Reading II, 3 cr.—Prerequisite: Placement test, instructor permission, or successful completion of RD 70. Reading improvement through work on phonics, vocabulary, comprehension, reading rate, and other aspects of the reading process for students who are likely to have difficulty with college-level reading.

RD 90 Reading III, 3 cr.—Prerequisite: Placement test, instructor permission, or successful completion of RD 80. Reading improvement through work on phonics, word analysis, vocabulary development, comprehension, reading rate, and other aspects of the reading process for students whose test scores indicate they may have difficulty with college-level reading.

**RE - Real Estate**

RE 100 Intro to Real Estate, 3 cr.—Real estate brokerage, appraisal, escrow, and management. Focuses on these aspects of the real estate industry and provides the basic information necessary for choosing real estate as a career.

RE 110 Real Estate Practices, 3 cr.—Purchase and sale of real property. Rights, contracts, trusts, taxes and assessments, title transfer, recording and closing costs, and escrow. Required prior to taking the Oregon Real Estate Salesperson’s exam.

RE 112 Real Estate Law I, 3 cr.—Application of Oregon real estate law to ownership, use and transferability of real property. Includes sources of law, basic title law, transfer of title, land sales contracts, liens, tax, legal descriptions, assessments, land use control, insurance, escrow, land development and landlord-tenant relationships. Required prior to taking the Oregon Real Estate Salesperson’s exam.

RE 116 Real Estate Finance I, 3 cr.—Methods for financing the acquisition and transfer of real property. Emphasizes the mortgage market, lending instruments, foreclosures and remedies, governmental loan programs, private loan programs, loan applications, appraisals and closings. Required prior to taking the Oregon Real Estate Salesperson’s exam.

RE 120 OR RE Agent Licensing Exam Rev, 1 cr.—Reviews the material introduced in RE 110, RE 112 and RE 116 to prepare for the Oregon Real Estate Salesperson’s Licensing examination.

RE 210 RE Foundations, 3 cr.—Basic principles, methods and techniques of determining the value of real estate in connection with transfer of ownership, financing and credit, just compensation in condemnation, and as a basis for taxes. Meets State requirements for certification/licensing.

RE 211 Single Family Residences, 3 cr.—Prerequisite: RE 210. Introduces more sophisticated methods and techniques of valuation related to the appraisal of single family residential properties.

RE 212 Standards of Professional Practice, 2 cr.—Course focuses on the requirements for ethical behavior and competent performance by appraisers which are set forth in the Uniform Standards of Professional Appraisal Practice. This course meets State requirements for certification/licensing.

RE 226 Real Estate Finance II, 3 cr.—Introduces more sophisticated and complex real estate finance and investments concepts.

RE 240 Supervision of RE Sales Person, 3 cr.—Concepts and theories related to supervision of sales personnel including the normal daily supervision of personnel both inside and outside the real estate office. Required pre-licensing course for prospective brokers.

RE 241 RE Ofc Mgt/Super of Sales Pers, 3 cr.—Management theory, characteristics and functions of successful management organizational formats. Includes corporate, partnerships and proprietorships, management related problems and license types and requirements. Required prior to taking the Oregon Real Estate Broker’s exam.

RE 250 Real Estate Investments I, 3 cr.—Includes various aspects of personal real estate investments. Includes concepts of pyramid housing, methods of personal income tax, tax shelters and current real estate market trends.

RE 252 Property Management, 3 cr.—Emphasizes the functions and responsibilities of managers of real property. Includes applications of contract and agency law, and statutory materials concerning landlord and tenant, anti-discrimination, and fair credit reporting. Assists in preparing for the Oregon State Real Estate Property Manager license exam.

**RUS - Russian**

RUS 101 First Year Russian, 4 cr.—Corequisite: RUS 111C. Emphasizes active communication in beginning Russian. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary, and culture.

RUS 102 First Year Russian, 4 cr.—Prerequisite: RUS 101 or instructor permission. Corequisite: RUS 112C. Emphasizes active communication in Russian. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary, and culture.

RUS 103 First Year Russian, 4 cr.—Prerequisite: RUS 102 or instructor permission. Corequisite: RUS 113C. Emphasizes active communication in Russian, including listening, speaking, reading, writing, pronunciation, structure, vocabulary, and culture.

RUS 111A First Year Russian Conversation, 3 cr.—Corequisite: RUS 101. Continues to practice structures and vocabulary presented in RUS 101.

RUS 111B First Year Russian Conversation, 2 cr.—Corequisite: RUS 101. Continues to practice structures and vocabulary presented in RUS 101.

RUS 111C First Year Russian Conversation, 1 cr.—Prerequisite: RUS 101 or instructor permission. Continues to practice structures and vocabulary presented in RUS 101.

RUS 112A First Year Russian Conversation, 3 cr.—Prerequisite: RUS 111 or instructor permission. Corequisite: RUS 102. Continues to practice structures and vocabulary presented in RUS 102.

RUS 112B First Year Russian Conversation, 2 cr.—Prerequisite: RUS 111B or instructor permission. Corequisite: RUS 102. Continues to practice structures and vocabulary presented in RUS 102.
RUS 112C First Year Russian Conversation, 1 cr.—Continues to practice structures and vocabulary presented in RUS 102.

RUS 113A First Year Russian Conversation, 3 cr.—Prerequisite: RUS 112 or instructor permission. Corequisite: RUS 103. Continues to practice structures and vocabulary presented in RUS 103.

RUS 113B First Year Russian Conversation, 2 cr.—Prerequisite: RUS 112B or instructor permission. Corequisite: RUS 103. Continues to practice structures and vocabulary presented in RUS 103.

RUS 113C First Year Russian Conversation, 1 cr.—Prerequisite: RUS 112C or instructor permission. Corequisite: RUS 103. Continues to practice structures and vocabulary presented in RUS 103.

RUS 150 First Year Russian, 6 cr.—Emphasizes active communication in beginning Russian. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary, and culture.

RUS 151 First Year Russian, 6 cr.—Prerequisite: RUS 150 or instructor permission. Emphasizes active communication in Russian. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary, and culture.

RUS 201 Second Year Russian, 4 cr.—Prerequisite: RUS 201 or instructor permission. Review and expand, structure and vocabulary for the purpose of active communication. Includes practice in reading and writing.

RUS 202 Second Year Russian, 4 cr.—Prerequisite: RUS 201 or instructor permission. Review and expand, structure and vocabulary for the purpose of active communication. Includes practice in reading and writing.

RUS 203 Second Year Russian, 4 cr.—Prerequisite: RUS 202 or instructor permission. Review and expand, structure and vocabulary for the purpose of active communication. Includes practice in reading and writing.

RUS 211A Intermediate Russian Conversation, 3 cr.—Prerequisite: Instructor permission. Stresses conversational skills and listening comprehension at the second-year level.

RUS 211B Intermediate Russian Conversation, 2 cr.—Prerequisite: Instructor permission. Stresses conversational skills and listening comprehension at the second-year level.

RUS 211C Intermediate Russian Conversation, 1 cr.—Prerequisite: Instructor permission. Stresses conversational skills and listening comprehension at the second-year level.

RUS 212A Intermediate Russian Conversation, 3 cr.—Prerequisite: Instructor permission. Stresses conversational skills and listening comprehension at the second-year level.

RUS 212B Intermediate Russian Conversation, 2 cr.—Prerequisite: Instructor permission. Stresses conversational skills and listening comprehension at the second-year level.

RUS 212C Intermediate Russian Conversation, 1 cr.—Prerequisite: Instructor permission. Stresses conversational skills and listening comprehension at the second-year level.

RUS 213A Intermediate Russian Conversation, 3 cr.—Prerequisite: Instructor permission. Stresses conversational skills and listening comprehension at the second-year level.

RUS 213B Intermediate Russian Conversation, 2 cr.—Prerequisite: Instructor permission. Stresses conversational skills and listening comprehension at the second-year level.

RUS 213C Intermediate Russian Conversation, 1 cr.—Prerequisite: Instructor permission. Stresses conversational skills and listening comprehension at the second-year level.

RUS 217 Russian for Native Speakers, 3 cr.—Prerequisite: Speaker of Russian as a first language and ability to read and write. Improve Russian skills in spelling, grammar, reading, composition, and translation.

RUS 218 Russian for Native Speakers, 3 cr.—Prerequisite: Speaker of Russian as a first language and ability to read and write. Improve Russian skills in spelling, grammar, reading, composition, and translation.

RUS 219 Russian for Native Speakers, 3 cr.—Prerequisite: Speaker of Russian as a first language and ability to read and write. Improve Russian skills in spelling, grammar, reading, composition, and translation.

RUS 250 Second Year Russian, 6 cr.—Prerequisite: RUS 103 or instructor permission. Review and expand, structure, and vocabulary for active communication. Includes practice in reading and writing.

RUS 251 Second Year Russian, 6 cr.—Prerequisite: RUS 250 or instructor permission. Review and expand, structure, and vocabulary for active communication. Includes practice in reading and writing.

RUS 270A Readings in Russian, 3 cr.—Prerequisite: completion of or concurrent enrollment in RUS 203, or instructor permission. Read and discuss accessible works of Russian prose and poetry. Emphasizes reading skills.

RUS 270B Readings in Russian, 2 cr.—Prerequisite: RUS 203 or instructor permission. Read and discuss accessible works of Russian prose and poetry. Emphasizes reading skills.

RUS 270C Readings in Russian, 1 cr.—Prerequisite: RUS 203 or instructor permission. Read and discuss accessible works of Russian prose and poetry. Emphasizes reading skills.

RUS 271A Readings in Russian, 3 cr.—Prerequisite: RUS 203 or instructor permission. Read and discuss accessible works of Russian prose and poetry. Emphasizes reading skills.

RUS 271B Readings in Russian, 2 cr.—Prerequisite: RUS 203 or instructor permission. Read and discuss accessible works of Russian prose and poetry. Emphasizes reading skills.

RUS 271C Readings in Russian, 1 cr.—Prerequisite: RUS 203 or instructor permission. Read and discuss accessible works of Russian prose and poetry. Emphasizes reading skills.

RUS 272A Readings in Russian, 3 cr.—Prerequisite: RUS 203 or instructor permission. Read and discuss accessible works of Russian prose and poetry. Emphasizes reading skills.

RUS 272B Readings in Russian, 2 cr.—Prerequisite: RUS 203 or instructor permission. Read and discuss accessible works of Russian prose and poetry. Emphasizes reading skills.

RUS 272C Readings in Russian, 1 cr.—Prerequisite: RUS 203 or instructor permission. Read and discuss accessible works of Russian prose and poetry. Emphasizes reading skills.

SOC — Sociology

SOC 204 General Sociology; Sociology in Everyday Life, 3 cr.—Introduces the sociological frame of reference by examining sociology as a science. Concepts examined may include society, social structure, culture, socialization, statuses, roles, groups, organizations, social stratification and other human inequalities.
SON 205 Gen Soc: Social Change - Trends in Group Behavior, 3 cr.—Study of changes and trends in human social behavior and culture. May include social change, social movements, collective behavior, the family, religion, education, economics, politics, population and urban life.

SON 206 Gen Soc: Social Problems - Conformity and Deviance, 3 cr.—Study of contemporary social problems using the sociological frame of reference. May include aging, sexuality, drugs, alcohol, discrimination, alienation, violence, crime, economic inequality, and racial and ethnic diversity.

SON 218 Sociology of Gender, 3 cr.—Focuses on how socialization is affected by gender. Topics include how gender is reflected in culture through values, norms, language, media, power, violence, and various theoretical approaches, significant social institutions, social movements and issues.

SON 222 Death and Dying: Culture and Issues, 3 cr.—Study of death and dying in contemporary America. May include loss, bereavement, and dispositions practices, demographics, death care systems, life-threatening illnesses, medical ethics, legal factors in death, euthanasia and suicide.

SON 240 Sociology of Work & Leisure, 3 cr.—Explores potentials and problems in work and leisure. May examine meaningful career choices, work satisfaction, the life course and problems with leisure, and affirmative decision-making in work and leisure.

SON 280A CE: Sociology, 3 cr.—Extend knowledge of sociology through work and/or volunteer time spent in settings that provide learning experiences.

SON 280B CE: Sociology - Seminar, 2 cr.—Forum to discuss work and/or volunteer experiences with peers and instructor.

SON 298 Independent Study: Sociology, 3 cr.—Prerequisite: Instructor permission. Advanced, individualized study of areas of sociology not considered in other courses to meet special interests or program requirements. Includes a term project and readings approved by the instructor. Recommended: prior study of sociology.

SON 299 Special Studies: Social Issues and Movements, 3 cr.—Involves a contemporary survey of social movements. Emphasis is placed on Conflict Theory and the individual's rationale for participation.

SON 299A Special Studies, 3 cr.—Special topics, activities, or projects in an area of sociology not usually covered in depth in other sociology courses. Recommended: prior study in sociology and instructor permission.

SON 299B Special Studies: Sociology - The American Male, 3 cr.—Studies the masculine role in contemporary America from the sociological perspective. Examines the male socialization process and its effects on relationships with work, women, children, and other men.

SON 101 Sectional Anatomy - Sonography, 3 cr.—Prerequisite: admission to program. Introduces the normal appearance of anatomical structures in multiple planes. Differentiate between normal anatomical structures and abnormalities.

SON 103 Sonographic Physic/Instrumentation I, 3 cr.—Prerequisite: admission to program. Develops knowledge of the basic physical principles of ultrasound and its interaction with human tissue.

SON 104 Sonographic Physic/Instrumentation II, 3 cr.—Prerequisite: SON 103. Develops knowledge of ultrasound instrumentation including the transducer, signal processor, scan converter, scan display and storage devices.

SON 105 Sonographic Physic/Instrumentation III, 3 cr.—Prerequisite: SON 103 and SON 104. Develops knowledge of biological effects of ultrasound and skills to design and implement quality assurance programs. Includes doppler ultrasound principles.

SON 110 Sonographic Clinic I, 3 cr.—Prerequisite: admission to program. Provides clinical education experiences in an affiliated hospital sonography department under the supervision of registered sonographer and licensed physician. Covers necessary skills and knowledge required to function as a sonographer: scanning techniques, protocols, patient care and quality assurance. Requires clinical competencies, objectives, evaluation and attendance.

SON 113 Abdominal Sonography I, 3 cr.—Prerequisite: admission to program. Develops knowledge in sonography of the abdominal and superficial parts of the human body with respect to normal and abnormal disease processes. Includes routine scanning protocol for selected body parts.

SON 114 Obstetrical/Gynecologic Sonography I, 3 cr.—Prerequisite: SON 113. Examines gynecological and obstetrical sonography. Covers protocols and normal anatomy and physiology. Includes sonography of the developing fetus in each of the three trimesters.

SON 115 Abdominal Sonography II, 3 cr.—Prerequisite: SON 113 and SON 114. Advanced sonography of the abdominal and superficial parts of the human body including pediatric sonography.

SON 120 Sonographic Clinic II, 3 cr.—Prerequisite: SON 110. Provides clinical education experiences in an affiliated hospital sonography department under the supervision of a registered sonographer and licensed physician. Includes necessary skills and knowledge required to function as a sonographer: scanning techniques, protocols, patient care and quality assurance. Requires clinical competencies, objectives, evaluation and attendance.

SON 121 Sonographic Critique/Pathology I, 3 cr.—Prerequisite: SON 101, SON 103, SON 110, and SON 113. Correlate didactic clinical and image information. Covers basic instrumentation, normal anatomy, pathology identification and image critique. Requires case studies.

SON 130 Sonographic Clinic III, 3 cr.—Prerequisite: SON 120. Requires clinical competencies, objectives and attendance. Provides clinical education experience in an affiliated hospital sonography department under the supervision of a registered sonographer and licensed physician. Includes necessary skills and knowledge required to function as a sonographer: scanning techniques, protocols, patient care and attendance required.

SON 131 Sonographic Critique/Pathology II, 3 cr.—Prerequisite: SON 121. Correlate didactic clinical and image information. Covers intermediate instrumentation, normal anatomy, pathology identification and image critique. Requires case studies.
SON 210 Sonographic Clinic IV, 3 cr.—Prerequisite: SON 130. Provides clinical education experiences in an affiliated hospital sonography department under the supervision of a registered sonographer and a licensed physician. Includes necessary skills and knowledge required to function as a sonographer; scanning techniques, protocols, patient care and quality assurance. Requires clinical competencies, objectives, evaluations and attendance.

SON 211 Sonographic Critique/Pathology III, 3 cr.—Prerequisite: SON 131. Correlate didactic, clinical and image information. Covers intermediate instrumentation, normal anatomy, pathology identification and image critique. Requires case studies.

SON 215 Obstetrical/Gynecologic Sonography II, 3 cr.—Prerequisite: SON 113, SON 114, and SON 115. Examines advanced obstetrical and gynecological sonography. Covers sonographic protocols emphasizing anomalies and pathologies.

SON 217 Vascular/Cardio Sonography, 3 cr.—Prerequisite: SON 105, SON 115, SON 130, and SON 131. Develops basic knowledge of vascular and cardio sonography including scanning protocol with Doppler physics.

SON 220 Sonographic Clinic V, 9 cr.—Prerequisite: SON 210. Provides clinical education experiences in an affiliated hospital sonography department under the supervision of a registered sonographer and a licensed physician. Includes necessary skills and knowledge to function as a sonographer; scanning techniques, protocols, patient care and quality assurance. Requires clinical competencies, evaluations objectives and attendance.

SON 221 Sonographic Critique/Pathology IV, 3 cr.—Prerequisite: SON 131. Correlate advanced didactic, clinical and imaging information. Covers instrumentation, normal anatomy pathologies and image critique. Requires case studies.

SON 230 Sonographic Clinic VI, 9 cr.—Prerequisite: SON 220. Provides clinical education experiences in an affiliated hospital sonography department under the supervision of a registered sonographer and licensed physician. Includes necessary skills and knowledge that are required to function as a sonographer; scanning techniques, protocols, patient care and quality assurance. Requires clinical competencies, objectives, evaluation and attendance.

SON 231 Sonographic Critique/Pathology V, 3 cr.—Prerequisite: SON 221. Correlate didactic, clinical and imaging information. Covers advanced instrumentation, normal anatomy, pathology identification and image critique. Requires case studies.

SP 105 Listening, 3 cr.—Analyzes listening behavior. Emphasizes developing an understanding and appreciation of listening as a vital element in the communication process. Includes theory and individual skill development.

SP 110 Fundamentals of Voice and Articulation, 3 cr.—Voice production and articulation of speech sounds. Focuses on elementary speech physiology and phonetics. Includes practice in perception and production of American speech and greater competency using standard English.

SP 111 Fundamentals of Speech, 3 cr.—Prerequisite: Concurrent enrollment in or satisfactory completion of WR 121. Prepare and present original speeches with emphasis on organization and outlining. Present informative, persuasive and other types of speeches.

SP 112 Fund Speech: Persuasive Speaking, 3 cr.—Prerequisite: SP 111 or department permission. Reasoning as related to oral discourse. Emphasizes analysis, reasoning and evidence in the applied sense.

SP 113 Fund Speech: Argument/Debate, 3 cr.—Prerequisite: SP 111 or department permission. Principles of argumentation. Focuses on application of critical reasoning to decision making and debate.

SP 130 Business & Professional Speech Communication, 3 cr.—Communication as it relates to business and professional settings. Readings and discussions focus on the climate and settings, philosophies and practices of organizational communication and use of visual aids in briefings and presentations.

SP 140 Introduction to Intercultural Communication, 3 cr.—Explores the nature and impact of different cultures on communication. Includes interactive relationship forms as the basis for global understanding in the classroom, business or travel. Focus on processing messages with accelerating changes in political, economic and immigration patterns through individual cultural perceptions. Understand and communicate with people who are “different.”

SP 212 Voice & Diction, 3 cr.—Prerequisite: Completion of ENL 262 and ENL 263. Voice production and articulation of speech sound, with attention to elementary speech physiology and phonetics. Develops more effective speech for teachers, radio and television speakers, public speakers and others who require special competence in speaking.

SP 214 Interpersonal Communication: Process & Theory, 3 cr.—Prerequisite: SP 100 or department permission. Interpersonal communication beyond introductory communication. Improves personal communication effectiveness through structured experiences and theory analysis.

SP 215 Small Group Communication: Process & Theory, 3 cr.—Prerequisite: SP 100 or department permission. Problem solving aspects of small group activities. Includes process and task, leadership, verbal and non-verbal messages in the small group, norms and roles, conflict resolution, and decision making. Focuses on theory and practice.

SP 217 Theories of Persuasion, 3 cr.—Crucial factors involved in the process of persuasion. Examines audience psychology and communication strategies that enhance speaker effectiveness. Apply principles to individual projects.

SP 227 Nonverbal Communication, 3 cr.—Studies the nonverbal aspect of communication as related to verbal communication. Emphasis on theories and typologies of nonverbal communication. Consideration of the influence of such factors as
paralanguage, body movement, eye behavior, touch, space, time, smell, and physical and social environments.

**SPA 229 Oral Interpretation, 3 cr.** Oral interpretation of literature from the areas of prose, poetry, and drama. Analyze specific literary works and communicate that understanding through performance.

**SPA 270A Projects in Public Speaking, 3 cr.** Prerequisite: SP 111 or department permission. Intercollegiate forensics and non-competitive speaking. Includes debate, oratory, interpretative reading, expository, impromptu and extemporaneous speaking. Earn 1-3 variable credit may be repeated to a maximum of 12 credits.

**SPA 270B Projects in Public Speaking, 2 cr.** Intercollegiate forensics and non-competitive speaking. Represent the college through participating in the forensics team. Requires 1 hr/wk with instructor and 4 hr/wk outside sessions and speech tournaments.

**SPA 270C Projects in Public Speaking, 1 cr.** Intercollegiate forensics and non-competitive speaking. Represent the college through participating in the forensics team. Requires 1 hr/wk meetings with instructor and 3 hr/wk outside sessions and speech tournaments.

**SPA 299 Special Studies: Speech/Commun, 3 cr.** Focuses on selected topics in the area of Speech Communication which are not regularly offered by the Department.

### SPA - Spanish

**SPA 101 First Year Spanish, 4 cr.** Beginning communication in Spanish. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture.

**SPA 102 First Year Spanish, 4 cr.** Prerequisite: SPA 101. Active communication in Spanish. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture.

**SPA 103 First Year Spanish, 4 cr.** Prerequisite: SPA 102. Active communication in Spanish. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture.

**SPA 111A First Year Spanish Conversation, 3 cr.** Prerequisite: First year Spanish at the college level or instructor permission. Practice of structures and vocabulary of first year Spanish in a conversational format.

**SPA 111B First Year Spanish Conversation, 2 cr.** Prerequisite: First year Spanish at the college level or instructor permission. Practice of structures and vocabulary of first year Spanish in a conversational format.

**SPA 111C First Year Spanish Conversation, 1 cr.** Prerequisite: First year Spanish at the college level or instructor permission. Practice of structures and vocabulary of first year Spanish in a conversational format.

**SPA 112A First Year Spanish Conversation, 3 cr.** Prerequisite: First year Spanish at the college level or instructor permission. Practice of structures and vocabulary of first year Spanish in a conversational format.

**SPA 112B First Year Spanish Conversation, 2 cr.** Prerequisite: First year Spanish at the college level or instructor permission. Practice of structures and vocabulary of first year Spanish in a conversational format.

**SPA 112C First Year Spanish Conversation, 1 cr.** Prerequisite: First year Spanish at the college level or instructor permission. Practice of structures and vocabulary of first year Spanish in a conversational format.

**SPA 113A First Year Spanish Conversation, 3 cr.** Prerequisite: First year Spanish at the college level or instructor permission. Continuation of SPA 112A.

**SPA 113B First Year Spanish Conversation, 2 cr.** Prerequisite: First year Spanish at the college level or instructor permission. Continuation of SPA 112B.

**SPA 113C First Year Spanish Conversation, 1 cr.** Prerequisite: First year Spanish at the college level or instructor permission. Continuation of SPA 112C.

**SPA 150 First Year Spanish, 6 cr.** emphasizes active communication in Spanish. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture. For beginners.

**SPA 151 First Year Spanish, 6 cr.** Prerequisite: SPA 150 or completion of at least two years of recent high school Spanish. Increases vocabulary and proficiency in the present, past and future tenses, and the command of verb forms. Engage in and initiate Spanish dialogue.

**SPA 201 Second Year Spanish, 4 cr.** Prerequisite: SPA 151, SPA 103, or instructor permission. Reviews and expands the use of basic vocabulary, structural patterns, indicative tenses and commands from first-year college Spanish. Listen, speak, write and read in Spanish.

**SPA 202 Second Year Spanish, 4 cr.** Prerequisite: SPA 201 or instructor permission. Practice and expand vocabulary and structures. Emphasizes subjective tenses to express personal feelings, doubts and opinions in Spanish.

**SPA 203 Second Year Spanish, 4 cr.** Prerequisite: SPA 202 or instructor permission. Practice and expand vocabulary and subjunctive patterns. Listen, speak, read, write and begin to sense the culture in the idiom.

**SPA 211A Intermediate Spanish Conversation, 3 cr.** Prerequisite: Completion of or simultaneous enrollment in SPA 201 or instructor permission. Stresses conversational skills at the second year level.

**SPA 211B Intermediate Spanish Conversation, 2 cr.** Prerequisite: Completion of or simultaneous enrollment in SPA 201 or instructor permission. Stresses conversational skills at the second year level.

**SPA 211C Intermediate Spanish Conversation, 1 cr.** Prerequisite: Completion of or simultaneous enrollment in SPA 201 or instructor permission. Stresses conversational skills at the second year level.

**SPA 212A Intermediate Spanish Conversation, 3 cr.** Prerequisite: Completion of or simultaneous enrollment in SPA 202 or instructor permission. Continuation of SPA 211.

**SPA 212B Intermediate Spanish Conversation, 2 cr.** Prerequisite: Completion of or simultaneous enrollment in SPA 202 or instructor permission. Continuation of SPA 211B.

**SPA 212C Intermediate Spanish Conversation, 1 cr.** Prerequisite: Completion of or simultaneous enrollment in SPA 202 or instructor permission. Continuation of SPA 211C.

**SPA 213A Intermediate Spanish Conversation, 3 cr.** Prerequisite: Completion of or simultaneous enrollment in SPA 203 or instructor permission. Continuation of SPA 212.
SPA 213B Intermediate Spanish Conversation, 2 cr.—Prerequisite: Completion of or simultaneous enrollment in SPA 203 or instructor permission. Continuation of SPA 212B.

SPA 213C Intermediate Spanish Conversation, 1 cr.—Prerequisite: Completion of or simultaneous enrollment in SPA 203 or instructor permission. Continuation of SPA 212C.

SPA 217 Spanish for Native Speakers, 3 cr.—Prerequisite: Speaker of Spanish as a first language who can read and write. Improve native speakers' Spanish skills in spelling, grammar, reading, composition, and translation.

SPA 218 Spanish for Native Speakers, 3 cr.—Prerequisite: Speaker of Spanish as a first language who can read and write. Improve native speakers' Spanish skills in spelling, grammar, reading, composition, and translation.

SPA 219 Spanish for Native Speakers, 3 cr.—Prerequisite: Speaker of Spanish as a first language who can read and write. Improve native speakers' Spanish skills in spelling, grammar, reading, composition, and translation.

SPA 250 Second Year Spanish, 6 cr.—Prerequisite: Completion of first year college Spanish or three or more years of recent high school Spanish, or instructor permission. Develop and practice language competence and proficiency by reinforcing all basic structures and expanding vocabulary of first year Spanish. Emphasizes understanding, speaking, reading and writing.

SPA 251 Second Year Spanish, 6 cr.—Prerequisite: SPA 250 or four or more years of recent high school Spanish or instructor permission. Develop and practice communicative competence and proficiency. Emphasizes proper use of the subjunctive to understand and express personal feelings and thoughts. Focuses on various dimensions of Hispanic culture.

SPA 260A Spanish Culture, 3 cr.—Prerequisite: SPA 203, SPA 251, or instructor permission. Hispanic culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered.

SPA 260B Spanish Culture, 2 cr.—Prerequisite: SPA 203, SPA 251, or instructor permission. Hispanic culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered.

SPA 260C Spanish Culture, 1 cr.—Prerequisite: SPA 203, SPA 251, or instructor permission. Hispanic culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered.

SPA 261A Spanish Culture, 3 cr.—Prerequisite: SPA 203, SPA 251, or instructor permission. Hispanic culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered.

SPA 261B Spanish Culture, 2 cr.—Prerequisite: SPA 203, SPA 251, or instructor permission. Hispanic culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered.

SPA 261C Spanish Culture, 1 cr.—Prerequisite: SPA 203, SPA 251, or instructor permission. Hispanic culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered.

SPA 262A Spanish Culture, 3 cr.—Prerequisite: SPA 203, SPA 251, or instructor permission. Spanish culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered.

SPA 262B Spanish Culture, 2 cr.—Prerequisite: SPA 203, SPA 251, or instructor permission. Spanish culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered.

SPA 262C Spanish Culture, 1 cr.—Prerequisite: SPA 203, SPA 251, or instructor permission. Spanish culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered.

SPA 270A Readings in Spanish Literature (Hispanic), 3 cr.—Reading and discussion of Hispanic people and culture through essays, poetry, short story, novels and theater. Focuses on the Hispanic region, period and genre subtitled in the schedule. Conducted in Spanish.

SPA 270B Readings in Spanish Literature (Hispanic), 2 cr.—Reading and discussion of Hispanic people and culture through essays, poetry, short story, novels and theater. Focuses on the Hispanic region, period and genre subtitled in the schedule. Conducted in Spanish.

SPA 270C Readings in Spanish Literature (Hispanic), 1 cr.—Reading and discussion of Hispanic people and culture through essays, poetry, short story, novels and theater. Focuses on the Hispanic region, period and genre subtitled in the schedule. Conducted in Spanish.

SPA 271A Readings in Spanish Literature (Women Writers), 3 cr.—Literature written by women in Spanish. Read literary essays, poetry, short stories, novels and/or theater by Spanish and Latin American women. Conducted in Spanish.

SPA 271B Readings in Spanish Literature (Women Writers), 2 cr.—Literature written by women in Spanish. Read literary essays, poetry, short stories, novels and/or theater by Spanish and Latin American women. Conducted in Spanish.

SPA 271C Readings in Spanish Literature (Women Writers), 1 cr.—Literature written by women in Spanish. Read literary essays, poetry, short stories, novels and/or theater by Spanish and Latin American women. Conducted in Spanish.

SPA 272A Readings in Spanish Literature (Spain), 3 cr.—Reading and discussion of Spanish people and culture through essays, poetry, short story, novels and/or theater. Focuses on peninsular literature, period and genre subtitled in the schedule. Conducted in Spanish.

SPA 272B Readings in Spanish Literature (Spain), 2 cr.—Reading and discussion of Spanish people and culture through essays, poetry, short story, novels and/or theater. Focuses on peninsular literature, period and genre subtitled in the schedule. Conducted in Spanish.

SPA 272C Readings in Spanish Literature (Spain), 1 cr.—Reading and discussion of Spanish people and culture through essays, poetry, short story, novels and/or theater. Focuses on peninsular literature, period and genre subtitled in the schedule. Conducted in Spanish.

SPA 290A Spanish Composition, 3 cr.—Prerequisite: SPA 203, SPA 251, or instructor permission. Reviews and practices basic grammatical concepts to increase confidence and fluency in writing correctly.
**Fall Term 1994 — Summer Term 1995**

**Course Descriptions**

**TA 101 Theater Appreciation, 3 cr.**—Introduces theater through studying plays and the artists who participate in the theatrical experience. Attend local productions and discover how and why the event happens from the viewpoint of the actor, director, playwright, designer and audience.

**TA 111 Fundamentals of Technical Theater, 4 cr.**—Basic principles and techniques of technical theater such as stage design, lighting, properties and stage management. Explores the role of the technician in the theater organization. Lecture and lab allows flexible scheduling.

**TA 112 Introduction to Set Design, 3 cr.**—Elements of technical theater including practical hands-on experience in designing a stage set, construction, the set design and stage rigging. Lecture/lab format provides time for individualized projects.

**TA 113 Introduction to Stage Lighting, 3 cr.**—Explores theater and studio lighting. Focuses on elements of electricity, optics, stage lighting design, color in light, stage lighting instruments and intensity controls. Participate in stage lab activities.

**TA 141 Fundamentals of Acting Techniques, 3 cr.**—Explores the actor's resources to develop physical and vocal expressiveness providing insight to the process of dramatic characterization and "believability" in a role. Includes two hours of group activity and two hours of lab time.

**TA 142 Fundamentals of Acting Techniques, 3 cr.**—Acquire concentration and relaxation in approaching a role. Improve performance skills with focus on vocal and physical control. Scene study is used.

**TA 143 Fundamentals of Acting Techniques, 3 cr.**—Practice skills from TA 141 and TA 142. Stresses further inquiry and use of knowledge and skills in performance. Includes audition techniques.

**TA 144 Improvisational Theater, 3 cr.**—Become more in touch with the body and senses as used to express yourself and communicate with others. Includes exercise, theater games and impromptu scenes to tap the creative potential of the human imagination.

**TA 148 Movement for the Stage, 3 cr.**—Develops awareness and skills in movement as related to acting and communication. Focuses on body awareness, relaxation, energy, creating physical images and character, and communicating through body language. Explores expression through movement.

**TA 155 Readers Theater, 3 cr.**—Oral interpretation techniques as applied to group reading. Includes organization and preparation of scripts and creative oral reciting. Emphasizes verbal interpretation of literature.

**TA 180A Theater Rehearsal and Performance, 3 cr.**—Prerequisite: Audition. Credit for performance in theater production, if cast. Gain first-hand experience in performance techniques.

**TA 180B Theater Rehearsal and Performance, 2 cr.**—Prerequisite: Audition. Performance in theater production.

**TA 180C Theater Rehearsal and Performance, 1 cr.**—Prerequisite: Audition. Performance in theater production.

**TA 190A Projects in Theater, 3 cr.**—Design an independent project associated with the theater. Develop a contract with a theater arts instructor covering the course content.

**TA 190B Projects in Theater, 2 cr.**—Develop a study contract emphasizing self-directed research, on an individualized basis allowing for maximum flexibility.

**TA 190C Projects in Theater, 1 cr.**—Develop a study contract emphasizing self-directed research, on an individualized basis allowing for maximum flexibility.

**TA 227 Stage Make-up, 3 cr.**—Techniques of applying stage make-up including use of tools and products. Focuses on analyzing the character and theater to create the best make-up for various roles on any given stage. Class time is divided into lecture and student make-up projects.

**TA 240 Beginning Pantomime, 3 cr.**—Mime in the classic, white face tradition, using methods of muscle tone improvement, posture, balance, and flexibility to introduce techniques of play writing and storytelling.

**TA 241 Intermediate Acting Technique, 3 cr.**—Concentrate on in-depth study of the skills introduced in first year acting. One-act plays will be assigned as projects.

**TA 242 Intermediate Acting Technique, 3 cr.**—Comedy characterization as a style of performance. Study and perform a variety of comic literature. Focuses on comedy techniques.

**TA 243 Intermediate Acting Techniques, 3 cr.**—Emphasizes vocal and physical techniques as well as stylized and contemporary acting methodology. Projects are approved by the instructor to strengthen all areas of stage performance.

**TA 253A Theater Rehearsal and Performance, 3 cr.**—Prerequisite: Audition. Performance in a play.
TE 261 Introduction to Costuming, 3 cr.—A survey of costume history, design, and basic patterning-to-construction techniques.

TA 290A Projects in Theater, 3 cr.—Advanced independent study course. Contract with a theater arts instructor for one to three credits depending upon the size of the project. Examples of projects could be assistant directing, lighting design, costuming, dramaturge.

TA 290B Projects in Theater, 2 cr.—Develop a study contract emphasizing self-directed research, on an individualized basis allowing for maximum flexibility.

TA 290C Projects in Theater, 1 cr.—Develop a study contract emphasizing self-directed research, on an individualized basis allowing for maximum flexibility.

TE 9061 National Electrical Code, 3 cr.—Correlates the National Electric Code, UL Standards, and product installation instructions. Includes specific limitations of products from chapter three of the current NEC book.

TE 9075 NEC Limited Maint Indust Elect, 3 cr.—Provides electrical information and code training to persons entering the electrical field as Limited Maintenance Industrial Electricians. Covers safety training and service techniques necessary to work under the Limited Maintenance Industrial Electrical License. Designed to help the electrician pass the required state licensing exam.

TE 9083 National Electric Code II, 3 cr.—Prepares electricians for state examinations as prescribed by Oregon State Building Codes Division. Includes code explanations, applications, and 24 hours of Continuing Education credits for Oregon State re-licensing purposes.

TE 9086 Instrumentation Process Control, 2 cr.—Covers the fundamentals of industrial process control instrumentation including the history of instrumentation, control system components, ratio, and feed-forward. Includes working with multiple control loops.

TE 9090 Electrical Estimating I, 3 cr.—Provides journeyman electricians fundamental skill and knowledge on how to properly estimate electrical installation. Cover terms, participants, estimator, price, estimate, competition and the bid award.

TE 9091 Electrical Field Job Management, 3 cr.—Provides advanced skill and knowledge on how to properly estimate electrical installation. Includes job management techniques for the electrical contractor with emphasis on field operation.

TE 9092 Electrical Contracting, 2 cr.—Basic essential ingredients of electrical contracting Emphasizes start-up of small commercial and residential electrical firms.

TE 9093 Electrical Calculations and Planning (Design) I, 2 cr.—Provides journeyman or supervising electricians with the skills necessary to calculate and plan electrical installations satisfying the national electric code, and meeting the users needs and cost effectiveness.

TE 9114 Transport Refrigeration I (Thermo-King), 2 cr.—Prerequisite: TE 9242. Covers the refrigeration cycle for Thermo-King refrigeration units. Emphasizes theory, component descriptions, control circuits, refrigerants and refrigerant oils, application principles, and troubleshooting.

TE 9115 Transport Refrigeration II (Thermo-King), 2 cr.—Prerequisite: TE 9114. Covers the advanced electrical components and their application principles of how they relate to the refrigeration cycle of Thermo-King units, and troubleshooting.

TE 9120 Basic Programmable Controllers, 2 cr.—Develops the basic understanding of the complete operation of a variety of programmable controllers. Includes applications, operations and programming of P.C's emphasizing programming.

TE 9121 Advanced Programmable Controllers, 2 cr.—Covers the more advanced features of programmable controllers. Design, monitor and edit programs using these features with hands-on programming.

TE 9122 Electrical Power Generation I, 2 cr.—Covers introduction, safety, fundamentals of electricity. DC generators, DC motors, AC generators and AC motors. Recommended for electrical power generation service mechanics and other personnel who work in this field.

TE 9123 Electrical Power Generation II, 2 cr.—Prerequisite: TE 9122. Covers repair procedures, tools and test equipment, soldering, inspection and troubleshooting, dis-assembly and re-assembly, insulating windings and commutators collection rings.

TE 9124 Electrical Power Generation III, 2 cr.—Prerequisite: TE 9123. Covers troubleshooting procedures, computing loads, selecting appropriate generators, balancing loads, cable size applications and paralleling generator sets.

TE 9125 Electrical Power Generation IV, 2 cr.—Prerequisite: TE 9124. Covers diagnostic procedures and repair, electrical circuit diagrams, DC generators, DC motors, AC generators, AC induction motors, AC wound rotor motors, AC synchronous, AC repulsion induction, AC split phase capacitor start transformer capacitor motors and DC and AC controllers.

TE 9139 Residential/Commercial Building Maintenance, 2 cr.—Acquaints entry-level maintenance personnel with skills and tools required to perform general maintenance, and to broaden the scope of knowledge of experienced maintenance personnel.

TE 9145 Electrical Motor Controls, 2 cr.—Provides the knowledge and skills needed to service electric motors. Focuses on the operation and installation of control systems, specifically motor starters and controllers.

TE 9151 Pneumatic Controls, 2 cr.—Prerequisite: TE 9244, TE 9246. Provides HVAC service technicians with the proper methods of diagnosing malfunctions in Honeywell, Johnson and Robert Shaw control systems. Includes elements of pneumatic systems, valve assemblies, dampers, controllers, thermostats, sensors, relays and air supply equipment.

TE 9153 Refrigeration Ammonia Systems, 2 cr.—Introduction to ammonia refrigeration. Focuses on components, cycle of operation, principles of service and maintenance. Includes safety, principles of ammonia vs. freon, cycle of operation, component operation, preventive maintenance, and troubleshooting techniques.
TE 9155 Basic Lock Service and Repair, 2 cr.—Basic knowledge of servicing locks and related hardware.

TE 9156 Commercial Lock Service and Repair, 2 cr.—Prerequisite: TE 9155. Maintaining commercial locks and related hardware. Includes basic operating principles of cylinders, types of locking mechanisms, desk type locks, and master key systems.

TE 9161 Introduction to Boilers, 2 cr.—Covers boiler propulsion, process and comfort heating, types of boilers and limitations, principles of combustion, boiler water treatment and fire side equipment. Includes maintenance principles, diagnostic procedures, properties of steam systems, hot water and process systems, steam traps, condensate returns, distribution, characteristics of water and control valves, safety systems, and assorted components for equipment operation.

TE 9163 Boilers: Electrical Control Systems, 2 cr.—Prerequisite: TE 9161. Covers operation of boilers and burner control systems, including limit controls, fuel flow control valves, primary controls and programming controls. Use control system schematic diagrams and troubleshooting control systems directly connected to the boiler and burner.

TE 9233 Advanced Oil Burners, 2 cr.—Prerequisite: TE 9234. Covers oil flame combustion testing, chimney lining, inductors and regulators. Includes electricity, meter use, wiring connections, controls, stats, motors, fan couplings, pumps, nozzles, tank connections, pipe flaring, service procedures and troubleshooting techniques.

TE 9234 Oil Furnace Service, 2 cr.—Prerequisite: TE 9610. Covers oil burner service and installation procedures, fuel oil principles, motors, fan couplings, nozzles, transformers, burner construction, pumps, controls and troubleshooting procedures.

TE 9237 Refrigeration Electrical I, 2 cr.—Covers basic use of electricity in heating, cooling and refrigeration systems and moves to the complex electrical systems developed for domestic and industrial applications.

TE 9238 Refrigeration Electrical II, 2 cr.—Prerequisite: TE 9237. Focuses on contactors, relays, overload, electric control devices and the procedure for troubleshooting these systems. Introduces solid state controls and systems.

TE 9239 Refrigeration Electrical III, 2 cr.—Prerequisite: TE 9238. Applies the theory and skills learned in Refrigeration Electrical I and II for the electrical system in heating and cooling. Focuses on effective troubleshooting of these systems to service and maintain heating/cooling equipment. Introduces solid state components.

TE 9240 Refrigeration Electrical IV, 2 cr.—Prerequisite: TE 9239. Covers electrical schematics, electrical symbols and legends, system components and application, test instruments, use and care and applications. Includes manufacturer's schematics and troubleshooting solutions.

TE 9241 Refrigeration Electrical V, 2 cr.—Prerequisite: TE 9237, TE 9238, TE 9239, and TE 9240. Further develops the ability to install, service, and repair electrical control systems in heating, cooling, and refrigeration units.

TE 9242 Refrigeration I, 2 cr.—Covers refrigeration principles and different basic cycles which include heat transfer temperature, basic physics laws and gas laws. Lab includes the use of tools and instruments used for changing and evacuation and recovery methods.

TE 9243 Refrigeration II, 2 cr.—Prerequisite: TE 9242. Cover and analyze the operation of refrigeration system components. Includes compressors, condensers, evaporators, refrigerants and metering devices. Lab includes system components and compressor testing methods, focusing on charging and evacuation and recovery methods.

TE 9244 Refrigeration III, 2 cr.—Prerequisite: TE 9242 and TE 9243. Covers the operation of refrigeration HVAC systems, emphasizing maintenance and controls. Lab includes troubleshooting systems along with evacuation and charging techniques.

TE 9245 Refrigeration IV, 2 cr.—Prerequisite: TE 9244. Covers refrigeration loads, equipment selection, piping and installation procedures. Focuses on calculating loads for walk-in units, sizing condensing units, and evaporative coils. Includes use of catalogs to locate components, r/air diagram for design and troubleshooting, and drawing and reading ladder diagrams.

TE 9246 Refrigeration V - HVAC, 2 cr.—Prerequisite: TE 9245. Covers all aspects of learning how to perform a load calculation for a proposed HVAC system. Includes the explanation and use of charts and tables applicable to sizing equipment for residential and commercial systems. Builds on previous refrigeration courses.

TE 9247 Refrigeration VI - HVAC, 2 cr.—Prerequisite: TE 9246. Advanced course which applies the skills and knowledge of the previous five levels of refrigeration. Includes air flow and its characteristics as it applies to heating, cooling, and ventilation duct system designs based on facility requirement.

TE 9248 Shop - Commercial Refrigeration II, 2 cr.—Prerequisite: TE 9247 or experience. Advanced skills and knowledge in the area of refrigeration installation, servicing and troubleshooting. Covers evaporating, dehydrating, determining initial charge, inspection and recording proper operation of the system. Also super heat and expansion valve operation will be covered.

TE 9249 Shop - Industrial Refrigeration III, 2 cr.—Prerequisite: Satisfactory completion of Refrigeration I, II and III, or instructor permission. This course supplements what students have learned in Refrigeration I, II, and III and gives students the opportunity for hands-on experiences in a class room setting.

TE 9250 Shop - Light Commercial/Refrigeration I, 2 cr.—Prerequisite: TE 9242 or experience. Lab covering troubleshooting, evacuation, charging, clean-up and compressor replacement of commercial refrigerators and air-conditioners trainers.

TE 9251 Refrigeration Compressor Operation & Service, 2 cr.—Covers compressor types and applications, compressor selection and sizing, advanced compressor designs, preventive maintenance, auxiliary system components, thermal expansion valves, system troubleshooting evacuation and dehydration, cleaning new installation and berm-outs, safety and cycles.

TE 9252 Heat Pumps, 2 cr.—Prerequisite: TE 9244. Focus on operation and service requirements of heat pumps. Demonstrates the application and understanding of the test equipment required to service the heat pumps. Includes the function of the control system required for operation of the heat pump system.

TE 9253 Natural Gas Equipment I, 2 cr.—Covers natural gas and its properties, pressures, piping and essential components of gas fired equipment and their functions, including combustion ventilating air requirements. Focuses on diagnosing problems and appropriate service techniques.
TE 9254 Natural Gas Equipment II, 2 cr.—Prerequisite: TE 9253. Provides background information to diagnose problems and become more competent. Covers natural gas burners, heat exchangers, controls, and essential components of gas-fired equipment and their functions.

TE 9255 HVAC/R Piping, 2 cr.—Offers a much-needed skill for the HVAC/R mechanic. On completing the course he/she should be able to size and route refrigeration lines, hang, solder, and insulate the lines, and be an asset to an HVAC/R company.

TE 9610 Electrical I: 1st Year, 1st Term, 3 cr.—Covers math for electrical applications, electron theory, Ohms Law, series circuits, parallel circuits and series/parallel circuits. Focuses on computing the values of voltage, amperage resistance and power. Includes electrical energy and power, the measurement of, and computing efficiency of same. Understand electrical conductors, wire sizes and basic voltage drop calculations in a circuit. Also, theory, use and maintenance of batteries as applied to the industrial plant environment.

TE 9611 Electrical II: 1st Year, 2nd Term, 2 cr.—Prerequisite: TE 9610. Cover the theory and application of magnetism, electro-magnetism, the generation of electromotive force, AC and DC motor principles, transformer theory, types and applications. Focus on alternating current principles and the theories involving the properties of inductance and capacitance. Lab covers the operation and use of electrical metering and testing devices used to analyze and troubleshoot the above subject matter.

TE 9612 Electrical III: 1st Year, 3rd Term, 2 cr.—Prerequisite: TE 9611. Introduces the definitions, fundamental rules, purpose and scope covered by the National Electric Code (NEC). Covers general wiring methods, requirements for wiring, installations (including cable assemblies), special cords and wires, all varieties of conduit, associated electrical devices, and fittings. Includes over-current devices and the basic of lighting fundamentals which includes fluorescent and high intensity discharge types.

TE 9613 Electrical IV: 2nd Year, 1st Term, 2 cr.—Prerequisite: TE 9612. Covers use of AC measure instruments, transformer theory, review of Ohm’s law, AC motor theory and motor controls, and general installation requirements to meet code specifications.

TE 9614 Electrical V: 2nd Year, 2nd Term, 2 cr.—Prerequisite: TE 9613. Covers appliances, branch circuits, calculations, services, and code requirements in detail.

TE 9615 Electrical VI: 2nd Year, 3rd Term, 2 cr.—Prerequisite: TE 9614. Covers residential and commercial lighting and fixtures, cranes and hoists, emergency systems, and power circuiting in various locations. Includes detailed code requirements.

TE 9616 Electrical VII: 3rd Year, 1st Term, 2 cr.—Prerequisite: TE 9615. Covers the theory of alternating current and power. Includes alternating current, resistance in AC circuits, inductance and inductive reactance, capacitance and capacitive reactance, power factor correction, power in AC circuits, vector analysis and three phase connections and calculations.

TE 9617 Electrical VIII: 3rd Year, 2nd Term, 2 cr.—Prerequisite: TE 9616. Includes introduction to hazardous locations, Class I, II, III installations, commercial garages-repair and storage, aircraft hangars, gasoline dispensing and service stations, bulk storage plants, finishing processes and health care facilities.

TE 9618 Electrical IX: 3rd Year, 3rd Term, 2 cr.—Prerequisite: TE 9617. Covers motor and machine controls. Includes fundamentals of motor control, control of motor starting, control components, programmable controllers, pilot devices, control circuit diagrams, solid state logic and diagrams, development of control circuits and troubleshooting electrical controls.

TE 9619 Electrical X: 4th Year, 1st Term, 2 cr.—Includes a review of important code sections, transformer applications and hook-ups, SCR control circuit design and layout, troubleshooting, voltage drop calculations, feeder-circuit breaker and load calculations in industry. Covers cable trays, non-metallic extensions, under-plaster extensions, surface metal race ways, multi-outlet assembly, under-floor race ways, cellular metal and concrete floor race ways, flat conduit cable and manufactured wiring systems.

TE 9620 Electrical XI: 4th Year, 2nd Term, 2 cr.—Includes a review of important code sections, transformers, SCR controls, troubleshooting, calculations on voltage drop, feeder-circuit breakers and loads. Covers bus ways, cable bus, switches, switch boards and panel boards, high voltage equipment and installation and the electrical systems used in theaters and assembly hall.

TE 9621 Electrical XII: 4th Year, 3rd Term, 2 cr.—Explores current developments in the electrical field, emphasizing the burgeoning use of solid state control equipment on all levels of new equipment.

TE 9650 RSES: Refrigeration I, 6 cr.—Prerequisite: RSES membership. Introduces refrigeration and air-conditioning principles. Includes basic physics, heat transfer, refrigerants and compression cycles. Also covers refrigerant oils and components.

TE 9653 RSES: Refrigeration II, 6 cr.—Prerequisite: RSES membership. Covers application of pressure and enthalpy diagrams, estimating heat loads, compressor application and cooling characteristics. Includes refrigerant components and electric motor capacitors and protectors, defrosting methods and system piping.

TE 9656 RSES: Refrigeration III, 6 cr.—Prerequisite: RSES membership. Covers air conditioning systems, basic heat pump theory, introduction to controls, properties of air psychro-metrics, air distribution, heat transfer coils, computer room environmental controls, economizer systems, compressor replacement and system evacuation, and troubleshooting principles.

TE 9659 RSES: Electricity I, 6 cr.—Prerequisite: RSES membership. Fundamentals in concepts of electricity, including circuits, resistors, instrument test equipment operation, wiring characteristics, symbols and interpretation of wiring diagrams.

TE 9662 RSES: Electricity II, 6 cr.—Prerequisite: RSES membership. Covers introduction to AC electricity, including schematics, wiring circuits, single-phase motors, inductance and capacitance. Includes protective devices, transformers, testing and repair procedures, and troubleshooting procedures on the refrigeration system.

TE 9665 RSES: Electricity III, 6 cr.—Prerequisite: RSES membership. Principles of basic electronics, solid state components and circuits. Includes lube oil protection, AC circuits and wiring methods, cooling controls, electric code, comfort systems and troubleshooting methods.
TEL 257 Telecommunication Systems Op/Mg, 3 cr.—Prerequisite: TEL 200, TEL 252, TEL 261, and TEL 262 or instructor approval. Focuses on telecommunications applications. Includes organization, defining roles of participants, implementation plans and schedules, cost analysis, amortization schedules, time-line evaluation (PERT, Critical Path Analysis, Gantt charts, etc.), project review meetings, testing, and acceptance documentation. Focuses on telecommunications applications.

TEL 258 Planning and Project Management, 3 cr.—Prerequisite: TEL 200, TEL 252, TEL 261, and TEL 262 or instructor approval. Overview of basic techniques and considerations. Includes organization, defining roles of participants, implementation plans and schedules, cost analysis, amortization schedules, time-line evaluation (PERT, Critical Path Analysis, Gantt charts, etc.), project review meetings, testing, and acceptance documentation. Focuses on telecommunications applications.

TEL 261 Voice Communications, 3 cr.—Prerequisite: TEL 200 or instructor approval. Overview of systems for small and larger businesses to include telephone equipment, multiplexers, store-and-forward devices, public telephone network access, and frequency spectrum systems. Presents techniques in needs analysis, capacity measurement, video conferencing, user training, and expansion planning. Discusses acquisition of equipment and services.

TEL 262 Data Communications, 3 cr.—Prerequisite: TEL 200 or instructor approval. Focuses on methods by which computers communicate over telecommunications networks. Covers the fundamentals of protocols, hardware configurations, modems, and network enhancement techniques. Develops telecommunications strategies for data processing and transmission. Explains both analog and digital concepts to illustrate the merger of voice and data in modern networks.

TEL 266 Advanced Data Communications and LANs, 3 cr.—Prerequisite: TEL 200 and TEL 262 or instructor approval. Explores traffic analysis, network design, network management, security and control. Focuses on topology, access methods, protocols, routers, bridges, and transmission media. Discusses high bandwidth requirements, Integrated Services Digital Network (ISDN), Switched Multimegabit Data Service (SMDS), T-carrier networking, and frame/cell relay.

TEL 267 Integrated Network Systems, 3 cr.—Prerequisite: TEL 200, TEL 261, TEL 262, and TEL 266 or instructor approval. Reviews technical design issues related to corporate-wide network systems. Discusses current and emerging technologies, architecture, specific systems, accepted industry practices, U.S. and international standards, and the management concerns of integrated Local Area Networks (LAN), Metropolitan Area Networks (MAN), Wide Area Networks (WAN).
VS - Veterinary Science

VS 100 Intro to Veterinary Technology, 2 cr.—Prerequisite: program admission. Covers the job of the veterinary technician. This will illustrate that the course work is both practical and necessary.

VS 101 Animal Nursing and Restraint, 3 cr.—Prerequisite: program admission and VS 100. Teaches nursing techniques and principles of restraint of dogs, cats, horses, cattle, sheep, birds and laboratory animals. Emphasizes techniques to maximize the safety aspect of restraint to both the handler and to the animal patient.

VS 102 Veterinary Medical Terminology, 2 cr.—Prerequisite: program admission or instructor permission. Medical word parts, abbreviations and basic terms along with a basic knowledge of word construction are taught.

VS 105 Comparative Veterinary Anatomy and Physiology I, 4 cr.—Prerequisite: program admission, VS 121, BI 101, and CH 100. The form and function of animal bodies and their anatomical and physiological differences between selected species are studied. Lab includes skeletons and cadaver specimens. Focuses on microscopic anatomy and anatomy and physiology of bones, muscles, and skin.

VS 106 Comparative Veterinary Anatomy and Physiology II, 4 cr.—Prerequisite: VS 105. The form and function of animal bodies and their anatomical and physiological differences between selected species are studied. Lab includes skeletons and cadaver specimens. Focuses on anatomy and physiology of the digestive, nervous, urinary, reproductive, and endocrine system. Includes organs of special sense.

VS 115 Animal Health Record Systems, 3 cr.—An introduction to veterinary medical records, admitting procedures, history-taking, record maintenance for both in/out patient, and kennel records. Includes follow-up and discharge procedures on filing and record retention. Covers using the computer in veterinary medicine.

VS 116 Veterinary Parasitology, 3 cr.—Prerequisite: program admission and BI 101. Introduces life cycles, modes of transmission, geographical distribution and diseases associated with each parasite. Lab includes identification of parasites using prepared slides and collected specimens.

VS 119 Pharmaceutical Mathematics, 1 cr.—Prerequisite: program admission. Introduces mathematics as applied to pharmacology. Includes unit conversions, solutions and percentage calculations, and drug dosage calculations.

VS 121 Basic Animal Science, 4 cr.—Introduces the livestock industry and the various species of large animal livestock. Includes livestock terminology, breeds, production systems, basic management practices, and animal products and by-products. Lab introduces the livestock production systems and producers.

VS 122 Hematology and Urinalysis, 5 cr.—Prerequisite: VS 105, BI 101, BI 102, and CH 100. Develops the knowledge and skills necessary to perform hematology and urinalysis. Includes how to perform a complete blood count and to do a urinalysis using current technology.

VS 123 Specimen Collection Laboratory, 1 cr.—Prerequisite: VS 105, BI 101, BI 102, and CH 100. Collection techniques used on both large and small animals and skills needed to obtain the specimens required for analysis in clinical laboratories.

VS 201 Anesthesiology, Surgical and Medical Nursing I, 3 cr.—Prerequisite: second year standing, VS 105, VS 106, VS 122, VS 224 and VS 225. Introduces basic anesthetic agents, the use and operation of allied machines, monitoring and care of the anesthetized animal patient, and the pre-operative considerations and duties for both surgery and anesthesia.

VS 202 Anesthesiology, Surgical and Medical Nursing II, 4 cr.—Prerequisite: VS 201. Covers basic anesthetic agents, the use and operation of allied machines, surgical monitoring, surgical assistance, pre-operative and post-operative animal care, instrument identification and the veterinary technician’s role in special surgical procedures. Also includes laboratory animal diseases and procedures.

VS 203 Veterinary Procedures Seminar, 3 cr.—Prerequisite: VS 202. Covers the special skill areas of technician training, such as electro-cardiography, bandaging, and various diagnostic and therapeutic procedures. Students investigate, research, and report (both orally and in writing) on topics of special interest.

VS 207 Public Health and Sanitation, 2 cr.—Prerequisite: VS 122, VS 224, and VS 225. Covers the principles of public health and sanitation as they apply to veterinary medicine and the veterinary technician. Emphasizes epidemiology, public health principles and regulations, zoonoses, and meat and food hygiene.

VS 208 Small Animal Diseases, 3 cr.—Prerequisite: VS 105, VS 106, VS 122, VS 209, VS 224, and VS 225. Important diseases and disease processes occurring in small animals are covered. Includes the causes, pathogenesis, clinical signs, treatment and prevention of each disease.

VS 209 Veterinary Pharmacology, 4 cr.—Prerequisite: VS 105, VS 106, VS 116, VS 119, VS 122, VS 224, VS 225, and CH 100. Introduces general pharmacological principles, drugs, and classification of agents used in veterinary medicine.

VS 210 Animal Nutrition, 3 cr.—Prerequisite: VS 105, VS 106, VS 121, BI 101, BI 102, and CH 100. Introduces various types of nutrients, the basic principles of nutrition as applied to small and large animals, various feeding practices and their economic importance, and important nutritionally caused diseases. Covers care and handling of orphaned animals and special prescription diets.

VS 211 Applied Radiography, 3 cr.—Prerequisite: Second year standing, VS 105, VS 106, and VS 217. Teaches the practical application of radiography in the veterinary profession. Includes the operation and uses of x-ray machines, the care and development of films, and radiographic positioning of animals.

VS 213 Large Animal Diseases, 3 cr.—Prerequisite: VS 105, VS 106, VS 122, VS 209, VS 224, and VS 225. Covers the important diseases and disease processes, and obstetrics as they occur in large animals. Includes the causes, pathogenesis, clinical signs, treatment and prevention of each disease. Lab includes large animal treatment procedures.

VS 217 Radiation Safety, 2 cr.—Prerequisite: program or current employment in a veterinary hospital or clinic doing x-ray work. Introduces x-radiation and safety principles involved in using of x-ray machines.
VS 224 Clinical Laboratory Procedures, 5 cr.—Prerequisite: VS 105, VS 106, VS 122, BI 101, BI 102, and CH 100. Teaches the knowledge and skills necessary to perform the various types of tests that are usually done in the clinical laboratory of a veterinary hospital. Includes learning to perform serum chemistries on various types of machines, knowledge of special commercial test procedures, and examination of cytology specimens.

VS 225 Veterinary Microbiology, 3 cr.—Prerequisite: VS 105, VS 106, VS 122, BI 101, BI 102, and CH 100. Develops the knowledge and skills necessary to perform microbiology functions. Includes learning about the various pathological genus and species of bacteria, fungi, and viruses. Focuses on the various laboratory methods used in the identification of bacterial and fungal organisms.

VS 280A CE: Clinic I, 4 cr.—Prerequisite: acceptance into Veterinary Technology program. Designed to help the student develop career objectives by linking their Portland Community College course work with off-campus learning experiences in business, industry, and/or the public sector. Course will focus on office/receptionist skills, animal care and grooming, laboratory procedures, pharmacology, radiology, surgical preparation and assistance and anesthesiology.

VS 280B CE: Clinic II, 4 cr.—Prerequisite: acceptance into Veterinary Technology program. Designed to help the student develop career objectives by linking their Portland Community College course work with off-campus learning experiences in business, industry, and/or the public sector. Course will focus on office/receptionist skills, animal care and grooming, laboratory procedures, pharmacology, radiology, surgical preparation and assistance and anesthesiology.

VS 280C CE: Clinic III, 4 cr.—Prerequisite: acceptance into Veterinary Technology program. Designed to help the student develop career objectives by linking their Portland Community College course work with off-campus learning experiences in business, industry, and/or the public sector. Course will focus on office/receptionist skills, animal care and grooming, laboratory procedures, pharmacology, radiology, surgical preparation and assistance and anesthesiology.

VS 280D CE: Clinic IV, 4 cr.—Prerequisite: second year standing. Students are able to develop the skills and techniques learned in the classroom and laboratory in a veterinary clinical situation. Specified tasks are expected to be performed during each clinical rotation. Focuses on small animal clinics or mixed (small and large) animal clinics, and a special clinic, which could include a rotation at the College of Veterinary Medicine at Oregon State University, Oregon Health Sciences University, the Oregon Regional Primate Center, a veterinary clinical laboratory, a large animal practice, or an equine practice.

WLD - Welding

WLD 101 Welding Principles, 4 cr.—Covers welding processes, safety, equipment, and essential variables of operation.

WLD 102 Blueprint Reading, 4 cr.—Covers the language of blueprints including lines, views, dimensioning, print organization, welding symbols and structural shapes.

WLD 111 Shielded Metal Arc Welding (E7024 & E6011) and Oxy-acetylene, 3 cr.—Covers uses, safety, nomenclature, equipment operation, and set-up and shutdown procedures for SMAW and O.A.C.

WLD 112 Shielded Metal Arc Welding: Mild Steel IV (E7018), 3 cr.—Develops knowledge and manipulative skills in the use of E7018 mild steel electrodes when performing various welds in the flat, horizontal and vertical positions.

WLD 113 Shielded Metal Arc Welding: Mild Steel V (E7018), 3 cr.—Develops knowledge and manipulative skills in the use of E7018 mild steel electrodes when performing various welds in the vertical and overhead positions.

WLD 114 Shielded Metal Arc Welding: Mild Steel I (E6010 & E6011), 3 cr.—Develops knowledge and manipulative skills in the use of E6010 and E6011 mild steel electrodes when performing various welds in the flat and horizontal positions.

WLD 115 Shielded Metal Arc Welding: Mild Steel II (E6010 & E6011), 3 cr.—Develops knowledge and manipulative skills in the use of E6010 and E6011 mild steel electrodes when performing various welds in the vertical and overhead positions.

WLD 121 Gas Tungsten Arc Welding: Mild Steel, 3 cr.—Develop knowledge and manipulative skills while welding common joints in all positions on mild steel with the G.T.A.W. process.

WLD 131 Gas Metal Arc Welding, 3 cr.—Develops knowledge and manipulative skills welding with solid wire on ferrous and non-ferrous materials using short arc in all four positions and spray arc in the flat and horizontal positions.

WLD 141 Flux-Cored Arc Welding I (Gas Shielded), 6 cr.—Develops knowledge and manipulative skills in the shielded flux-cored arc welding process in the flat, vertical, horizontal and overhead positions.

WLD 142 Flux-Cored Arc Welding II (Self Shielding), 3 cr.—Develops knowledge and manipulative skills in the self-shielded arc welding process in the flat, vertical, horizontal and overhead positions.

WLD 151 SMAW Certification Practice: Unlimited Thickness Mild Steel, 3 cr.—Prepare for Shielded Metal Arc Welding Certification on unlimited plate thickness.

WLD 152 Wire Welding Certification Practice, 3 cr.—Prerequisite: WLD 111, WLD 131, and WLD 142, or department permission. Methods and skills to improve and upgrade welding techniques to a qualification level to become certified in the gas metal arc and flux-cored arc welding processes.

WLD 201 Welding Metallurgy I, 4 cr.—Covers basic concepts of metallurgy as related to welding. Includes properties of metals, materials testing, constitution of alloys, the iron carbon diagram, heat treatments of steels, carbon and alloy steels and the weldability of metals.

WLD 202 Welding Inspection and Quality Control, 4 cr.—Develop an understanding of the functions of a Quality Assurance program, and requirements to prepare for the American Welding Society CWI. (Certified Welding Inspector) examination.

WLD 216 Miscellaneous Electrodes & Advanced Positions, 3 cr.—Develops knowledge and manipulative skills in the use of a variety of electrodes when welding complex joints and welding positions.
WLD 217 Diesel Welding, 3 cr.—Develops knowledge and skills in welding required of a diesel mechanic. Focuses on maintenance and repair applications using SMAW, GMAW, and O.A.C. processes.

WLD 222 Gas Tungsten Arc Welding: Aluminum, 3 cr.—Develops knowledge and manipulative skills while welding common joints in all positions on aluminum with the G.T.A.W. process.

WLD 223 Gas Tungsten Arc Welding: Stainless Steel, 3 cr.—Develops knowledge and manipulative skills while welding common joints in all positions on stainless steel with the G.T.A.W. process.

WLD 224 Gas Tungsten Arc Welding: (Mild Steel) Pipe I, 3 cr.—Develops knowledge and manipulative skills required to weld mild steel pipe in all positions using the G.T.A.W. process.

WLD 225 Gas Tungsten Arc Welding: (Mild Steel) Pipe II, 3 cr.—Develops knowledge and manipulative skills while welding a variety of diameters mild steel pipe in the 6G, (fixed 45 angle) using the G.T.A.W. process.

WLD 253 SMAW Certification Practice 3/8” Mild Steel (E6011), 3 cr.—Practice for the American Welding Society Mild Steel Welding Certification tests using SMAW mild steel electrodes in the horizontal, vertical and overhead positions.

WLD 254 SMAW Certification Practice 3/8” Mild Steel (E7018), 3 cr.—Practice for the American Welding Society Mild Steel Welding Certification tests using SMAW low hydrogen electrodes in the vertical, horizontal and overhead positions.

WLD 256 Preparation for Pipe Certification I, 3 cr.—Develops knowledge and skills in the use of melt-through procedures in preparation for pipe welding with the shielded metal arc process.

WLD 257 Preparation for Pipe Certification II, 3 cr.—Practice for pipe certification using the S.M.A.W. process to weld pipes in all positions.

WLD 261 Basic Fabrication I, 3 cr.—Develops fabrication knowledge and skills in selection and use of layout tools and equipment, to assemble a fabrication project from given specifications.

WLD 262 Basic Fabrication II, 3 cr.—Develops knowledge and skills in the proper selection and safe use of hand tools and machinery while working on specific fabrication projects.

WLD 271 Oxy-acetylene Welding Projects, 3 cr.—Practice hand coordination and controlling heat while welding steel with oxy-acetylene equipment using all positions.

WLD 280A CE: Welding, 4 cr.—On-the-job experiences which allow for the application and development of knowledge and skills acquired in the on-campus program. Work experiences are offered for variable credit up to a maximum of four credits.

WLD 280B CE: Welding - Seminar, 1 cr.—Prerequisite: department approval. Share experiences with other students and the on-campus instructor in order to develop strategies for successful cooperative work experiences and future employment.

WLD 280A CE: Welding, 4 cr.—On-the-job experiences which allow for the application and development of knowledge and skills acquired in the on-campus program. Work experiences are offered for variable credit up to a maximum of four credits.

WLD 9910 Shielded Metal Arc Welding (Stick), 2 cr.—Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed.

WLD 9920 Gas Tungsten Arc Welding (Heliarc), 2 cr.—Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed.

WLD 9930 Wire Welding, 2 cr.—Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed.

WR - Writing

WR 115 Introduction to Expository Writing, 3 cr.—Prerequisite: appropriate score on the ASSET assessment instrument, or completion of BWIII or ENL 251/W with a grade of "C" or better. Introduces college level skills in reading critically, exploring ideas, and writing. Students compose essays which support a thesis through structure appropriate to both thesis and reader and learn to revise for clarity and correctness.

WR 117 Intro to Technical Writing, 3 cr.—Prerequisite: Grade of "C" or better in WR 115, or WR 121 placement. Focuses on specific writing needs of career programs: procedures, proposals, letters, memoranda, lab reports, work reports.

WR 121 English Composition, 3 cr.—Prerequisite: appropriate score on the ASSET assessment instrument or a grade of "C" or better in WR 115. Develops skills in analytical reading, critical thinking, and expository and persuasive writing. Students compose several essays using a variety of strategies to present evidence in support of a thesis.

WR 122 English Composition, 3 cr.—Prerequisite: grade of "C" or better in WR 121. Explores ideas and issues through discussion and writing. Students compose analytical, argumentative, and/or expository essays with appropriate documentation.

WR 123 English Composition, 3 cr.—Prerequisite: grade of "C" or better in WR 122. Uses extensive research writing to develop skills in critical analysis and documented argument. Students synthesize their considered response to designated text(s) and/or issues with the reactions of other writers. Includes paraphrasing, summarizing, quoting, and documenting using style appropriate to discipline researched.

WR 185 English Grammar, 3 cr.—Prerequisite: Placement in WR 121 or equivalent. Introduces linguistic analysis of written English, elementary history, and mastery of grammatical vocabulary. Includes language acquisition theory and the application of grammatical understanding to the art of composition.

WR 214 Business Communications, 3 cr.—Prerequisite: grade of "C" or better in WR 121. Explores writing as a strategy for problem-solving in business settings. Develops analytical skills and audience awareness in complex writing situations. Includes group problem-solving, fact-finding interviewing, library research, evaluating ethical issues, developing appropriate formats, and composing, revising, designing, and editing business documents.
WR 216 Advanced Composition, 3 cr.—Prerequisite: WR 121, WR 122, and WR 123; with instructor's permission, students may enter directly from WR 122. Focuses on creative nonfiction, such as investigative journalism, nature writing, reviews, satire, and personal essay. Evaluates student compositions in class discussion.

WR 227 Technical Writing I, 3 cr.—Prerequisite: grade of "C" or better in WR 122 or WR 214. Introduces technical and professional communications. Includes such projects as definitions, specifications, descriptions, instructions, manuals, warnings, liability statements, and analytical reports. Emphasizes precise use of language and graphics to communicate complex technical and procedural information safely, legally, and ethically.

WR 228 Police Report Writing, 3 cr.—Prerequisite: grade of "C" or better in WR 122 or WR 214. Emphasizes writing skills and techniques appropriate to narrative structures necessary for operational police reports.

WR 229 Advanced Police Report Writing, 3 cr.—Prerequisite: WR 228 or instructor permission. Covers writing police reports for a living. Includes determining if available information and evidence is legally admissible in court, interviewing witnesses to a crime, discussing the relationship between physical evidence and personal analysis of a crime with law enforcement personnel, and preparing an entire case for prosecution.

WR 241 Creative Writing (Fiction), 3 cr.—Focuses on writing and submitting fiction for class discussion and analysis. Studies established writers for techniques, structures, and styles. Recommended: WR 121-level reading and writing skills.

WR 242 Creative Writing (Poetry), 3 cr.—Introduces students to the craft of poetry through study of the works of established writers for writing techniques, forms, structures, and styles, and through the writing and submission of approximately one complete poem per week for class discussion and analysis. Recommended: WR 121-level reading and writing skills.

WR 243 Creative Writing (Script Writing), 3 cr.—Focuses on writing and submitting scripts for class discussion and analysis. Studies established writers for techniques, structures, and styles. Recommended: WR 121-level reading and writing skills.

WR 244 Advanced Creative Writing - Fiction, 3 cr.—Prerequisite: WR 241 or instructor permission. Focuses on continuing to apply the techniques and structures of fiction writing introduced in WR 241. Includes writing fiction, having work critiqued by instructor and peers, and critiquing that of others in a workshop setting.

WR 245 Advanced Creative Writing - Poetry, 3 cr.—Prerequisite: WR 242 or instructor permission. Extends the introduction to the craft of poetry in WR 242. Presents the works of established writers for forms, techniques and styles of poetry as a context for the student's own production of one poem per week for class discussion and analysis.

WR 246 Advanced Creative Writing (Editing and Publishing), 3 cr.—Prerequisite: one beginning (WR 241, 242, or 243) and one advanced (WR 244, 245, or 216) creative writing class and/or instructor permission. Emphasizes development of craft in students' writing while introducing basics of editing others' manuscripts and preparing them for publication in a variety of forms, including an annual student literary magazine. May be repeated twice for credit.

WR 280A CE: Technical Writing, 5 cr.—Prerequisite: Completion of Technical and Professional Writing certificate program and department approval. Technical and professional writing work experience is offered for variable credit up to a maximum of five credits. Students receive one credit for every 40 hours of successful work experience.

WR 60 Spelling I, 3 cr.—Basic rules of English spelling and their frequent exceptions. Includes work with phonics, homonyms, word derivations, memory aids, and other means of achieving spelling improvement.

WR 65 Spelling II, 3 cr.—Prerequisite: instructor permission or completion of WR 60. Basic rules of English spelling and their frequent exceptions. Includes more advanced work with spelling and vocabulary for students who have completed Spelling I.

WR 70 Writing I, 3 cr.—Prerequisite: placement test or instructor permission. Basic tools of language, including mechanics, spelling, and basic sentence structure to build writing confidence and skills.

WR 80 Writing II, 3 cr.—Prerequisite: placement test, instructor permission, or successful completion of WR 70. Improves basic communication skills in mechanics, spelling, grammar, sentence structure, paragraph development, and written expression.

WR 90 Writing III, 3 cr.—Prerequisite: placement test, instructor permission, or successful completion of WR 80. Improves skills in vocabulary, sentence structure, paragraph development, and written expression.

WR 95 The Resume and Employment Interview, 1 cr.—Introduces evaluating personal employment goals, researching potential employers, writing a resume and application letter, and preparing for the employment interview.

WR 9600 Technical and Professional Writing II, 3 cr.—Prerequisite: grade of "B" or better in WR 185, WR 227, and WR 9601. Includes document design, researching, organizing, developing, managing and producing complex technical and professional documents.

WR 9601 Graphics for Technical and Professional Writers, 3 cr.—Prerequisite: grade of "B" or better in GD 120 and WR 227. Some Macintosh experience required. Applies the graphic art skills learned in GD 120 to technical and professional writing projects. Combines those skills with skills in electronic layout and design.
BOARD AND PROFESSIONAL STAFF

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Marcia Atkinson
Norma Jean Germond
Karen McKinney
Dan Saltzman
Keith D. Skelton
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President
Daniel F. Moriarty, Ed. D.
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Connie Sauer, M.B.A.
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Executive Dean, Cascade Campus
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Alice Jacobson, Ed.D.
Affirmative Action Director
Jorge E. Espinosa
Director of Public Affairs
Jan D. Coulton
Director of Development
Stephen N. Guntli

Professional Staff
Adair, Kenneth R.
Counselor
MS, Counseling, University of Oregon, 1972
BS, Sociology, University of Oregon, 1970
AA, Liberal Arts, Multnomah College, 1968

Adams, Edmund L.
Instr/Automotive Service Tech
AA, Liberal Arts, Graham Junior College, 1970
Five years of industry experience

Adams, Hollis J.
Instr/Mathematics
MA, Mathematics, Ohio University, 1975
BS, Mathematics, Virginia Polytechnic Institute, 1972

Adams, Rebecca
Tech Learning Skills Specialist
BA, English, Grinnell College, 1982

Adler, Ellis H.
Instr/Chemistry
PhD, Chemistry, University of Oregon, 1971
BS, Chemistry, University of Washington, 1966

Ady, Jean D.
Instr/English & ENNL
MA, English, Portland State University, 1979
BA, Education, Washington State University, 1964

Aldridge, Lonn R.
Coord/Evening Campus
MBA, Management, Bryant College, 1976
BS, History, Portland State University, 1967

Aman, Richard R.
Dir/Microcomputer Program
MBA, Management, Golden Gate University, 1983
BS, Education, Western Oregon State College, 1974
AS, Mt Hood Community College, 1988

Anderson, Clarice G.
Financial Aid Specialist I
BS, Elementary Education, Oregon College of Education, 1964

Anderson, James A.
Instr/Chemistry
MS, Organic Chemistry, Michigan State University, 1966
BS, Chemistry, Portland State University, 1964

Anderson, Lynn M.
Job Developer/Placement Sp
BS, Mathematics, University of Minnesota, 1974

Anderson, Shirley R.
Dean of Instruction
PhD, Educational Policy & Mgmt, University of Oregon, 1993
MS, Nursing Administration, Andrews University, 1983
BS, Nursing, Walla Walla College, 1979

Anthony, Ryan F.
System Analyst
AAS, Computer Programming, Portland Community College, 1983

Anthony, Sharon K.
Instr/Composition & Literature
PhD, English, University of Oregon, 1974
MA, English, University of Oregon, 1968
BA, English, University of Oregon, 1966

Anthony, Sharon L.
Mgmt Applications Specialist
MS, Sociology, University of Oregon, 1982
BS, Psychology, Northwest Missouri State Univ, 1980
AAS, Computer Science, Westland College, 1986
Antoch, Zdenek V.
Instr/Electronic Engr
MS, Electronic/Computer Engineering, Portland State University, 1989
BS, Science, Portland State University, 1971

Archibald, Robert H.
Supv Veteran's Program
MS, Special Education, Portland State University, 1974
BA, Psychology, Pacific University, 1973

Arlt, Linda L.
Instr/Nursing
MSN, Nursing, Univ Oregon Health Sci Univ, 1981
BSN, Nursing, Univ Oregon Health Sci Univ, 1975

Arnold, Terry L.
Coop Ed Specialist
MS, Curriculum & Instruction, University of Oregon, 1979
BS, Political Science, University of Oregon, 1975

Bach, Rodney C.
Instr/Education Department
MS, Educational Media, Oregon College of Education, 1972
BS, Elementary Education, Oregon College of Education, 1969

Bach, Susan K.
Dir/ Institutional Research
MPA, Public Administration, Lewis & Clark College, 1986
BA, English, Willamette University, 1968

Bacha, Patricia A.
Instr/Business Technology
Med, Business Education, University of Idaho, 1993
BS, Home Economics Education, University of Idaho, 1992

Backes, Gabriele R.
Instr/Chemistry
PhD, Chemistry, University of Bochum, 1985
MS, Chemistry, University of Bochum, 1982
BS, Chemistry, University of Bochum, 1979

Bader, Marilyn J.
Mgr/ Financial Aid
MS, Public Administration, University of Oregon, 1987
BS, Community Serv Public Affairs, University of Oregon, 1979
AS, Accounting, Lane Community College, 1975

Bain, Allison Y.
Instr/Visual Arts
MFA, Art, University of Oregon, 1971
BS, Education And Human Services, University of Calgary, 1962

Banfe, Yvonne M.
Instr/Food and Nutrition
MS, Dietetics, Loma Linda University, 1961
BS, Home Economics, Walla Walla College, 1959

Banks, Russell C.
Mgr/ Publications
BJ, Journalism, University of Texas, 1974

Barnes, Timothy C.
Instr/English
MA, English, Portland State University, 1976
BA, English, San Jose State College, 1970

Barnett, Wiley G.
Admis Coord/Dcctr Minority Rec
MSW, Social Work, Fresno State College, 1971
BA, Philosophy, Fresno State College, 1969

Barry, Cecilia C.
Coord/ Community Education
BA, English, Lewis & Clark College, 1984

Bartley, Myra E.
Instr/Dev Ed/English
MAT, Language Arts, Lewis & Clark College, 1977
BS, Education, University of Oregon, 1961
Boatman, Terry G.
Instr/Physical Education
MS, Outdoor Education, Southern Oregon State College, 1972
MPE, Physical Education, Idaho State University, 1973
BS, Education, Southern Oregon State College, 1963

Boone, Carol L.
Supervisor of Curriculum
BA, Art History, Portland State University, 1968

Boose, Randall L.
Manager, Employee Benefits
BA, Business, Eastern Oregon State College, 1972

Bradach, Kathleen M.
Academic Advisor Specialist
BS, Elementary Education, Oregon State University, 1979

Braymen-Cleary, Mary L.
Coordinator of Literacy Line
MA, English, Portland State University, 1985
BA, English, Portland State University, 1979

Brock, Hugh C.
Instr/Diesel Service Mechanics
BS, Industrial Occupations, Oregon State University, 1970
15 years of industry experience

Brokaw, Lynn H.
Instr/Psychology
EDS, Counseling Psychology, Colorado State College, 1967
AP, Counseling, Colorado State College, 1967
AB, Social Science, Colorado State College, 1965

Bronzan, Sharon S.
Instr/Visual Arts
MS, Art, University of Oregon, 1972
BS, Art, University of Oregon, 1965

Brown, Ernest S.
Instr/Mathematics
MS, Computer Science, University of Oregon, 1970
BS, Mathematics, California State University, 1968

Bruna, Carol J.
Program Coordinator, Emergencies Dispatch Program
AS, Criminal Justice Admin, Clackamas Community College, 1982

Brunken, Robert D.
Instr/Automotive Service Technology
DIP, Automotive Technology, Multnomah College, 1967
Seven years of industry experience

Brunow, Elizabeth L.
Instr/ABE/ESL
AB, English, Stanford University, 1957

Bruno, Richard J.
Instr/History
MA, History, Ohio University, 1968
BSED, History-Secondary Education, State College at Boston, 1966

Bull, Orlo N.
Manager, College Newspaper
BA, Journalism, University of Oregon, 1960

Burchell, Richard T.
Instr/Electronic Service Technology
BS, Occupational Education, Southern Illinois University, 1977
MA, Public Administration, University of Washington, 1976
BA, Business Administration, University of Washington, 1968

Burnam, Rollins
Instr/Geology
MS, Geology, Oregon State University, 1970
BS, Geology, Oregon State University, 1955

Burns, Robert B.
Instr/Business Administration
MBA, Business Administration, Univ of Southern Mississippi, 1976
BS, Business, Univ of Southern Mississippi, 1975
AAS, Telecommunications Technology, Community College of Air Force, 1975

Button, Gerald E.
Instr/Biology
EdD, Education, Portland State University, 1991
MS, Biology, University of Oregon, 1974
BS, Natural Science, Lewis & Clark College, 1969

Bynoe, Gilbert R.
Instr/Airplane Maintenance Technology
BS, Vocational Education, Southern Illinois University, 1990
AS, General Studies, Mohawk Community College, 1983

Caban, Kaia M.
Coordinator of Community Education

Cadwell, Harold B.
Instr/Printing Technology
BS, Art, Lewis & Clark College, 1954

Cain, Driedre C.
Instr/Second Language
BA, International Studies, University of the Pacific, 1978
CERT, Test, Portland State University, 1978

Campagna, Judith F.
Instr/Building Trades
BA, Psychology, University of Iowa, 1965

Cannucci, John V.
Instr/Sociology
MS, Sociology, Portland State University, 1971
BS, Sociology, Portland State University, 1968

Carey, Charles T.
Counselor
MS, Ed, Portland State University, 1972
BS, English, Lewis & Clark College, 1964

Carey, Stephen S.
Instr/Philosophy
PhD, Philosophy, University of Oregon, 1984
MA, Philosophy, University of Oregon, 1972
BS, Philosophy, Lewis & Clark College, 1966

Carman, Hal D.
Instr/Auto-Body Repair
BS, Industrial Education, Oregon State University, 1978
BS, Community Service Public Affairs, Eastern Oregon State College, 1974

Carter, Margaret L.
Counselor
MED, Education, Oregon State University, 1974
BS, Education, Portland State University, 1973

Casto, Estella K.
Instr/Composition & Literature
PhD, English, Ohio State University, 1990
MA, English, Ohio State University, 1985
AB, Political Science, Ohio University, 1982

Cayton, Christopher L.
Instr/Philosophy
MA, Philosophy, University of Paris, 1984
LIC, Philosophy, University of Paris, 1981
BA, Philosophy, Portland State University, 1976

Chally, Nancy F.
Coordinator, Workplace Basic Skills Training
BA, Humanities, University of the Pacific, 1972
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Education</th>
</tr>
</thead>
</table>
| Chamberlain, Owen     | Division Dean                | MFA, Art, University of Oregon, 1967  
|                       |                              | BS, Art, University of Oregon, 1963  |
| Chambers, Janice H.   | Instr/Mech Engineering       | AAS, Mechanical Engineering Tech, Portland Community College, 1974 |
| Cherry, Thomas J.     | Coord/PEP/Supportive Emp Traing  
|                       |                              | PhD, Clinical Psychology, University of Portland |
| Chambers, Janice H.   | Instr/Mathematics            | MA, Education: math, University of Illinois, 1961  
|                       |                              | AB, Mathematics, Macmurray College, 1955  |
| Christensen, Charles O. | Instr/Mathematics            | AS, Civil Engineering, Mt Hood Community College, 1982  |
| Christopher, Connie S. | Instr/Welding                | MA, Education: math, University of Illinois, 1961  
|                       |                              | AB, Mathematics, Macmurray College, 1955  |
| Christopher, Susanne M. | Instr/Personal Health       | EDM, Health, Oregon State University, 1976  
|                       |                              | BS, Health, Oregon State University, 1974  |
| Chung, Cau            | Accountant II                | AS, Business Administration, Portland Community College  |
| Chung, Wing-Kit D.    | Dir/Financial Services       | MBA, Information Systems, Oregon State University, 1980  
|                       |                              | BA, Business, Southern Oregon State College, 1978  |
| Chute, Dian L.        | Instr/English                | MA, English Literature, Portland State University, 1979  
|                       |                              | BA, English, Portland State University, 1976  |
| Clark, Dick J.       | Instr/Mathematics            | MS, Education: math, Brigham Young University, 1968  
|                       |                              | BA, Physics, Brigham Young University, 1966  |
| Cleghorn, Michael R.  | Instr/Medical Lab Tech       | BS, Science/Psychology Certificate, Portland State University, 1983  
|                       |                              | AAS, Medical Lab Technology, Portland Community College, 1975  |
| Clock, Patrick L.     | Instr/Mathematics            | MS, Mathematics, Portland State University, 1971  
|                       |                              | BS, Physics, Lewis & Clark College, 1962  |
| Coates, Sharon A.     | Instr/Mathematics            | MST, Elementary Education, Portland State University, 1973  
|                       |                              | BS, Elementary Education, Portland State University, 1969  |
| Cochran, Phillip E.   | Instr/Veterinary Tech        | DVM, Veterinary Medicine, Colorado State University, 1976  
|                       |                              | MS, Genetics, Oregon State University, 1972  
|                       |                              | BS, Zoology, Oregon State University, 1969  |
| Cochrane, Deborah J.  | Drct/Portland Teachers Progrm| BA, English, University of Oregon, 1977  |
| Coleman, Gerald W.    | Community Resource Specialist| BA, Social Work, California State Sacramento, 1974  |
| Comerford, Jane A.    | Coord/Community Education    | MSW, Social Services, Howard University, 1974  
|                       |                              | BS, Education, University of Oregon, 1964  |
| Conley Jr, Sylvester  | Mgr/Systems Development      | MBA, Business Administration, Pacific Lutheran University, 1986  
|                       |                              | BS, Electronic Technology, Chapman College, 1982  |
| Cooper, Roger W.      | Instr/Building Construction  | MA, Theater, University of Denver, 1969  
|                       |                              | BS, Arts & Letters, Portland State University, 1968  |
| Cotner, Michele L.    | Dirl Human Resource Department| MA, Public Administration, University of Washington, 1976  
|                       |                              | BA, Business Administration, University of Washington, 1968  |
| Coulton, Jan D.       | Dir/Financial Services       | AA, Business Management, Portland Community College, 1978  
|                       |                              | BA, English Literature, Eastern Michigan University, 1967  
|                       |                              | AA, Liberal Arts, Georgetown Visitation Jr Coll, 1964  |
| Crumies, John J.      | Instr/Mech Engineering       | BA, Mathematics, University of Oregon, 1964  |
| Dahya, Pramilla L.    | Instr/Nursing                | MS, Nursing, University of Washington, 1970  
|                       |                              | BS, Nursing, University of Madras, 1959  |
| Dale, Nancy M.        | Dir/Dislocated Workers Project| BA, Social Science, Marylhurst College, 1979  |
| Daly, Joan A.         | Instr/Radiologic Tech        | MS, Education And Human Services, University of Texas, 1979  |
| Davidson, Ronald G.   | Instr/Electronic Service Tech| MS, Physics, California State University, 1972  
|                       |                              | BS, Electrical Engineering, University of California, 1958  |
| Davies, Grant W.      | Instr/Physical Education     | MS, Physical Education, Brigham Young University, 1965  
<p>|                       |                              | BS, Physical Education, Brigham Young University, 1964  |</p>
<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davis, Brian E.</td>
<td>Division Dean, MAT, Physics, Johns Hopkins University, 1964 AB, Physics, Univ of California Berkeley, 1963</td>
</tr>
<tr>
<td>Davis, Marilyn</td>
<td>Dir/Industrial Occupations Program MEd, Industrial Hygiene, Oregon State University, 1976 BA, Home Economics Education, Idaho State University, 1969</td>
</tr>
<tr>
<td>Deimling, Nancy A.</td>
<td>Instr/Dental Assistant EFDA, Dental Assistant, Portland Community College, 1986 AAS, Dental Assistant, Portland Community College, 1977 CDA, Dental Programs, University of Oregon, 1965</td>
</tr>
<tr>
<td>Dembrow, Michael E.</td>
<td>Instr/English AM, Comparative Literature, Indiana University, 1975 BA, English, University of Connecticut, 1973</td>
</tr>
<tr>
<td>Deming, James B.</td>
<td>Instr/Dental Hygiene DMD, Dentist, Univ of Oregon Dental School, 1965 BA, Chemistry, University of Oregon, 1961</td>
</tr>
<tr>
<td>Dettman, Cynthia L.</td>
<td>Lead Spclst/Coop Ed&amp;Job Plcmnt JD, Law, Northeastern Univ Sch of Law, 1977 BA, Sociology, Oberlin College, 1973</td>
</tr>
<tr>
<td>Dionne, Scott S.</td>
<td>Instr/Composition &amp; Literature MA, English, Eastern Washington University, 1985 BA, Political Science, Gonzaga University, 1983</td>
</tr>
<tr>
<td>Dittrich, William A.</td>
<td>Instr/Physics MS, Aeronautical Engineering, University of Washington, 1982 MS, Physics, University of Colorado, 1973 BS, Physics, West Washington State Univ, 1968</td>
</tr>
<tr>
<td>Do, Vinh T.</td>
<td>Counselor MA, Education, Portland State University, 1981 BA, Teaching Est, Saigon University, 1968 BA, Western Philosophy, Saigon University, 1967</td>
</tr>
<tr>
<td>Dobson, William T.</td>
<td>Coordinator of Admissions II MA, Theater, Portland State University, 1972 BFA, Theater, University of Montana, 1970</td>
</tr>
<tr>
<td>Doherty, Margaret A.</td>
<td>Coord/Training &amp; Development BS, Communications, University of Portland, 1985</td>
</tr>
<tr>
<td>Dolan, Janice L.</td>
<td>Coord/ Community Education BS, Physical Education, Oregon State University, 1971</td>
</tr>
<tr>
<td>Donath, Jutta G.</td>
<td>Instr/ENNL &amp; Foreign Lang MA, German, Portland State University, 1978 BA, Foreign Language, Portland State University, 1975</td>
</tr>
<tr>
<td>Donnelly, Gerald T.</td>
<td>Human Resource Representative MS, Industrial Relations, University of Oregon, 1993 BS, Political Science, Oregon State University, 1981 BS, American Studies, Oregon State University, 1981</td>
</tr>
<tr>
<td>Dozono, Robert R.</td>
<td>Instr/Visual Arts MFA, Art, Pratt Institute, 1971 BS, Drawing &amp; Painting, University of Oregon, 1969</td>
</tr>
<tr>
<td>Drayden, Tonya</td>
<td>Instr/Nursing MSN, Nursing, Oregon Health Sciences Univ, 1990 BSN, Nursing, Oregon Health Sciences Univ, 1984 BA, Social Psychology, Wellesley College, 1977</td>
</tr>
<tr>
<td>Drew, Jean</td>
<td>Instr/Small Business Management BA, Political Science, 1971</td>
</tr>
<tr>
<td>Easton, Kari A.</td>
<td>Instr/Foreign Language MA, Spanish, University of Oregon, 1988 BA, Spanish, University of Oregon, 1983</td>
</tr>
<tr>
<td>Eden, James W.</td>
<td>Instr/Economics MS, Economics, Portland State University, 1985 BS, Economics, University of Hull, 1972</td>
</tr>
<tr>
<td>Eden, Linda J.</td>
<td>Dir/ Food Services BS, Home Economics, Oregon State University, 1978</td>
</tr>
</tbody>
</table>
Edmonds, Dale W.
Division Dean
MA, English Literature, San Francisco State University, 1971
BA, English, San Jose City College, 1969
AA, Liberal Arts, San Jose City College, 1967

Eichelberger, Earl J.
Instr/Diesel Service Mechanics
Seven years of industry experience

Eick, Mary H.
Instr/Phys Ed/Corrective
MED, Education, University of Portland, 1976
CERT, Physical Therapy, Ohio University, 1967
BA, English, University of Cincinnati, 1963

Eichelberger, Earl J.
Instr/Diesel Service Mechanics
Seven years of industry experience

Eick, Mary H.
Instr/Phys Ed/Corrective
MED, Education, University of Portland, 1976
CERT, Physical Therapy, Ohio University, 1967
BA, English, University of Cincinnati, 1963

Eick, Mary H.
Instr/Phys Ed/Corrective
MED, Education, University of Portland, 1976
CERT, Physical Therapy, Ohio University, 1967
BA, English, University of Cincinnati, 1963

Eiffert, Lowell M.
Supvl Contracts Accounting
MTX, Taxation, Portland State University, 1988
BA, Political Science, Seattle Pacific University, 1969

Ekstrom, Jerry L.
Supvl Electronics Repair
AAS, Electronic Engineering Tech, Portland Community College, 1970

Ellerton, Amanda T.
Coordinator/Student Leadership
BA, Communication Arts, Pacific Lutheran University, 1983

Ellis, Samuel C.
Dir/Information Systems
PhD, University of Texas, 1984
MAT, Mathematics, Lewis & Clark College, 1978
BA, Mathematics, Lewis & Clark College, 1976

Ellis, Christopher J.
Mgr/Environ Health & Safety
AAS, Parks Management, West Valley College, 1974

Emmons, Terry L.
Instr/Medical Lab Tech
BS, Medical Lab Technology, Oregon Technical Institute, 1969

Eng, Russell B.
Instr/Mech Engineering
MS, Mechanical Engineering, University of Portland, 1987
BS, Mechanical Engineering, Portland State University, 1973

Enger, Richard E.
Reference Librarian
MS, Educational Media, Western Oregon State College, 1977
MLS, Library Science, University of Portland, 1971
BS, Economics, Portland State University, 1966

Enyart, Carol A.
Instr/Medical Lab Tech
BS, Medical Lab Technology, Oregon State University, 1973
BS, Microbiology, Oregon State University, 1972

Epp, Allen D.
Instr/History
MA, History, Colorado State University, 1951
BA, Humanities, Iowa State Teachers College, 1949

Eshleman, Lucinda L.
Academic Adviser Specialist
BS, Sociology, Portland State University, 1986

Espinosa, Jorge E.
Dir/Affirmative Action
MAIS, Speech Communication, Oregon State University, 1982
BS, Music, Lewis & Clark College, 1979

Evans, Katharine S.
Instr/Composition & Literature
DA, English, University of Oregon, 1973
MA, English, University of Oregon, 1967
BA, Anthropology, University of Washington, 1965

Ewing, Robert R.
Instr/Physical Science
MS, Education, Oregon College of Education, 1973
BS, General Science, Oregon State University, 1971

Fairfax, Cheryl M.
Teleconference Sp/TV Services
BS, Recreation & Park Mgmt, University of Oregon, 1981

Farahmandnia, Siroos
Instr/Computer Science
MS, Electrical Engineering, University of Portland, 1984
BS, Electrical Engineering, University of Washington, 1981

Ferguson, Sandra K.
Job Developer/Work Exper Coord
BA, History, Weber State College, 1973
BA, English, Weber State College, 1973

Fernandez, Jose J.
Counselor
MS, Counseling, Western Oregon State College, 1984
BA, Spanish, Willamette University, 1977

Ferris, Diane E.
Instr/GED
MS, Interdisciplinary Studies, Western Oregon State College, 1988
BA, Elementary Education, Western Oregon State College, 1967

Finnell, Bobby E.
Instr/Dev Ed/Math
MS, Secondary Ed/math, Eastern Oregon State College, 1964
BS, Education/math, Portland State University, 1960

Fiser, Donald M.
Dean of Business & Govt Relatn
MAT, Education, Reed College, 1966
BA, History, University of Washington, 1963

Flaman, Michael J.
Instr/Manufacturing Technology
AAS, Vocational Teacher Education, Portland Community College, 1985
AAS, Business Management, Portland Community College, 1979
AAS, Machine Technology, Portland Community College, 1978
13 years of industry experience

Fong, April A.
Instr/Biology
MS, Entomology, University of California, 1992
BA, Biology, Univ of California Berkeley, 1984
BA, Psychology, Univ of California Berkeley, 1984

Frank, Gregory J.
Instr/Real Estate
JD, Law, University of Puget Sound, 1975
BS, Economics, Portland State University, 1972

Frank, Roger A.
Counselor
PhD, Counseling, Oregon State University, 1992
MA, Counseling Psychology, Lewis & Clark College, 1982
BS, Psychology, Portland State University, 1979

Freiberg, Patricia A.
Life Skills Specialist
MS, Education, Portland State University, 1991
BA, Elementary Education, Portland State University, 1981

Frisbie, Joy E.
Alternative Learning Center Sp
BS, Communications, Southern Oregon State College, 1977

Fritz, James M.
Instr/Business Administration
MBA, Business, Portland State University, 1971
BA, Business, University of Oregon, 1960
Fulton, John A.  
Instr/Building Trades  
AAS, Vocational Teacher Education, Portland Community College, 1981  
AAS, Building Construction Tech, Portland Community College, 1979

Fung, Brenda K.  
Instr/Businees Administration  
MSCJ, Police Law Enforcement, University of Portland, 1979  
MBA, Business, University of Washington, 1974  
BA, Social Welfare, University of Washington, 1972

Gaither, Mark R.  
Instr/Printing Technology  
BS, Science, Portland State University, 1987

Gallio, Lawrence A.  
Instr/Speech, Dict/Forensics  
MA, Speech Communication, San Francisco State University, 1993  
BA, Industrial Psychology, Univ of California Berkeley, 1986

Gamudi, Abrahman  
Coordinator/Student Leadership  
MBA, Business Administration, City University, 1984  
BS, Social Science, Portland State University, 1982  
BS, Psychology, Portland State University, 1982

Garber, Susan M.  
Instr/Alcohol & Drug Counsel  
MEd, Counseling, Lewis & Clark College, 1978  
BA, Psychology, Portland State University, 1974

Garreton, Toni R.  
Instr/ENNL  
MA, English, Iowa State University, 1984  
BA, English, Iowa State University, 1976

Geis, M Lynn  
Lead Spclst/Coop Ed&Job Plcmt  
BA, Education, University of Oregon, 1966

George, Alma M.  
Instr/Businees Technology  
MAT, Education And Human Services, Lewis & Clark College, 1964  
BS, Business, Lewis & Clark College, 1954

Gettman, Linda M.  
Academic Adviser Specialist  
BA, History, Portland State University, 1976  
AAS, Medical Records Technology, Portland Community College, 1989

Giebel, Jon S.  
Instr/Alcohol & Drug Counsel  
MS, Counseling, University of Oregon, 1987  
BS, Psychology, University of Oregon, 1981

Gillespie, H Thomas  
Instr/Architectural Drafting  
MEd, Adult Education, Oregon State University, 1992  
BARC, Architecture, University of Oregon, 1971  
BS, Art Education, Western Oregon State College, 1966

Gilpin, Bernadine L.  
Counselor  
MS, Counseling, Portland State University, 1976  
BS, Education, Oregon State University, 1972

Gogol, Sara L.  
Instr/English  
MA, Test, Portland State University, 1982  
MA, English, Portland State University, 1981  
AB, Teaching/English, University of Illinois, 1971

Goldy, Daniel R.  
Instr/Computer Info Systems  
MS, Science Education, American University, 1978  
BA, Psychology, George Washington University, 1969

Gottfried, Corbett S.  
Registrar/Dir Financial Aid  
EdD, Educational Leadership, Portland State University, 1990  
BS, College Student Services Admin, Oregon State University, 1978  
BA, History, Southern Oregon State College, 1973

Goulard, Frank  
Instr/Mathematics  
BS, Education, Oregon State University, 1973  
CERT, Physical Education, Purdue University, 1978  
BS, Statistics, Colorado State University, 1974

Graves, Michael D.  
Instr/Business Administration  
MBA, Business Administration, University of Oregon, 1973  
BA, Psychology, Oregon State University, 1972

Gray, Mimi  
Coord/Child Care  
MA, Education, Ohio State University, 1973  
BA, Education, Ohio State University, 1967

Greco-Booth, Lucia M.  
Instr/Biology  
MEd, Counseling & Guidance, University of Portland, 1964  
BS, Zoology, Oregon State University, 1966  
BA, General Science, University of Portland, 1961

Greenfield, Terri  
Dir/ Steps to Success Program  
BA, Social Welfare, University of Portland, 1969

Grina, Michael E.  
Counselor  
PhD, Counseling, Oregon State University, 1987  
MST, Social Science, Portland State University, 1970  
BA, Sociology, University of Oregon, 1967

Gulley, Connee R.  
Small Business Mgmt Specialist  
MS, Management, Marylhurst College, 1984  
BA, Physical Education, Northern Illinois Univ, 1972

Guntli, Stephen N.  
Dir/ Development  
MFA, Communications, Cornell University, 1974  
BA, English, University of Detroit, 1971  
BS, English, University of Detroit, 1971

Gutierrez, Fernando  
Occupational Training Spec  
MBA, Business Administration, University of Portland, 1966  
BS, Geology, University of Washington, 1966

Hagen, Mark A.  
Instr/Industrial Draft & Illus  
BA, English, Iowa State University, 1980  
AAS, Engineering Technology, Clark College, 1985

Hallinan, Thomas J.  
Instr/Businees Administration  
MBA, Business, Indiana University, 1957  
BS, Accounting, LA Salle College, 1952

Halloran, Paul L.  
Job Developer/Placement Sp  
BA, Sociology, Regis College, 1972

Hamilton, Thomas A.  
Dir/ Budget  
BS, History, Portland State University, 1971

Hammond, Jessic F.  
Instr/Nursing  
MSN, Nursing, Oregon Health Sciences Univ, 1980  
BSN, Nursing, University of Portland, 1976  
BA, Biology, Whitman College, 1965
Handy, Carolina A.
Instr/Chemistry
MS, Chemistry, University of Oregon, 1986
MS, Chemistry, California State University, 1973
BA, Chemistry, Whittier College, 1971

Hanna, Taylor D.
Instr/Computer Science
BS, Zoology, University of Washington, 1973
AAS, Data Processing, Portland Community College, 1978

Hannigan, Penelope J.
Instr/Legal Assistant
JD, Law, Northwestern School of Law, 1985
BA, English, Portland State University, 1982
AA, English, San Jose City College, 1973

Hanson, Dale M.
Supv Plant Services

Hanson, Scott P.
Research Analyst
MA, Management, Pacific Lutheran University, 1982
BS, Finance, University of Oregon, 1980

Harbertson, Lynn W.
Instr/Physical Education
MS, Physical Education, Brigham Young University, 1968
BS, Physical Education, Brigham Young University, 1967

Hardiman, Diane S.
Instr/Dental Hygiene
AAS, Education and Human Services, Portland Community College, 1975
RDH, Dental Hygiene, Univ of Oregon Dental School, 1964

Harmon, Hazel
Life Skills Specialist
BS, Environmental Design, University of California, 1984

Harp, Dennis C.
Supv/Plant Services
BS, Management, Marylhurst College, 1981

Harp, Jo Ann C.
Coord/Community Education

Harris, Joanne M.
Instr/Ophthalmic MEd Tech Prg
CERT, 1991

Harris, Raymond R.
Supv/Plant Services

Harris-Skye, Judith A.
Dir, Inst Health Care Professionals
MST, Health Education, Portland State University, 1985
BS, Adult Education, University of Akron, 1983
DIP, Nursing, St Thomas School of Nursing, 1970

Hastings, Winfred E.
Instr/Business Administration
MBA, Business, Portland State University, 1978
BS, Business, University of Oregon, 1959
BS, Education/Secondary, University of Oregon, 1959

Hata, David M.
Instr/Electronic Engr
MS, Electrical Engineering, University of Washington, 1971
BS, Electrical Engineering, Washington State University, 1969

Hawks, Gerald A.
Instr/Industrial Draft & Illustration
CERT, 1967
Eight years of industry experience

Hayden, Forrest E.
Instr/Aircraft Maint Tech
AAS, Aviation Maintenance Technology, Portland Community College, 1981

Hayes, Marc P.
Instr/Biology
PhD, University of Miami, 1991
MA, Biology, California State University, 1972

Hayward, Joan F.
Division Dean
MS, Management, Marylhurst College, 1989
BS, Medical Record Admin, Seattle University, 1969

Hecht, Gary W.
Instr/Electronic Engr
BS, Electrical Engineering, Univ of Texas Arlington, 1971

Heckman, Dennis R.
Instr/Computer Science
MA, Computer Science, University of Oregon, 1970
BA, Mathematics, University of Oregon, 1968

Heider, Erika S.
Division Dean
MBA, Business Administration, San Jose State University, 1980
BS, Business Administration, Syracuse University, 1966
AAS, Secretarial Science, Auburn Community College, 1963

Helzer, Richard H.
Instr/Visual Arts
MST, Art, Portland State University, 1971
BS, Art, Marylhurst University, 1966

Hempe, Jeffrey A.
Mgr/Accounting Services
CPTA, State of Oregon, 1980
MM, Music, University of Oregon, 1968
BA, Music, University of Portland, 1963

Hendrix, Odessa M.
Financial Aid Specialist I
EDM, Counseling & Guidance, Oregon State University, 1973
BS, Education, Oregon State University, 1972

Henning, Martha L.
Instr/Composition & Literature
PhD, Rhetoric & Composition, University of Louisville, 1993
MA, Humanities, University of New York, 1972
AB, English, Stanford University, 1970

Hereford, Susan K.
Media Relations Officer
BA, English, Lewis & Clark College, 1970

Hermanson, Marie E.
Superv/Volunteer Tutor Program
MEd, Adult Education, Oregon State University, 1986
BA, Social Science, Univ of Calif Santa Barbara, 1974

Hess, Philip W.
Financial Aid Spec/Grant Coord
MS, School Psychology, Lewis & Clark College, 1984
BA, Counseling Education, Columbia Christian College, 1976

Hilger, Robert J.
Dir/Criminal Justice Program
MEd, Vocational Teacher Education, Portland Community College, 1976
BA, Business, University of Portland, 1957

Hilton-Granberry, Paulette H.
Instr/Occupational Health
PhD, Education, Ohio State University, 1984
MEd, Vocational Education, Oregon State University, 1978
BBA, Personnel Management, University of Oregon, 1974

Hinde, Lucille
Supv/Computer Resource/Network
Hirsch, Peter M.
Division Dean
AM, Sociology, Washington University St Louis, 1964
AB, Sociology, University of Illinois, 1960

Hochstetler, Clark A.
Rehabilitation Guidance Counselor
MS, Deaf Education, Oregon College of Education, 1977
BA, Speech, Pacific University, 1974

Hoffman, Rachel S.
Instr/Visual Arts
PhD, Art History, Univ California Los Angeles, 1993
MA, Art History, University of Wisconsin, 1980
BA, Fine Arts, Univ of Calif Santa Barbara, 1975

Hollenbeck, Richard L.
Instr/Landscape
BS, Landscape Architecture, University of Oregon, 1974
AA, Central Oregon Community Coll, 1966

Holm, Lucille D.
Instr/Technical Learning Skills
MSED, Education And Human Services, Portland State University, 1983
BA, English, Lewis & Clark College, 1963

Holman, Jane E.
Instr/Composition & Literature
MA, English, Portland State University, 1988
BS, Sociology, University of Oregon, 1977

Howard, Catherine A.
High School Completion Specialist
CERT, Counseling, Portland State University, 1981
BS, Elementary Education, Oregon College of Education, 1970

Howell, Charles M.
Division Dean
MA, Industrial Education, Northern Arizona University, 1970
BS, Education, Northern Arizona University, 1968
AS, Physical Science, Treasure Valley Comm College, 1966

Howell, James S.
Instr/Psychology
MA, Psychology, Univ of Texas Arlington, 1972
BA, Psychology, California State Fullerton, 1970
AA, Liberal Arts, Mt San Antonio College, 1968

Hudson, Stephen E.
Instr/Composition & Literature
MA, English, University of Oregon, 1967
BA, English, Washington State University, 1963

Huff, E Scott
Instr/Civil Engineering
MS, Civil Engineering, Oregon State University, 1975
BS, Civil Engineering, University of Maine, 1972

Hummel, Ervin M.
Instr/Sociology
MA, Sociology, Pacific University, 1968
MDIV, Theology, Pacific School of Religion, 1960
BA, Religion, Yankton College, 1957

Humphrey, Mary Ann M.
Instr/Physical Education
EdD, Education, University of No Colorado, 1983
MEd, Counseling, Oregon State University, 1970
MA, Physical Education, University of Denver, 1969

Hunt, Tim A.
Instr/Construction Tech
AAS, Education And Human Services, Portland Community College, 1975
Eight years of industry experience
Kam, Sherry L.
Instr/Dev Ed/ABE
MA, Education, West Washington State College, 1975
BA, Education, West Washington State College, 1969

Kamali, Diane B.
Instr/ENNL
CERT, TESL, Portland State University, 1983
MA, Education, San Diego State University, 1975
AB, English, San Diego State University, 1973

Kay, Betty A.
Dir/Plant Services
MBA, Business, Portland State University, 1973
BS, Institution Management, Iowa State University, 1965

Kendall, Elizabeth M.
Instr/Automotive Service Tech
AAS, Automotive Technology, Portland Community College, 1977
CERT, Portland Community College, 1977
CERT, Portland Community College, 1976

Kent, Gail M.
Coord/Marketing & Curric Dev
BS, Biology, Portland State University, 1980
BS, Data Processing, Griffin College, 1984

Kern, Lorna A.
Instr/Tech Learning Skills
MS, Psychology, University of Wisconsin, 1971
BS, Social Science, Portland State University, 1969

Keyser, Robert C.
Dir/Small Business Development
MBA, Marketing, City University, 1989
BS, Business Administration, Oregon State University, 1972

Khodaparast, Youssef
Instr/Economics
PhD, Urban Studies, Portland State University, 1986
BS, Business, Rasht Business College, 1977

Kidney, Daniel J.
Instr/Automotive Service Tech
CERT, Automotive Technology, 1991
BA, History, Portland State University, 1987

King, Karen L.
Mgr/Systems Development
BA, Anthropology, Portland State University, 1980

King, Larry L.
Instr/Geography & Psychology
PhD, Geography, University of Oregon, 1982
MS, Teaching, University of Oregon, 1968
BS, Social Science, University of Oregon, 1964

Kingstad, Ronda J.
Instr/Mathematics
MS, Mathematics, Montana State University, 1990
BS, Mathematics, Montana State University, 1989

Kirk, Richard R.
Coord/LRC Technical Svcs
BA, Film & TV Production, Pennsylvania State University, 1974

Kirsten, Eric M.
Video Prod/Internship Specil
BS, Telecommunications, San Diego State University, 1973

Knight, Elizabeth L.
Instr/Composition & Literature
MFA, English, University of Massachusetts, 1989
BA, English, University of New Hampshire, 1979

Knox, George D.
Coop Ed/Placement Specialist
BA, Psychology, Oregon State University, 1987

Kopet, Julie G.
Instr/Adult Basic Ed
BA, Social Work, Eastern Washington University, 1977

Koroloff, John M.
Instr/Biology
PhD, Educational Policy & Mgmt, University of Oregon, 1989
MPA, Public Administration, Portland State University, 1978
MA, Biology, California State University, 1969

Kosters, Russell W.
Accountant III

Kozlowski, Camille K.
Job Developer/Placement Sp
BS, Sociology, University of Wisconsin, 1969

Kraxberger, Darrel O.
Facilities Planner
BA, Architecture, University of Oregon, 1965

Kroll, Richard J.
Instr/Mech Engineering
CERT, Porter School of Engineering, 1959
22 years of industry experience

Kruse, Dean H.
Division Dean
MS, Biology, San Diego State University, 1975
BS, Languages, Iowa State University, 1969

Kuehn, Udo H.
Instr/Manufacturing Technology
CERT, Machine Technology, Portland Community College, 1981
DIP, Machine Technology, DESSAU-Bauhaus, 1956
17 years of industry experience

Kuhn, Lauren L.
Instr/Psychology
MS, Social Work, San Diego State University, 1977
BA, Anthropology, Univ of California San Diego, 1974

Kurzet, Reuel
Instr/English Second Lang
MA, English, University of Minnesota, 1978
BA, English, Washington University St Louis, 1975

Lamb, Jane L.
Instr/Biology
MS, Biology, Portland State University, 1970
BS, Science, Portland State University, 1964

Larpenteur-Wells, Susan C.
Instr/Education Department
MS, Special Education, Portland State University, 1975
BS, Elementary Education, Portland State University, 1972

Lasselle, Jerome T.
Instr/Business Administration
JD, Law, Northwestern School of Law, 1982
MBA, Business, University of Portland, 1976
BS, Accounting, Claremont College, 1970

Lawrence, Michael D.
Instr/Business Administration
MBA, Business, University of Oregon, 1976
BS, Finance, University of Oregon, 1975
AA, Business, Clark Community College, 1972

Lawshe, Ted F.
Superv/Professional Skills Prg
MS, Curriculum & Instruction, University of Oregon, 1969
BS, Psychology, University of Oregon, 1965

Le Clerc, Judith M.
Instr/Child Dev/Early Child Ed
MS, Child Development, Wheelock College, 1988
BS, Sociology, Mcherson College, 1974
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<th>Name</th>
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<td>Lopez, Viola M.</td>
<td>Division Dean</td>
<td>EdD, Voc Tech &amp; Career Educ, Oklahoma State University, 1977</td>
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<td>MS, Voc Tech &amp; Career Educ, Oklahoma State University, 1975</td>
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<td>BA, Business Education, New Mexico Highland University, 1968</td>
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<td>Love, William F.</td>
<td>Counselor</td>
<td>MS, Psychology, Eastern Washington University, 1965</td>
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<td>BA, Psychology, Eastern Washington University, 1964</td>
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<td>Lo Verso, Diana E.</td>
<td>Instr/Physical Ed/Theater Arts</td>
<td>MFA, Dance, University of Cincinnati, 1973</td>
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<td>BFA, Dance, University of Cincinnati, 1971</td>
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<td>Lynn, Susan</td>
<td>Instr/History &amp; Economics</td>
<td>PhD, History, Stanford University, 1986</td>
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<td>MS, Education, University of Southern Calif, 1970</td>
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<td>BA, History, University of California, 1968</td>
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<td>BS, Speech, Oregon State University, 1977</td>
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<td>AS, Radio, Blue Mountain Comm College, 1974</td>
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<td></td>
<td></td>
<td>One year of industry experience</td>
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<td>Mac Donald, Russell R.</td>
<td>Instr/Chemistry</td>
<td>MS, Chemistry, Univ Oregon Medical School, 1961</td>
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<td>BS, Chemistry, Portland State University, 1959</td>
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<td>Mac Donald, William J.</td>
<td>Instr/Industrial Draft &amp; Illus</td>
<td>MS, Health Pe &amp; Recreation, University of Oregon, 1965</td>
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<td>BA, Commerce, MT Allison University, 1961</td>
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<td>Macready, Thomas J.</td>
<td>Instr/Composition &amp; Literature</td>
<td>PhD, University of Oklahoma, 1982</td>
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<td>MA, English, State University College, 1976</td>
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<td>BA, English, State University College, 1974</td>
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<td>Manley, William D.</td>
<td>Regional Coordinator; PAVTEC</td>
<td>BS, General Science, Oregon State University, 1965</td>
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<td>BA, Physics, Northwest Nazarene College, 1964</td>
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<td>Marshall, Marilyn F.</td>
<td>Instr/Alternative Learning Ctr</td>
<td>MS, Education, Portland State University, 1982</td>
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<td>BS, Psychology, Willamette University, 1973</td>
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<td>Martin, Anne-Marie</td>
<td>Instr/Spanish</td>
<td>MA, Romance Languages, University of Washington, 1991</td>
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<td>BA, Spanish, University of Puget Sound, 1988</td>
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<td>Martinez, Sylvia</td>
<td>Instr/Tech Learning Skills</td>
<td>MA, Spanish, Adams State College, 1972</td>
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</tbody>
</table>
Marvin, Marcia L.  Instr/Foreign Language  
MA, Languages, University of Oregon, 1966  
BA, French, University of Oregon, 1965

Masumitsu, Kazuko  Instr/Foreign Language  
MA, English Literature, Portland State University, 1989  
BA, Nursing, Montana State University, 1965

Mathews, Janet L.  Instr/Nursing  
MN, Psychiatric Nursing, Oregon Health Sciences Univ, 1976  
BS, Nursing, Oregon State University, 1965

Mayer, Al J.  Instr/Psychology  
MS, Psychology, University of Texas, 1971  
BS, Psychology, North Texas State University, 1969

Mayer, Lynn  Instr/Composition & Literature  
MA, Liberal Arts, Reed College, 1974  
MA, German, Johns Hopkins University, 1959  
BA, Literature, Reed College, 1958

McBeth, Lynn  Coordinator of Admissions II  
AB, English, Westmont College, 1968

McCathern, Patricia A.  Instr/Nursing  
BA, Liberal Arts, Linfield College, 1976  
AA, Nursing, Portland Community College, 1968

Mc Cluskey, Jack W.  Instr/Psychology  
MA, History, Portland State University, 1971  
BA, History, Portland State University, 1967

Mc Cluskey, Sharon L.  Instr/Home Ec/Early Child Educ  
MS, Child Development, Oregon College of Education, 1979  
BS, Home Economics, Oregon State University, 1970

Mc Collum, M Donlad  Instr/Business Administration  
MBA, Business Administration, Indiana University, 1954  
BS, Business, Miami University, 1952

Mc Cord, Charles B.  Instr/Business Administration  
MBA, Business, University of Puget Sound, 1974  
JD, Law, University of Washington, 1967  
BS, Chemistry, Abilene Christian University, 1960

Mc Cubbin, Gerald E.  Counselor  
PhD, Counseling Psychology, University of Oregon, 1970  
MS, General Studies, University of Oregon, 1959  
BS, General Science, University of Oregon, 1957

Mc Dowell, Michael J.  Instr/English  
PhD, English, University of Oregon, 1992  
MA, English, University of Virginia, 1975  
AB, English, Stanford University, 1973

Mc Dowell, Sonya L.  Division Dean  
EdD, Vocational Education, Oregon State University, 1978  
MA, Home Economics, Oregon State University, 1963  
BS, Home Economics, Oregon State University, 1962

Mc Govern, Peter A.  Computer Specialist/Tektronics  
MAT, Liberal Studies, Lewis & Clark College, 1989  
BA, Literature, Antioch College, 1976

Mc Innis, Donald W.  Executive Dean/Cascade Campus  
EdD, Education, Washington State University, 1971  
MBE, Education, Central Washington St College, 1964  
BA, Education, Central Washington St College, 1962

Mc Kinnon, Maurice M.  Dept Chair, Nursing Programs  
MA, Nursing, University of Washington, 1973  
BSN, Nursing, Florida A & M University, 1969

Mc Laren, Robert J.  Instr/Sociology  
MA, English Literature, University of Michigan, 1965  
BA, English, University of Miami, 1963

Mc Murry, Melody L.  Instr/Sociology  
MA, Sociology, Portland State University, 1983  
BS, Sociology, Portland State University, 1975

Mc Neill, Judith Y.  Instr/Dev Ed/English  
MA, Curriculum & Instruction, University of Oregon, 1976  
AB, French, Indiana University, 1973

Meier, Rebecca A.  Career Resource Room Specst  
MS, Apparel, Interiors & Merchandising, Oregon State University, 1977  
BS, Home Economics Education, Oregon State University, 1967

Meininger, Barbara A.  Instr/Mathematics  
MS, Mathematics, University of Oregon, 1981  
BA, English, Univ of California Berkeley, 1963

Mercer, Sheryl L.  Dir/WRC/Coord/Enr&Career Servc  
MS, Higher Education, Univ California Los Angeles, 1993  
MS, Community College, Univ California Los Angeles, 1978  
BS, Community College Counseling, Univ California Los Angeles, 1975

Merkel, Mary E.  Tech Learning Skills Specst  
MA, Student Personnel Admin, West Washington State Univ, 1989  
MEd, Secondary Education, Tufts University, 1965  
BA, Chemistry, Anna Maria College, 1962

Merrell, Melvin C.  Instr/Opticianry  
AAS, Vocational Teacher Education, Portland Community College, 1987  
AAS, Optical Technology, Portland Community College, 1978  
LIC, Optical Technology

Metcalfe, Elizabeth A.  Instr/Antient Drafting  
MA, Architecture, University of Idaho, 1988  
BARC, Architecture, Washington State University, 1981  
BS, Architecture, Washington State University, 1981

Meyer, David D.  Instr/Dev Ed/ABE  
RELD, Counseling, School of Theology Claremont, 1970  
BA, Psychology, California Western University, 1965

Meyer, James R.  Instr/Landscape  
Seven years of industry experience
Board and Professional Staff

Fall Term 1994 — Summer Term 1995

Michel, Claudia
Instr/Nursing
MN, Nursing, Univ Oregon Health Sci Univ, 1983
BS, Nursing, Loma Linda University, 1975

Miller, Timothy L.
Instr/Nursing
MPA, Public Administration, City University, 1985
BS, Nursing, Pacific Lutheran University, 1972
AA, Nursing, Highline Community College, 1970

Mills, Teri A.
Instr/Nursing
MS, Nursing, University of Portland, 1980
BS, Nursing, California State University, 1976
AA, Nursing, College of San Mateo, 1973

Moore, Bonnie L.
Instr/Dental Assistant
AAS, Vocational Teacher Education, Portland Community College, 1989
CERT, Dental Assistant, Portland Community College, 1985

Moore, Judy C.
Coord/Cooperative Education
MS, Education, Portland State University, 1972
BA, German, Nebraska Wesleyan, 1965

Moore, Sherrill S.
Instr/Nursing
MS, Education, Portland State University, 1978
BSN, Nursing, Lewis & Clark College, 1959

 Moriarty, Daniel F.
President
EdD, Higher Education, George Washington University, 1974
MA, English Literature, Catholic University of America, 1967
BA, Philosophy, Catholic University of America, 1959

Morton, Ann R.
Dir/Developmental Education
PhD, English, University of Oregon, 1971
MA, English, University of Portland, 1964
BS, Journalism, University of Oregon, 1951

Mosofsky, Barbara E.
Community Resource Specialist
JD, Law, University of Oregon, 1982
BA, Theater, Fort Wright College, 1975

Mulligan, Diane L.
Dir/Tektronix Program
MS, Curriculum Development, University of Oregon, 1979
BS, Curriculum & Instruction, University of Oregon, 1974

Mullins, Richard T.
Instr/Speech/Theater Arts
MA, Speech Communication, San Diego State University, 1975
AB, Speech Communication, San Diego State University, 1972
AA, Speech, Mesa Community College, 1970

Murphy, Deanna J.
Instr/Dev Ed/Math
BA, Optical Technology, 1989

Murray, Martha M.
Instr/Computer Info Systems
MBA, Business Administration, Oregon State University, 1977
BS, Mathematics, Ohio University, 1967

Muzos, Janet R.
Instr/Mathematics
MST, Mathematics, Portland State University, 1983
MA, Education, Chapman College, 1971
BS, Education: math, University of Illinois, 1967

Myers, Alice A.
Instr/Nursing
MS, Nursing, University of Arizona, 1977
BSN, Nursing, University of San Francisco, 1967

Naigus, Neal B.
Mgrl Campus Operations
MS, Counseling, Hunter College, 1968
BA, Psychology, New York University, 1966

Nawas, Claudia A.
Instr/ENNL
MA, Education, Portland State University, 1977
BA, Anthropology, Portland State University, 1974

Neidert, Clea M.
Instr/Biology
MS, Science, Portland State University, 1966
BS, Science, Portland State University, 1964

Nelson, Gary D.
Instr/Automotive Service Tech
AAS, Automotive Technology, Portland Community College, 1971
Two years of industry experience

Newborne, William A.
Counselor

Niland, Thomas J.
Dir/Small Bus/Intmnl Trade
BS, Management, St Peter's College, 1960

Njoku, Scholastica I.
Reference Librarian
PhD, Education, University of Oregon, 1969
MS, Education, University of Oregon, 1967
MA, Library Science, University of Oregon, 1965

Norton, Sharlene K.
Supv/Telephone Services
BA, Management, Marylhurst College, 1988

Novak, David L.
Mgr/Graphic Services
BS, Humanities Education, Oregon State University, 1970

Nunemaker, Marilyn C.
Instr/ABE/GED
MS, Education, Portland State University, 1990
BS, Education, Marylhurst College, 1963

O’Brien James M.
Dean of Adult & Continuing Ed
MS, Education, Portland State University, 1972
BS, History, Lewis & Clark College, 1958

O’Rielly Lily S.
Instr/Dev Ed/Math
MS, Mathematics, Fredonia State University, 1976
BS, Mathematics, Fredonia State University, 1971

O’Shaughnessy Kathleen K.
Instr/English
MFA, Creative Writing, University of No Carolina, 1986
MA, English, University of New Hampshire, 1974
BA, English, Tufts University, 1973

Owen, Berniece M.
Coord/ LRC Technical Servcs
MS, Library Science, University of Southern Calif, 1964
BA, Library Science, University of South Dakota, 1963

Owen, Terry C.
Instr/Physics
MS, Electrical Engineering, San Jose State College, 1976
MS, Physics, University of Oregon, 1968
BA, Physics, San Jose State College, 1966
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<tr>
<th>Name</th>
<th>Position</th>
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<tr>
<td>Owings, Cheryl A.</td>
<td>Instr/Business Technology</td>
<td>MS, Business Education, Oregon State University, 1973</td>
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<td>BS, Business Administration, Oregon State University, 1970</td>
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<tr>
<td>Pace, Gayle</td>
<td>Instr/Business Technology</td>
<td>MA, Business, West Washington State College, 1970</td>
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<td>BA, Education, Pacific Lutheran University, 1965</td>
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<tr>
<td>Palk, Frances S.</td>
<td>Instr/Developmental Education</td>
<td>MA, Education, Oregon State University, 1967</td>
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<tr>
<td>Palmer, Betty L.</td>
<td>Dirl Radiological Sciences</td>
<td>MA, Education, University of Oregon, 1967</td>
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<td></td>
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<td>BS, Education, Oregon State University, 1961</td>
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<tr>
<td>Palmer, Robert V.</td>
<td>Dean, Student Support Services</td>
<td>PhD, Counseling, Oregon State University, 1978</td>
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<td>MS, Counseling, Portland State University, 1972</td>
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<td>BA, Psychology, Portland State University, 1971</td>
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<td>Parker, Carl E.</td>
<td>Vocational Counselor</td>
<td>BA, History, Lewis &amp; Clark College, 1956</td>
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<td>Parks-Hilden, Susan M.</td>
<td>Instr/Theater Arts</td>
<td>MAT, Language Arts, Lewis &amp; Clark College, 1975</td>
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<td>BA, English, University of Oregon, 1967</td>
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<td>Paukert, Debra D.</td>
<td>Business Development Specialist</td>
<td>BS, Health, Brigham Young University, 1968</td>
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<tr>
<td>Payne, Robert L.</td>
<td>Instr/Economics</td>
<td>MS, Health, Brigham Young University, 1964</td>
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<td>BS, Health, Brigham Young University, 1967</td>
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<td>Payne, Robert L.</td>
<td>Instr/Economics</td>
<td>MS, Economics, Brigham Young University, 1964</td>
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<td>BS, Economics, Brigham Young University, 1962</td>
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<td>Pedula, Barbara L.</td>
<td>Instr/Mathematics</td>
<td>MS, Mathematics, Montana State University, 1990</td>
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<td>BS, Secondary Education, Montana State University, 1986</td>
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<td>Pegnone, Jori L.</td>
<td>Mgr/ Payroll</td>
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<td>Peot, Mary L.</td>
<td>Instr/Tech Learning Skills</td>
<td>BA, Mathematics/Biology, Maryluurst College, 1967</td>
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<td>Perrine, Michael R.</td>
<td>Instr/Personal Health</td>
<td>MEd, Education/Guidance, Oregon State University, 1970</td>
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<td>MEd, Health Education, Oregon State University, 1968</td>
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<td>BS, Social Science, Oregon State University, 1967</td>
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<td>Perry, Thom</td>
<td>Instr/Printing Technology</td>
<td>MS, Vocational Education, Kansas State College, 1973</td>
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<td>BA, English, University of Iowa, 1969</td>
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<td>Petersen, Dana A.</td>
<td>Financial Analyst</td>
<td>BS, Business Administration, Oregon State University, 1983</td>
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<td>Peterson, Angela D.</td>
<td>Instr/Mathematics</td>
<td>MST, Mathematics, Portland State University, 1982</td>
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<td>BS, Business, University of Florida, 1975</td>
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<td>Petko, John F.</td>
<td>Instr/English</td>
<td>MA, English, University of California, 1963</td>
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<td>BA, English, Linfield College, 1960</td>
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<td>Phillips, Steven H.</td>
<td>Instr/Aviation Maint Tech</td>
<td>AS, Aviation Maintenance Technology, Lane Community College, 1980</td>
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<td>Pinas-Espigule, Maribel</td>
<td>Instr/Foreign Language</td>
<td>MA, Romance Languages, University of Oregon, 1989</td>
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<td>BA, Romance Languages, University of Oregon, 1987</td>
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<td>Pirki, Raymond E.</td>
<td>Dirl Distance Learning Program</td>
<td>MS, Education, Oregon College of Education, 1968</td>
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<td>BS, Education, Oregon College of Education, 1964</td>
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<td>Plumelee, Dexter S.</td>
<td>Division Dean</td>
<td>PhD, Education, University of Southern Calif, 1983</td>
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<td>MS, Chemistry, University of Houston, 1970</td>
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<td>BS, Chemistry, Midwestern State University, 1966</td>
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<td>Ponce, Joseph M.</td>
<td>Division Dean</td>
<td>MEd, Adult Education, Oregon State University, 1987</td>
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<td>BA, English, San Francisco State University, 1974</td>
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<td>AA, General Studies, Chabot College, 1971</td>
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<td>Poole, Robert A.</td>
<td>Counselor</td>
<td>PhD, Counseling Psychology, University of Washington, 1983</td>
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<td>MA, Psychology, University of Portland, 1971</td>
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<td>BA, Psychology, Univ California Los Angeles, 1970</td>
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<td>Portlock, Melinda J.</td>
<td>Coord/Cooperative Education</td>
<td>MAT, Education, Lewis &amp; Clark College, 1992</td>
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<td>BA, English/Lang Arts/Comm, San Francisco State University, 1968</td>
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<td>Putnam, Scott H.</td>
<td>Instr/Automotive Service Tech</td>
<td>Nine years of industry experience</td>
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<td>Quast, Sue A.</td>
<td>Mgr/ TV Production Services</td>
<td>BFA, Art, Boise State University, 1985</td>
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<td>Quay, Gretchen M.</td>
<td>Assessment Specialist</td>
<td>BS, Elementary Education, Portland State University, 1976</td>
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<td>Radford, Loren E.</td>
<td>Instr/Landscape</td>
<td>MPh, Agriculture, Cornell University, 1982</td>
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<td>BS, Agriculture, Cornell University, 1977</td>
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<td>Rainey, Woodrow</td>
<td>Instr/Manufacturing Technology</td>
<td>AAS, Vocational Teacher Education, Portland Community College, 1990</td>
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<td>Rathman, Stephen R.</td>
<td>Dean of Instruction</td>
<td>MA, Philosophy, Southern Illinois College, 1971</td>
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<td>BA, Philosophy, University of Oregon, 1964</td>
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</table>
Rodgers, Laura S.
Instr/Nursing
MS, Nursing, Oregon Health Sciences Univ, 1987
BS, Nursing, University of Portland, 1984
BS, Biology, Texas Woman's University, 1972

Rodler, Stanley
Coord/ Admissions
AAS, Dental Programs, Portland Community College, 1974

Rodrigues, Sara Z.
Vocational Skills Specialist
BA, English, Portland State University, 1985
CERT, Test, Portland State University, 1985

Rolig, Daniel P.
Supv/ Plant Services

Romanski, Consuelo B.
Instr/English
PhD, Education, Univ California Los Angeles, 1987
MA, Humanities, State University of New York, 1974
BA, Psychology, State University of New York, 1972

Roos, Jeraldine R.
Counselor
MS, Counseling, University of Oregon, 1975
BS, Social Work, University of Oregon, 1974

Roper, Nancy L.
Instr/Mathematics
MS, Mathematics, Portland State University, 1990
BS, Mathematics Education, Western Oregon State College, 1972

Rose, William M.
Instr/Sociology
MS, Sociology, University of Utah, 1963
BA, Sociology, University of Utah, 1958

Ross, Ilga A.
Instr/Mathematics
MA, Math Curr & Instruction, University of No Colorado, 1972
BA, Mathematics, Colorado State College, 1967

Roumagoux, Daniel V.
Instr/Mathematics
PhD, Education: Math, University of Oregon, 1974
MS, Mathematics, University of Oregon, 1969
BS, Elementary Education, Oregon State University, 1964

Ruff, Elizabeth A.
Division Dean
MS, Nursing, University of Portland, 1983
BS, Nursing, University of Wisconsin, 1975

Saben, Timothy J.
Instr/English
DED, Education, University of Oregon, 1972
MA, Education, University of Oregon, 1967
BS, Journalism, University of Oregon, 1965

Sager, Susan K.
Instr/Home Ec/Early Child Educ
MS, Home Economics, Montana State University, 1983
BS, Home Economics, Montana State University, 1972

Sanmons, John D.
Instr/Electronic Service Tech
AAS, Vocational Teacher Education, Portland Community College, 1977
AAS, Electronic Engineering Tech, Portland Community College, 1970

Sanchez, Stephen Jr
Coordinator/Student Leadership
MA, Counseling & Guidance, New Mexico State University, 1990
MPA, Public Administration, University of Texas El Paso, 1985
BPS, Police Science, New Mexico State University, 1977
Sanchez, Tina M.
Counselor
MA, Counseling & Guidance, New Mexico State University, 1987
BA, Psychology, New Mexico State University, 1985

Sanders, Larry L.
Instr/Biology
MS, Biology, Portland State University, 1976
BS, Biology, Portland State University, 1971

Santos, Marina
Education Specialist
BS, Management, Marylhurst College, 1986

Santos-Miller, Daisy
Coord/Training & Development
MS, Education, University of Southern Calif, 1978
BA, Sociology, Central State University, 1975

Sarvinski, Galen
Instr/Small Business Managment
MBA, Business Administration, City University, 1983
CERT, Management, Linn-Benton Community College, 1975
BA, Accounting, Portland State University, 1975

Sauer, Connie E.
Vice Pres Administrative Serv
MBA, Business Administration, Western State College of Colorado, 1983
CPA, 1977
BA, Accounting, Western State College of Colorado, 1975

Scharber, Carolee J.
Instr/Learning Disabilities Sp
MS, Education, Portland State University, 1974
BS, Elementary Education, Portland State University, 1973
AA, General Studies, Clackamas Community College, 1972

Schmitt, Loraine P.
Telecourse Specialist
BS, Journalism, University of Kansas, 1985

Schultze, Gwenn M.
Instr/Speech
MS, Speech And Drama, Portland State University, 1972
BS, Liberal Arts, Portland State University, 1971

Schwab, Walter
Instr/Visual Arts
MFA, Art, Alfred University, 1972
BS, Elementary Education, Portland State University, 1962

Scott, Matthew J.
Instr/Welding
BS, Education, Northern Arizona University, 1989
AAS, Welding Technology, Anchorage Community College, 1986

Sempert, Daniel E.
Darlington Institute for Employee Dev
MS, Curriculum & Instruction, University of Oregon, 1977
BS, Speech, University of Oregon, 1976

Semura, Patricia M.
Instr/Speech/ENNL
MA, Speech, University of Hawaii, 1966
BED, Speech, University of Hawaii, 1964

Severson, Mary J.
Academic Adviser Specialist
MA, Systematics, Lutheran Theological Seminary, 1985
BA, Religion, Augustana College, 1977

Shannon, Dana E.
Program Specialist SBITP
MBA, Business Administration, Marylhurst College, 1993
MS, Management, Marylhurst College, 1993
BS, Political Science, Willamette University, 1978

Shea-Ruddell, Mary E.
Instr/SBEGED
MA, Counseling, Southern Illinois University, 1978
BS, Educational Psychology, Southern Illinois University, 1976

Shelton, Elizabeth R.
Employment Specialist
MA, Special Education, University of Oregon, 1983
BA, Art Education, Oregon College of Education, 1976

Sheridan, Ardis L.
Instr/Office Administration
MEd, Education, University of Oregon, 1964
BS, Business Education, Northern State College, 1957

Sherlock, Dianne E.
Student Development Specialist
MS, Education, Portland State University, 1988
BS, Education, University of Oregon, 1967

Shmakov, Kristine L.
Instr/Foreign Language
MA, Russian, University of Washington, 1993
BA, Russian, University of Oregon, 1990

Siechen, Philip R.
Instr/Airport Maint Tech
AAS, Aviation Maintenance Technology, Portland Community College, 1977
CERT, Aviation Maintenance Technology, Portland Community College, 1972
Five years of industry experience

Siekas, Pauline M.
Instr/Mathematics
MA, Mathematics, Michigan Technological Univ, 1971
BS, Mathematics, Oakland University, 1967

Sievert, Nancy
Mgr/HRIS
MA, Theater, University of Connecticut, 1970
BA, English, Hartwick College, 1968

Sills, Catherine L.
Counselor
MS, Counseling, University of Oregon, 1970
BA, Psychology, University of San Francisco, 1968

Silverman, Michael C.
Instr/ENNL
MA, Tel Assoc Calif California Los Angeles, 1992
BS, Environmental Design, University of Massachusetts, 1982

Simmons, Forest W.
Instr/Mathematics
PhD, Mathematics, University of Texas, 1981
BS, Mathematics, Brigham Young University, 1977

Simon, Andrew H.
Instr/Philosophy
MA, Philosophy, University of Pittsburg, 1968
BA, Philosophy, City College of New York, 1967

Simonds, Stephen P.
Instr/Mathematics
MA, Mathematics, Portland State University, 1985
BS, Education: Math, Michigan State University, 1982

Simpson, Claire M.
Mgr/ Campus Operations

Silverly, William E.
Instr/English
MA, English, San Francisco State University, 1968
BA, English, San Francisco State University, 1967

Skaug, Linda S.
Instr/Tech Learning Skills
EDM, Education, Oregon State University, 1976
BA, Humanities Education, Oregon State University, 1975
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<th>Name</th>
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<td>Smith, Barbara J.</td>
<td>Instr/Radiologic Tech</td>
<td>BS, Environmental Studies, Oregon State University, 1974</td>
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<td>Smith, Gary C.</td>
<td>Instr/Dental Tech</td>
<td>AAS, Dental Programs, Orange Coast College, 1975</td>
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<td>Smith, Judith Read</td>
<td>Instr/Business Technology</td>
<td>EDM, Business Education, Oregon State University, 1980 BS, Business, Oregon State University, 1975</td>
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<td>Smith, Sharon L.</td>
<td>Reference Librarian</td>
<td>MA, Sociology, University of Kentucky, 1986 MA, Library Science, University of Kentucky, 1979 BA, Sociology, California State University, 1975</td>
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<td>Smith, William D.</td>
<td>Instr/Business Administration</td>
<td>MBA, Business Administration, Harvard University, 1974 BS, Business, California State University, 1971 AA, Science, Glendale Community College, 1969</td>
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<td>Smith Pincus, Gail C.</td>
<td>Development Specialist</td>
<td>BA, Spanish, Portland State University, 1973</td>
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<td>Snyder, Shirlee J.</td>
<td>Instr/Nursing</td>
<td>EdD, Curriculum &amp; Instruction, University of San Francisco, 1988 MSN, Nursing, University of Alabama, 1973 BSN, Nursing, University of Wisconsin, 1971</td>
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<td>Somers, John R.</td>
<td>Instr/Economics</td>
<td>MA, Economics, San Francisco State University, 1970 BA, Economics, Chico State College, 1969</td>
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<td>Somers, Kathleen P.</td>
<td>Instr/ABE/GED</td>
<td>BA, English, Univ of Calif Santa Barbara, 1970</td>
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<td>Sonnleitner, Michael W.</td>
<td>Instr/Political Science</td>
<td>PhD, Political Science, University of Minnesota, 1979 MA, Political Science, University of Minnesota 1975 AB, Political Science, Whitman College, 1971</td>
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<td>Soulatha, Sithanonsay</td>
<td>Coord/ Refugee/ ESL</td>
<td>MA, Fine Arts, University of Hawaii, 1977</td>
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<td>Sparks, John S.</td>
<td>Instr/ENNL</td>
<td>MA, Telos, Portland State University, 1988 BA, Literature, University of Oregon, 1977</td>
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<td>Spielman, Robert H.</td>
<td>Instr/Aviation Maint Technology</td>
<td>AAS, Vocational Teacher Education, Portland Community College, 1974 13 years of industry experience</td>
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<td>Spoolstra, Lu Ann I.</td>
<td>Instr/ABE/GED</td>
<td>BS, Special Education, St Cloud State University, 1976</td>
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<td>Stalder, Edward C.</td>
<td>Business Development Specialist</td>
<td>BS, Business Administration, Univ of California Berkeley, 1950</td>
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<tr>
<td>Staley, George</td>
<td>Instr/Composition &amp; Literature</td>
<td>MA, English, Ohio University, 1976 BA, English, South Connecticut State Coll, 1974</td>
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<td>Steele, G Paul</td>
<td>Business Development Specialist</td>
<td>BS, General Science, Iowa State University, 1961</td>
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<td>Stevens, Mary Lane</td>
<td>Instr/Developmental Education</td>
<td>MS, Education, Boston University, 1977 BA, English, Wellesley College, 1972</td>
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<td>St John, Michael C.</td>
<td>Instr/ABE/GED</td>
<td>MS, Education, Portland State University, 1975 BA, History, Portland State University, 1966</td>
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<td>Stocking, Joyce D.</td>
<td>Instr/Business Administration</td>
<td>MBA, Business, University of Nebraska, 1979 BS, Marketing, Oregon State University, 1972</td>
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<tr>
<td>Stokes, Julius F.</td>
<td>Instr/History &amp; Political Science</td>
<td>MST, History, Portland State University, 1970 BS, History, Alabama State University, 1959</td>
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<tr>
<td>Stromholt, Kitty M.</td>
<td>Instr/Psychology</td>
<td>MS, Psychology, Portland State University, 1976 BS, Psychology, Portland State University, 1974</td>
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<td>Stupp-Greer, Mary E.</td>
<td>Instr/Visual Arts</td>
<td>MFA, Visual Design, University of Oregon, 1986 BA, Painting, Portland State University, 1980</td>
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<tr>
<td>Sullivan, Cornelia A.</td>
<td>Instr/ABE/GED</td>
<td>MS, Special Education, Portland State University, 1976 BS, History, Portland State University, 1963</td>
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<tr>
<td>Swanson, Barbara J.</td>
<td>Dir/ Learning Resources</td>
<td>PhD, Education, University of Nebraska, 1979 MA, Library Science, University of Denver, 1970 BA, English, Rockford College, 1962</td>
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<td>Talbert, Michael W.</td>
<td>Instr/Computer Info Systems</td>
<td>BA, Education, Arizona State University, 1969 Seven years of industry experience</td>
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<td>Tanbeck, Beebee</td>
<td>Instr/Composition &amp; Literature</td>
<td>MA, English, University of Washington, 1984 BA, Hollins College, 1977</td>
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<td>Taylor, Judy Y.</td>
<td>Instr/Food and Nutrition</td>
<td>MS, Home Economics, University of Idaho, 1978 BS, Home Economics, University of Idaho, 1974</td>
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Thomas, Wallace W.
Instr/Manufacturing Technology
AAS, Vocational Teacher Education, Portland Community College, 1986
AAS, Business Management, Portland Community College, 1976
12 years of industry experience

Thompson, Howard W.
System Analyst
MLS, Library Science, University of Oregon, 1978
BA, English, College of Idaho, 1974

Tobin, Arthur S.
Instr/Electronic Engr
BS, Electrical Engineering, University of Colorado, 1977
BS, Electronic Engineering Tech, Metro State College, 1975
BS, Psychology, Ohio University, 1968

Tomkins, Kristi J.
Instr/Foreign Language
MA, German, University of Oregon, 1987
BA, English, Portland State University, 1982
TCRT, German, Portland State University, 1982

Transue, Pamela J.
Executive Dean/Rock Creek Campus
PhD, English, Ohio State University, 1976
MA, English, Ohio State University, 1976
5 years of teaching experience

Traweek, David E.
Supv/PE Facilities/Hallmarks
PhD, Interdisciplinary Studies, Ohio University, 1977
MS, Outdoor Recreation, Utah State University, 1976
BS, Forestry, University of Idaho, 1968

Trueblood, Joanne
Dir/ New Directions/Child Ctr
MBA, Business Administration, University of Portland, 1991
BS, General Studies, Portland State University, 1985
AA, Business Administration Clackamas Community College, 1982

Truman, Glen F.
Instr/Drafting
BS, Industrial Arts Education, Oregon State University, 1974

Tsongas, Dawn P.
Counselor
MA, Psychology, University of Wisconsin, 1981
BA, Psychology, St Olaf College, 1977

Van Amerongen, Barbara J.
Instr/Computer Info Systems
MA, Computer Science, Ball State University, 1975
BS, Chemistry, State University of New York, 1972
AS, Science, Gulf Coast Junior College, 1969

Van Amerongen, Richard J.
Instr/Computer
MA, Mathematics, Ball State University, 1974
BS, Mathematics, State University of New York, 1967
AAS, Science, Hudson Valley Community Coll, 1965

Van Dyke, James A.
Vice Pres for Ed Services
MS, Mathematics, Oregon State University, 1964
BS, Chemistry, Pacific University, 1957

Van Orman, Ann L.
Coord/ Community Education
BS, Human Services, University of Oregon, 1985

Van Waardenburg, Ingrid T.
Instr/ENNL
MA, Anthropology, Portland State University, 1974
BA, English, Portland State University, 1972

Van Zomeren, Richard K.
Mgr/Traffic/Parking Operations

Vaternick, George P.
Instr/History & Psychology
MA, History, Colorado State University, 1963
BA, Psychology, Adams State College, 1961

Vershun, Eugene A.
Instr/Computer Info Systems
MA, Mathematics, University of Illinois, 1971
AB, Mathematics, Univ California Berkeley, 1970

Vogel, Therese C.
Instr/Nursing
MS, Nursing, Portland State University, 1976
BSN, Nursing, University of Virginia, 1974

Von Tagen, Karl E.
Instr/Physical Education
MEd, Physical Education, University of Idaho, 1970
BSED, Physical Education, University of Idaho, 1966

Voith, Judith M.
Instr/ABE/GED
MS, Education, Portland State University, 1991
BA, Sociology, Willamette University, 1973

Yu, Trinh T.
Community Resource Specialist
BS, Family Resource Management, Oregon State University, 1984
AA, Early Childhood Education, Chemeketa Community College, 1981

Yu, Tuan Q.
System Analyst
AAS, Computer Programming, Portland Community College, 1984

Wagner, Terri E.
Instr/Physical Education
MEd, Physical Education, Azusa Pacific College, 1987
AB, Speech, University of California, 1970

Waide, Karen S.
Instr/Dental Assistant
CFDA, Dental Assistant, Oregon Board of Dentistry, 1986
AAS, Dental Assistant, Portland Community College, 1977
CDA, Dental Assistant, Univ of Oregon Dental School, 1962

Wald, Roberta G.
Instr/Biology
MS, Biology, Portland State University, 1974
BS, Biology, Portland State University, 1971

Wallvogel, Joan C.
Instr/Dev Ed/Math
MS, Education, Portland State University, 1978
BS, Education, University of Toledo, 1968

Walters, Marc H.
Instr/Biology
MD, University of Washington, 1983
BS, Biology, University of Washington, 1979

Warb, Jacqueline F.
Advisor/Program Specialist
AB, Social Welfare, Central State University, 1961

Warner, Ruth M.
Instr/English
MA, English Literature, San Francisco State University, 1968
BA, English & History, University of Washington, 1964

Warren, Regena S.
Supv/Job Center
BA, Sociology, Whitman College, 1976
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<th>Name</th>
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<td>Warwick, Linda D.</td>
<td>Instr/English</td>
<td>MA, English Literature, University of Utah, 1965</td>
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<td>BA, English, University of Utah, 1961</td>
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<td>Wayer, Doreen J.</td>
<td>Supv/ Registration Processing</td>
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<td>Wease, Jean L.</td>
<td>Coord/Mkt&amp;Curric Devl/CEHCP</td>
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<td>BA, Communications, Marylhurst College, 1988</td>
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<td>Webb, Hugh H.</td>
<td>Instr/Visual Arts</td>
<td>MFA, Painting, University of Oregon, 1969</td>
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<td>BFA, Art, University of Utah, 1967</td>
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<td>Wendel-Webb, Mary L.</td>
<td>Division Dean/Mgmt &amp; Prof Dev</td>
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<td>Weeks, Kenneth R.</td>
<td>Instr/Visual Arts</td>
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<td>MA, Art History, University of Oregon, 1970</td>
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<td>BA, Literature, University of Oregon, 1965</td>
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<td>Weeks, Virginia W.</td>
<td>Instr/Mathematics</td>
<td>MAT, Mathematics, Reed College, 1965</td>
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<td>BS, Mathematics, Portland State University, 1957</td>
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<td>Welch, Hilda</td>
<td>Instr/Home Ec/Early Child Educ</td>
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<td>MS, Human Development, Pacific Oaks College, 1975</td>
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<td>BA, Psychology, Univ California Berkeley, 1960</td>
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<td>Welch, Sylvia E.</td>
<td>Coordinator/Tutor Services</td>
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<td>BS, Interpersonal Communication, Ohio University, 1974</td>
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<td>Werbel, Wayne S.</td>
<td>Dir' Workplace Literacy Prgm</td>
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<td>MA, Communications, University of Utah, 1978</td>
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<td>Werkman, Doris L.</td>
<td>Instr/Speech</td>
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<td>MS, Speech Communication, Portland State University, 1986</td>
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<td>BS, Speech Communication, Portland State University, 1982</td>
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<td>Whicher, Franklin S.</td>
<td>Reference Librarian</td>
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<td>MS, Library Science, University of Illinois, 1961</td>
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<td>BA, History, University of Illinois, 1955</td>
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<td>White, Steven M.</td>
<td>Instr/Auto-Body Repair</td>
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<td>Seven years of industry experience</td>
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<td>Whitlock, Willard P.</td>
<td>Business Development Specialist</td>
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<td>MA, Education, University of Rhode Island, 1973</td>
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<td>BA, Philosophy, Rutgers University, 1966</td>
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<td>Whitney, Eugene P.</td>
<td>Instr/English</td>
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<td>MFA, Creative Writing, University of Oregon, 1969</td>
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<td>BA, English, University of Oregon, 1961</td>
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<td>Whitney, Patricia M.</td>
<td>Instr/English &amp; Foreign Lang</td>
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<td>MA, French, University of Oregon, 1963</td>
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<td>BA, French, Willamette University, 1960</td>
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<td>DEC, French, University of Paris, 1959</td>
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<td>Wiegner, Betty L.</td>
<td>Financial Aid Spec/Loan Coord</td>
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<td>BS, Business, Carroll College, 1975</td>
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<td>Wihr, William S.</td>
<td>Instr/Anthropology</td>
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<td>PhD, Anthropology, Univ of California Berkeley, 1989</td>
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<td>AB, Anthropology, Univ of California Berkeley, 1970</td>
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<td>Wilcox, William F.</td>
<td>Instr/Music</td>
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<td>MM, Music/Drama, University of Kansas, 1955</td>
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<td>BM, Music, University of Kansas, 1950</td>
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<td>Williams, Cal R.</td>
<td>Coord/ Emergency Med Tech Prg</td>
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<td>MS, Education, Portland State University, 1982</td>
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<td>BS, Home Economics Education, Alcorn State University, 1973</td>
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<td>Williams, Karen A.</td>
<td>Community Resource Specialist</td>
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<td>BA, Mgmt of Human Resources, George Fox College, 1991</td>
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<td>Williams, Myrna Y.</td>
<td>Reference Librarian</td>
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<td>MLS, Library Science, University of Oregon, 1974</td>
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<td>BA, English, University of Portland, 1968</td>
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<td>Williams, Susan L.</td>
<td>Instr/Health Records Prgs</td>
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<td>CERT, Medical Record Admin, Seattle University, 1975</td>
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<td>BS, Physical Therapy, University of Montana, 1974</td>
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<td>Williamson, Sharon R.</td>
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<td>Wills, Penelope H.</td>
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<td>Instr/Physical Science</td>
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<td>MA, Physics, State College of Iowa, 1966</td>
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<td>Wilson, Gregory K.</td>
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<td>BA, Political Science, University of Portland, 1990</td>
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Wright, Joseph B.
Instr/Management/Supervisory
MA, History, Portland State University, 1973
BA, History, University of Portland, 1968
MBA, Business Administration, City University, 1990

Wyckoff-Byers, Julie K.
Dir/ Steps to Success Program
BA, French, Lewis & Clark College, 1970
DIP, French, Université D'Aix-Marseille, 1970

Yaeger, Paula W.
Instr/ENNL & Foreign Lang
MA, Teaching English, University of Oregon, 1973
BA, Humanities Education, Oregon State University, 1970

Yamaguchi, Takako M.
Instr/Foreign Language
MS, Education, Oregon College of Education, 1983
BS, Elementary Education, Oregon College of Education, 1978

Yanamura, Wayne K.
Instr/Chemistry
MS, Biochemistry, University of Oregon, 1988
BA, Chemistry, Macalester College, 1984

Youngflesh, Amy E.
Job Developer/Placement Specialist
BA, History, Evergreen State College, 1988

Zakharchouk, Bernadette
Financial Aid Specialist I
BA, Russian, Evergreen State College, 1992

Zeremariam, Solomon
Instr/Aviation Maint Tech

Zimmerdahl, Mark H.
Instr/Medical Lab Tech
BS, Science, Portland State University, 1986
AAS, Medical Lab Tech, Portland Community College, 1979

Zimmerman, Judy A.
Instr/Psychology
MA, Psychology, Univ of California Riverside, 1989
BA, Psychology, California State Fullerton, 1984

Zunkel, Jane
Instr/English & ENNL
MA, English, Univ of California Riverside, 1992
BA, English, Univ of Calif Santa Barbara, 1990
L

Course Number Changes

Fall Term 1994 -

COURSE NUMBER
CHANGES
The following table lists PCC course numbers that have changed
With the publication of this 1994-1995 Catalog. If you started
work toward a degree or certificate using a previous PCC Catalog, this list will help you plan your course selections.
Old Coune Number .....•.....••.••

New Coune Number

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023CXX> Intra Auto Colhson Repair
3109AC Panel Repair I
3109AD Panel Repair II.
31 1 100 Panel Replacement
31 1200 Estmatmg
31/100 Frame Analys,s & Repair
31 1900 General Shop.
31 211AB Ab Basic Siolis II
3124AA Ab Base Siolis I
....
313000 Auto Body T echmcal Siolk .
3131 AS Auto PaInting ta.
3131 AC Auto Pamtmg Ib
3132AB Auto Palntmg 113
3132AC Auto Pamtmg lib.
3133AB Auto Pamtlng ilia
31l3AC Auto p.,nMg Ilib.
313500 Complete ColliSIon RepaIr.
3280AA CE Auto Body Rep.,r
3280AB CE Auto Body Rep-Sem
3280AC CE Auto Body p.,nt

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9130 Akohol and Drug Special Studies
9280AA Praetlcum Alcohol and Drug Counseling
9280AB Practlcum Akoholl Drug Counseling ....
9401 Alcohol. Use. M'suse and AddictIOn
9404 Theones of Counseling
9408 FamltyWork Intervention
9410 Df'\)gs:Use. MISUseand AddICtion
9412 Women, Alcohol and Drugs
9415 Techntqtles In Akoholism Counseling
941 5 TechnIques In A1coholi!>mCounseling
941 5AA BaSI(Counseling Skills Mastery
941 5AA BaSKCounseling Skills Mastery.
9417 Alcohol,so) Group Counseling
9417 AlcohollYn Group Counseling
9420 Advanced Group CounselJng
9423 Case Management and Alcohollyn/Drug
9426 Ca<;eManagement and Alcoholism/Drug .....
9429 Advanced Counsehng of Akohol and Drug
9429AA Advanced. Counseling Skills Mastery ...
9431 Ethical and ProfesSlonallssues
9432 MUltIcultural Counseling

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3212 Intro Re"d Plans
3233 Enw Control Syst
3243 Budding Codes
3252 Residential Design
3280A I Coop Ed ADT
3280A3 Coop Ed ADT
33 II 5rte Plan,
3321 Structural Drah'ng
3333 Stf'\)ctural Sy!>tems
3344 Commemal
3352 Intro Lt Comm Plan!>
3421 ResidentIal Plans
3443 Estimating
3521 Commercial Plans
3561 Speclf'ieattons./Contr
3621 Project Plans
9200 Intro Bluepnnt Read
9210 Advanced B1uepr Read
9111 Project Drah'ng I..
9421 Project Drah'ng II
9431 Project Drah,ng III
9S00 Bu"d,ng Codes 1
95 I0 Bu"d,ng Codes I
9520 Bu"d,ng Codes 111
9S50 I & 2 Fam Struct Code
9560 I & 2 Fam Mech Code
9570 I & 2 Fam flect Code
9580 I & 2 Fam Plumb Code.

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105 AddICtion: SpeCIalStudIes
280A Prac Addiction Counseling
2808 Prac Addiction Counseling Seminar
101 Alcohol Use and AddIctIon
153 Theones of Counseling
201 Families and Addiction
102 Drug Use and AddICtion
103 Women and Addiction
I SO BaSKCounseling and AddICtion
ISO BaSICCounseling and AddlCtJOn
151 BaSI(Counseling Skills Mastery
151 BaSICCounseling Skll!s Mastery
152 Group Counseling and AddletJon
152 Group Counseling and AddICtion
252 Advanced Group Counsehng
154 Case Management and AddictIOn
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250 Advanced Counseling and AddictIOn
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340IOOUnrt I. Engine Repair I
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340200 Un" 2 Eleetncal Systems I
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340400 Unil. 1 Engine Performance I - DiagnostIC AM
340400 Unit 4 Steenng and Suspen<;lonSystems I .AM
340500 Unrt 5 Brake Systems I
AM
)4Q6(X) Unrt 6 Heatmg and AIr CondrtJorHng 5ys .._ AM
340700 Unrt 7 Manual Orne T ra,n and Axles
AM
340800 Unrt 8 Intra to AutomotNe S~ems I
. AM
310900 Unrt 9 Fuel Systems I
AM

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23 Intro Auto Collision Repair
103 Panel Repair I
101 Panel Repair II
20 I Panel Replacement
121 Estenatmg
lOS Frame Analys" & Rep."
201 General Shop
102 Ab Bas" 5Iolls II
101 Ab Bas" Skills I
202 Auto Body T echmcal Skills
110 Auto Painting la
I I I Auto p.,n"ng Ib
112 Auto Painting lla
113 Auto p.,nt,ng lib
114 Auto P~lIntlng111.01
115 Auto p.,nMg IIIb
203 Complete COllISionRepair
280A CE Auto Body Repa"
280B CE Auto Body Rep.,r . Sem
280C CE Auto Body Pmt

III Work,ng DraW'ngs I
131 Envir Control Sys
132 Building Codes
101 ArcMectural
Graph"s
I
280A Coop Ed ADT
280C Coop Ed. ADT
113 Work,ng Draw,ngs 3
121 Structural System, I
122 Structurattems Systems 2
102 An:hrtectural Graph,,, 2
112 Won(1ng DraWings 2
203 Des,&n Stud'o 3
232 Est,maMg
202 De,,&n Stu"o 2
231 5pec,f,caoons
201 Des,&n Stud'o I
161 Bluepnnt Readlng.Res!d
162 Bluepnnt Readlng-Comm
191 Spec,.1 Projects I
192 Speoal Projeeu 2
193 Spec,.1 Projects 3
2S1 Un,form Budd'ng Codes I
2S2 Un,form Budd'ng Codes 2
2S3 Un,form Bu,ld'ng Codes 3 f
lSI 1& 2 Fam Slt\Jet CCKIe
IS2 I & 2 Fam Mech Code
IS3 I & 2 Fam Elect Code
IS4 1& 2 Fam Plumb Code

101 I: Engine Repa.r I
102 2 Eleetncal Systems I
103 3: Engine Perform I
104 4: Steenng & SuspenSIon5ys I
lOS S Brake Systems I
106 6: Heat & AJr CondrtJorling Sys
107 7 Manual Dnve T ra,n & Axles
108 8 Intro to Automotrve S)"i
109 9: Fuel Systems I

Summer Term 1995

Old Course Number •..•.••••.••.•••

New Coune Number

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341900
312200
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342500
H27AA
313300
3437AA
311100

Unit 12, Eleetncal II . . .. . . .. . ... .
Unit 13: Emission Control Systems.
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Unit 11, Steenng and Suspension Syst... ..
Unrt IS, Brake Systems II ........
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Unit 17, Manual Dnve Train and Axles ..
Unit 19, Fuel Systems II..
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Unit n Eng,ne Periormance
II - Dag.,
Unrt 21: Steenng and Suspens",n Syst _
Unrt 2S, Brake Systems III
Unit 27: Automat"
Transmissionl
Unit 3J Eng,ne Performance
III -Dag, .
Unrt 37: Automat"
TransmrssiorvTrans
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Unrt 11: D'agnos" and Repair I .
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AP 310 I BB Introduction to a & P..
AP 320200 Bas" Electncoty . . . . . . . . .
AP 320100 FAR & Related Subjects
AP 320500 A & P App"ed Math
AP 320900 Assembly & R'gg,ng .
AP 321 100 Bonded ~rcraft Structures
AP 321200 Sheet Metal.
AP 321 500 Airrraft Struc & loscecncn
AP 321700 Engne Theory.
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AP 32 I 8AA Eng,ne lnstallancn & InspeClKx1. .
AP 322000 Propeller>..
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AP 3221 BB Turbine Eng,ne Theory and Namtenance
AP 322300 IgnltK>n Systems . . . . . .
AP 322100 Fuel Metenng Systems.
AP 3303AA A & P Electricoty I
AP 3307 AA ~n:rah Systems. .
..
AP 331300 Hydrau"c Systems & Land'ng Gear
AP 3311AA InstrlJment CommunICations & Nav
AP 3319AA Turb<ne Eng,ne Overhaul...
AP 3322BB Rec'Pro"atK)n Eng,ne Overhaul
AP 340300 A & P Eleetneoty II.
AP 34 16AA Amt Pract"uml ~nrame
AP 312SAA Amt PractKUmiPowerv/ant
AP 352600 A & P Se~StudyfTutonai.
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AP 352700 A & P Makeup.
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AP 352800 A & P Shop PraCllce.
AP 3S2900 Rotary W,ng M.,ntenance.
AP3206AA Matenal & Processes

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210300 Introduction to Intematlonal Buslnes'SLaw.
221500 IntroductK)n to Buy,ng.
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226500 Introduction to Escrow
22660 Escrow Procedures.
226700 Escrow Problems
232700 Advanced Sales.
299000 Accoun"ng
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310 IAA Build'ng Construct'oniContract,ng
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310200 Intro to Archrtectural Deta,ls
3102AA B1uepnnt Read'ng for Bu,ld'ng Const ..
31 05AB Advanced Bluepnnt Read'ng .
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31 06AA Srte Layout
....
3107AA Roor Fram'ng
310800 Wall Fram'ng .
3109AA RoorFram'ng
I
31 O9BB Roof Fram'ng II.
. ..
311000 Extenor Fin'sh.
311100 Intenor Fin"h
31 1200 Concrete Construct,on
.
31 13AA Remodeling.
31 13AD Advanced Cab,netry
31 1800 Cabinetry
. . . . ..
3118BE Beg,nn,ng Cabinetry.
..
31181N Intermed,.te
Cabinetry.
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.
312000 Construct,on
Codes and Est'mat,ng .
312100 Contracts Spec,ficaMns
and Const ... . .
312SAA Hand T ooVPower Tool Use and Safety
312600 Matenals of Constr\Jetlon
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312900 Bas", Trades Bu,ld"" Math. ..
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313500 Bu'Id'ng Codes for One and T we Fam ...
31 3600 Introduet",n
to Un,form Bu,ld'ng.
320lAA In~ct",n
to App"ed Construct,on
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320200 Introduet'on
to ElectncaVMechan"al_.
320100 T argeMg Occupat",ns
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320500 Commen: .. 1COnKrete ConstruCMn.
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320700 Commeroallntenor Finish.
321000 Introduet,on to Apphed Construct,on
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321100 Introduet"'n
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322200 Contemporary
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SA 210100 Introduction to Accounting.
BA 210 I 00 Introduct.on to Accounting.
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I 12 12, Electrical II
I 13 13, Emission Control Systems
111 11, Steering & Susp S)'5 II
I ISIS, Brake Systems II
117 17:Manual Drive Trm & Axle
I 19 19, Fuel Systems II
122
Electrical III
123 n Engn Periorm II-DiaWReJ:>r
121 21, Steering & Susp S)'5111
125 25, Brake Systems III
12727, Auto TransfTransaxie
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137 37: Auto TransfTransaxfe
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Introduction

to A&P

Bas" Electricity
Fars & Related Subjects
A&P Applied Math
Assembly & RIgging
Bonded Structures
Sheet Metal
Aircraft 5truc & Inspection
Recipr Engine Theory & Maint
Powerplant Inspection
Propeller> and Engine Installation
Turbine Engne Theory & Maint
Ignition Systems
Fuel Metering Systems
A&P Electnclty 1
A'n:raft Systems
Hydrau"c S)'5 & ~ing
Gear
Instrument, Comm & Nav Sys
Turb<ne Eng",. Overhaul
ReciprocatJng En&",e Ovemaul
A&P EI",""coty II
Amt Pract",,",,~rframe
Amt PraeticumlPowerplant
A&P Se~StudyfTuto<ial
A&P Makeup
Amt Shop Practice
Rotary Wing M.,ntenance
Materials & Processes

BA 102 Introduetl()(l to Accountng
BA 102 Introduction to Accounting
BA 141 Intro to International Bus law
SA 111lntroductK)n
to Buy>ng
BA 257 IntroductIOn to Escrow
SA 2S8 Esc"", Procedures
SA 2S9 Escrow Problems
BA 217 Advanced Sales
SA 216 Accounting Problems

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100 Bldg ConstructioniContracting
101 Intro to Res,dent,.1 ConstNction
102 B1upmt Read'ng for Bldg Const
213 Advanced B1uepnnt Read'ng
126 Site la)oot
120 Floor Framng
121 Wall Fram,ng
122 Roof Framing I
123 Roof Fram'ng II
12B Extenor Finish
203 Intenor F"oh
/27 Concrete Construct,on
21 I Rennodel'ng
218 AdvanKed Cabinetry
20S Cabinetry
216 Beg,nnmg CaJbnetry
217 Intermed,.te
Cabinetry
201 ConstruClJon Codes & Est
106 Hand T ooVl'ower Tool Use & Saf
103 Matenals of ConwuetJon
101 BasK Trades Bu,lders Math
lOS Bldg Codes for 1 & 2 Fam,1y Resi _
215 Intro to Un,form Bldg Codes
107 Intro to Applied Const I
100lntro to Eleo'Med1 Trades 1
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20B Commen:'"
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207 Commercial ,,",tenor Finish
lOB Intro to Applied Const II
110 Intro EleclMech Trade: II
113 Contemporary
Workslte Issues

201 B Bwp, WordPenect·DOS
215 DIp Wp Sftwr, WordIDOS
I I I Stenography I
I 18 Bnelhand
I 18 Brelhand
215 Off"e Procedures
121 Beg Keyboard"'g
122 Int Keyboarding


Course Number Changes

Fall Term 1994 — Summer Term 1995

Old Course Number New Course Number
BT 121F Advanced Keyboarding... BT 121G Keyboarding for Speed and Accuracy
BT 133A Introduction to General... BT 133B Introduction to General
BT 1320 Object Oriented... BT 1320 Object Oriented
BT 120F Beginning Wordperfect On IBM BT 120F Beginning Wordperfect On IBM
BT 122F Beginning PageMaker On IBM BT 122F Beginning PageMaker On IBM
BT 123F Beginning Microstation... BT 123F Beginning Microstation...
<table>
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<tr>
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<tr>
<td>DRF612000 Technical Freehand Sketching</td>
<td>DRF812000 Technical Freehand Sketching</td>
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<td>DRF615600 Introduction to Drafting</td>
<td>DRF815600 Introduction to Technical Drafting</td>
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<td>DRF613200 Desktop Publishing II PageMaker On IBM</td>
<td>DRF813200 Desktop Publishing II PageMaker On IBM</td>
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<td>DRF613900 Introduction to Machine Manufacturing</td>
<td>DRF813900 Introduction to Machine Manufacturing</td>
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<td>DRF619500 Introduction to AutoCAD</td>
<td>DRF819500 Introduction to AutoCAD</td>
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<td>DRF6156A Introduction to CADKEY 3-D</td>
<td>DRF8156A Introduction to CADKEY 3-D</td>
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<td>DRF816100 Intermediate CADKEY 3-D</td>
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The Open Campus is an important part of PCC's commitment to carrying education beyond the bounds of the traditional campus.

Courses are offered seven days a week at about 200 locations throughout our five-county district, and the campus offers worksite training tailored to the needs of business, industry, and government agencies.

The most visible parts of the Open Campus are the Ross Island Center and the Southeast Center, as well as Community Education offices in Forest Grove, Newberg, and St. Helens. The campus also operates the Small Business Development Center in Portland.